



ISSN 2446-5321

Archives of
Endocrinology and Metabolism

OFFICIAL JOURNAL OF THE BRAZILIAN SOCIETY OF ENDOCRINOLOGY AND METABOLISM

Vol. 65 – Supplement 04 – November – 2021

e·DIABETES 2021

XXIII CONGRESSO DA SOCIEDADE BRASILEIRA DE DIABETES



Sociedade Brasileira de
Endocrinologia e Metabologia

Archives of Endocrinology and Metabolism

OFFICIAL JOURNAL OF THE BRAZILIAN SOCIETY OF ENDOCRINOLOGY AND METABOLISM

Editorial assistant: Roselaine Monteiro

roselaine@endocrino.org.br

Rua Botucatu, 572 – conjunto 83 – 04023-062 – São Paulo, SP

Telefax: (11) 5575-0311 / 5082-4788

Online submission / Electronic publishing

www.aem-sbem.com • www.scielo.br/abem



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editores

Rua Anseriz, 2, Campo Belo

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www.segmentofarma.com.br • segmentofarma@segmentofarma.com.br

Publication code: 25298.11.21

Indexed in Biological Abstracts, Index Medicus, Latindex, Lilacs, MedLine, PubMed, SciELO, Scopus, ISI-Web of Science

BRAZILIAN ARCHIVES OF ENDOCRINOLOGY AND METABOLISM

Brazilian Society of Endocrinology and Metabolism – São Paulo, SP:

Brazilian Society of Endocrinology and Metabolism, volume , 1955-

Six issues/year

Continued from: Brazilian Archives of Endocrinology (v. 1-4), 1951-1955

ISSN 2359-4292 (online issues)

1. Endocrinology – journals 2. Metabolism – journals

I. Brazilian Society of Endocrinology and Metabolism II. Brazilian Medical Association

CDU 612.43 Endocrinology

CDU 612.015.3 Metabolism

Archives of Endocrinology and Metabolism

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USE OF GLUCOSE-LOWERING AGENTS ACCORDING TO CARDIOVASCULAR RISK FACTORS IN PEOPLE WITH T2D AND WITH OR WITHOUT CVD IN THE CAPTURE STUDY

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e·DIABETES2021

XXIII CONGRESSO DA SOCIEDADE BRASILEIRA DE DIABETES

**PÔSTER ELETRÔNICO
(E-PÔSTER)**

106759

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

"DIABETES MELLITUS ONLINE TRAINING COURSE": AN EXPERIENCE REPORTLeonardo Scandolara Junior¹, Bianca Carvalho Freire Pimentel¹¹ Universidade Federal do Triângulo Mineiro

Introduction: Diabetes mellitus (DM) is a disease related to glucose metabolism deficiency and has become a serious public health problem due to its high prevalence and chronic nature. Individuals with DM who do not adopt adequate therapeutic measures can be affected by the appearance of acute and chronic complications. In this sense, the work of trained health professionals is essential to the adequate therapeutic management and education of these patients. **Objectives:** Report the experience of the "DM training course for students and health professionals" delivery. Which has been conducted by the UFTM Endocrinology division and the extension group "Liga Acadêmica de Diabetes Mellitus da UFTM" (LADM). **Methods:** The course had, as its target audience, students and health professionals, although it was also open to the community interested in the subject. The disclosure was made through social networks (Instagram and Facebook) and registration was free by filling out the Google Forms. The course was divided into 14 themes, with 12 weekly classes, which were streamed live, and made available, through the LADM's YouTube channel. Participants questions were sent during the live classes by Google Forms. Certificates were issued only by filling in 75% of attendance in live classes, where each class was shown a key word for a reliable accounting of attendance. **Results:** 11,368 entries were made. Together, the classes had a total of 86,296 views, with an average of 7,191 views per class. The number of views per class ranged from 3,682 to 19,444 views having a decrease over the first 11 weeks and an increase in the last week. An average of 31.82 messages were sent in the question form for each class. Certificates were issued in accordance with the attendance requirements for 2112 participants. **Conclusion:** The pandemic harmed the training of health professionals in our country. Despite this, the use of technologies allows reaching a large number of professionals and students, thus minimizing the damage caused by the pandemic in their professional development and contributing to their training. We believe that it is important for competent institutions to bring quality knowledge and carry out projects that take advantage of the reach of the internet in order to train those responsible for managing diabetic patients. **Keywords:** Education; training; diabetes mellitus.

106795

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

"NOVELINHA DO GAMELLITO" – AN INTERACTIVE AUDIOVISUAL PRODUCTION FOR CHILDREN SUFFERING FROM TYPE 1 DIABETES AT THE BEGINNING OF THE COVID-19 PANDEMICVania Vargas¹, Ana Beatriz Fereda¹¹ Hospital Universitário da Universidade Estadual de Londrina

Introduction: The COVID-19 pandemic has brought restrictions on social contact which have made it difficult to engage in physical activities, access to medical appointments and supplies for managing type 1 diabetes. The interruption of school activities and increased stress levels could have some impact on the control of type 1 diabetes (DM1) in children. As a strategy to mitigate this risk, an online activity in the form of an interactive audiovisual production called "Novelinha do Gamellito" was developed. **Objective:** The study aimed to evaluate, according to the parents' perception, the effects of the activity "Novelinha do Gamellito", developed with children suffering from DM1, in relation to social isolation, stress reduction, and Diabetes care. **Methods:** "Novelinha do Gamellito" involved 272 people in an interactive production between 24 volunteers (professionals and students from the areas of journalism, psychology, cinema, theater, architecture, and design) responsible for the creation, organization, and production of the material, and 124 children who sent their drawings with the help of their parents (124 adults). In 72.6% of the participating children, the age was between 3 and 12 years old, coming from 75 cities in Brazil, Spain, Guatemala, Venezuela, Argentina, Chile, Uruguay, and Mexico. The children declared interest in participating in the activity after the project was publicized in Gamellito's social networks. Twelve episodes were developed in Portuguese and two in Spanish. The project was carried out in a period of 4 months, and at the end, an online questionnaire was sent to the children's guardians to assess the effects perceived by them about the activity. **Results:** Regarding "Novelinha do Gamellito", it was considered in the parents' perception that: 91.66% of the children, the activity contributed to reduce stress; in 79.16%, it was a useful activity to assist in confronting social isolation, in 95.83% to have been important for the promotion of diabetes care, and 100% that the content contributed in a playful way to learning about diabetes mellitus 1. **Conclusion:** According to the parents' evaluation, it is considered that the "Novelinha do Gamellito" activity provided entertainment, contributed to mitigate stress and favored social isolation, reinforcing the need to offer playful and interactive activities to assist in care and education about DM1, in a moment of great adversity as it was the beginning of the COVID-19 pandemic. **Keywords:** Type 1 diabetes; diabetes education; COVID-19.

106803

AÇÃO DE INSULINA E METABOLISMO MOLECULAR E CELULAR

A HIGHER PROPORTION OF AMERINDIAN GENETIC ANCESTRY IS ASSOCIATED WITH HIGHER GLYCATED HEMOGLOBIN VALUES IN THE ELDERLIESDiego Rocha Cardoso¹, Filipe Lírio Malta¹, Gabriel Novaes Miranda¹, Jamille Silva Oliveira¹, Ana Angélica Leal Barbosa¹, Cezar Augusto Casotti¹, Rafael Pereira¹¹ Universidade Estadual do Sudoeste da Bahia (UESB), Jequié, BA, Brasil

Introduction: Genetic ancestry has been widely investigated in the context of identifying people with a greater propensity to develop cardiometabolic disorders, which is related to the success/failure in adaptations that develop throughout human history as a result of migration and changes in life habits (e.g., food). **Objective:** In this context, we aimed to evaluate the relationship between the degree of genetic ancestry (European, African and Amerindian) with glycated hemoglobin (HbA1c) values above 6.5% in community-dwelling elderly. **Methods:** One hundred fifty-seven elderly residents in the community were volunteers, and socio-demographic data and health history were collected, in addition to 10 mL of venous blood for evaluation of biochemical parameters and DNA extraction for analysis of genetic ancestry, evaluated by 12 loci to calculate ancestry estimates (Amerindian [EAS], European [EUR] and African [AFR]). The elderly were stratified according to the cut-off value of HbA1c of 6.5%. The degree (i.e., percentage) of genetic ancestry was compared between elderly people with and without HbA1c values above 6.5%. Comparisons were performed with a mixed linear model, with the HbA1c value below or above the cutoff as a fixed factor, and the percentage of total caloric intake in the form of carbohydrates, the use of sulphonylureas and insulin as random factors. The level of significance was set at $p < 0.05$. **Results:** The prevalence of HbA1c above 6.5% in the population studied was 22.2%. There was no significant difference in the degree of genetic ancestry EUR (mean difference = -9.0% [-19.7 to 1.6%]) and AFR (mean difference = 0.7% [-11.0 to 11.1%]) between the elderly with and without HbA1c high ($p > 0.05$). However, the percentage of EAS ancestry was statistically higher among the elderly with high HbA1c (mean difference = 9.2% [0.8 to 17.7%]) ($p < 0.05$). **Conclusion:** A higher percentage of Amerindian ancestry was associated with HbA1c above 6.5% in community-dwelling elderly. **Keywords:** Glycated hemoglobin; elderly; genetic ancestry.

104978

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

A MODEL-BASED EVALUATION OF GLYCEMIC AND WEIGHT CHANGES WHEN SWITCHING FROM SEMAGLUTIDE TO ADDITIONAL DOSES OF DULAGLUTIDELai S. Tham¹, Kevin M. Pantalone², Kathleen Dungan³, Kashif Munir⁴, Cheng C. Tang¹, Manige Konig⁵, Anita Kwan⁵¹ Lilly Centre for Clinical Pharmacology, Singapore. ² Cleveland Clinic, Cleveland, OH, USA. ³ The Ohio State University, Columbus, OH, USA. ⁴ University of Maryland School of Medicine, Baltimore, MD, USA. ⁵ Eli Lilly and Company, Indianapolis, IN, USA

Introduction: Dulaglutide 3.0 and 4.5 mg subcutaneous (SC) once weekly (QW) doses are approved in USA for glycemic control in patients with type 2 diabetes (T2D). **Objective:** Using pharmacokinetic/pharmacodynamic models built from and validated with published data from SUSTAIN 1 to 10 trials for SC semaglutide and patient-level data from AWARD-11 for dulaglutide, simulations were used to predict the glycated hemoglobin (A1c) and bodyweight effects of switching from semaglutide 0.5 mg or 1.0 mg QW to 3.0 mg or 4.5 mg dulaglutide. **Methods:** Simulations of 100 trials with 100 virtual patients with T2D per scenario were generated by a sampling with replacement method from the AWARD-11 study dataset, which compared 3.0 and 4.5 mg dulaglutide doses to 1.5 mg as an add-on to metformin in 1842 patients with T2D with a mean baseline age of 57 years, weight of 96 kg and A1c of 8.6%. In the simulations, semaglutide was initiated at 0.25 mg for 4 weeks per approved label, and 52-week time-course predictions were conducted for changes from baseline (CFB) in mean A1c and body weight for semaglutide 0.5 mg QW or 1.0 mg QW for 26 weeks, followed by a switch to dulaglutide 0.75 mg QW or 1.5 mg QW and dose-escalated every 4 weeks to 3.0 mg QW or 4.5 mg QW, for the remaining 26 weeks. **Results:** At 26 weeks, model-predicted CFB mean A1c and weight for 0.5 mg semaglutide were -1.5 % and -3.4 kg, and at 52 weeks, after switching to 3.0 mg dulaglutide dosed with escalation for 26 weeks, these were -1.7 % and -4.8 kg, respectively. Model-predicted mean A1c and weight CFB for 1.0 mg semaglutide after 26 weeks were -1.8 % and -4.9 kg, and at 52 weeks, after switching to 4.5 mg dulaglutide with dose escalation, these values were -1.8 % and -5.4 kg, respectively. **Conclusion:** Switching from semaglutide 0.5 mg QW to dulaglutide 3.0 mg QW and from 1 mg semaglutide QW to dulaglutide 4.5 mg QW predicted additional and comparable CFB A1c, respectively, but with greater weight loss for both modeled scenarios. **Keywords:** Type 2 diabetes; dulaglutide; semaglutide.

106745

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

ACCESS TO MEDICINE TREATMENT AND GLYCEMIC CONTROL OF DIABETIC PATIENTS DURING COVID-19 PANDEMIC: AN EXPLORATORY, TRANSVERSAL STUDY IN THE UNIFIED HEALTH SYSTEM'S PRIMARY CARE

Bruna de Carvalho Mapa¹, Lorena Ulhôa Araújo², Nancy Scardua Binda¹, Delba Fonseca Santos², Aline Dias Bedetti¹, Ana Caroline Costa¹, Neila Márcia Silva Barcellos¹

¹ Universidade Federal de Ouro Preto. ² Universidade Federal dos Vales do Jequitinhonha e Mucuri

Introduction: When diagnosed and treated, diabetes mellitus has reduced chances of related complications, costs, and premature deaths, being the medicine treatment essential. 74.87% of Brazilians are estimated to depend only on the Unified Health System (SUS) for treatment. COVID-19 pandemic has brought challenges to patients and may have impacted in the access to medicines, a fundamental right to health. **Objective:** This study estimated the prevalence and analyzed the access to medicines and glycemic control alterations of diabetic patients in the Primary Health Care (PHC) of SUS, from Ouro Preto, MG during the COVID-19 pandemic. **Methods:** A population based, transversal study was performed with diabetic patients registered in PHC of SUS, in Ouro Preto city. A representative sample of 403 patients (≥ 18 years old), randomized, were interviewed by phone, using a structured questionnaire, from March to July 2021. Total access to medicines was evaluated based on questions proposed by the National Health Research of 2013, and all other analysis, by self-declaration. Microsoft ExcelTM was used for data analyses. All participants signed the Consent Form (CAAE:98484718.0.0000.5150). **Results:** The sample ($n = 403$) consisted mostly of women (61.8%), people who consider themselves brown (48.6%), old (62.3%), less than 8 years of school (58.6%), and hypertensive (76.2%). Results showed high prevalence of total access to prescribed medicines (94.5%). However, “none” (37.0%) or “only some” (45.2%) were obtained in public health service. Most diabetic patients paid for medicines (65.8%). Figure 1 shows the self-referenced prevalence of medicine access and glycemic control alteration due to COVID-19 pandemic. Figure 1 – Prevalence of medicine access and glycemic control alteration due to COVID-19 pandemic, of diabetic patients. For most patients, medicine access (79.4%) and disease control (61.5%) were not altered due to the pandemic. However, a significant part said that the pandemic worsened the diabetes control (33.7%; $n = 136$), among whom a higher number of people who paid for medicines was observed (70.6%), as well as those who obtained only some (58.1%) of the medicines in SUS. **Conclusion:** Considerable part of the studied population reported worsening the diabetes control due to COVID-19 pandemic, despite the good total access to medicines in the period. However, this access was ensured by patients' own means, which shows the need to strengthen SUS to supply medicines. **Keywords:** Access to medicine treatment during COVID-19 pandemic; glycemic control during COVID-19 pandemic; diabetes mellitus.

106694

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ADHERENCE TO DIABETES TREATMENT IN TIMES OF COVID-19: IT IS NOT ABOUT WAITING FOR THE STORM TO PASS; IT IS MORE ABOUT LEARNING HOW TO DANCE IN THE RAIN

Gabriela Di Lorenzo Garcia Scherer¹, Janine Alessi², Giovana Berger de Oliveira¹, Isadora Nunes Erthal¹, Julia Belato Teixeira¹, Beatriz D. Schaan², Gabriela H. Teló¹

¹ Medicine School, Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, RS, Brasil. ² Post-graduate Program in Endocrinology, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brasil

Introduction: Previous studies suggest that the COVID-19 pandemic may have interfered in treatment adherence in patients with diabetes mellitus (DM), but few have evaluated whether this impact persists over time. **Objectives:** This study aimed to assess the trends in treatment adherence in patients with DM considering the periods before, at the beginning and after 18 months of the COVID-19 pandemic in Brazil. **Methods:** An ambispective study was performed to evaluate treatment adherence in patients with DM prior and during the COVID-19 pandemic in Brazil. Patients with a previous diagnosis of type 1 or type 2 diabetes, aged ≥ 18 years and who had HbA1c collected recently were selected for an evaluation in the 3rd month of the pandemic in Brazil and followed until the 18th month. Two previous cohorts designed to evaluate treatment adherence before the pandemic were matched by age and sex with the participants included. The primary outcome was the assessment of treatment adherence [Self-Care Inventory-revised (SCI-R) questionnaire] before, after 3 and 18 months of the pandemic. Between-group comparisons were performed with the Mann Whitney U test and within-group comparisons with the Wilcoxon test. **Results:** In total, 378 assessments were included (130 pre-pandemic, 130 in the 3rd month, and 118 in the 18th month of pandemic). Participants had a mean age of 53.9 ± 13.6 years, 90.7% were white and 55.0% women, and had a HbA1c of $8.7 \pm 1.6\%$. In total, 21.2% had confirmed COVID-19 infection in the period and more than 27% reported having perceived their diabetes control as worse. Regarding treatment adherence scores, patients with type 1 diabetes had a worsening score at the end of the 3rd month of the pandemic compared to the pre-pandemic score [52.0 (46.0-54.0) in the pre-pandemic period vs. 48.0 (41.0-52.0) in the 3rd month of the pandemic, $P < 0.01$]. Otherwise, after 18 months of the pandemic, patients with type 1 diabetes had scored 56.0 (49.3-61.0), $P < 0.01$, reflecting a better long-term adaptation. Among patients with type 2 diabetes, treatment adherence scores remained stable over the period. **Conclusion:** Patients with type 1 diabetes seem to have their treatment adherence more affected during the beginning of pandemic, with greater adaptation and score recovery over the 18-month period. Notwithstanding, patients with type 2 diabetes do not seem to have their adherence to treatment affected during this period. **Support:** FIPE (HCPA), CNPq, BPA/PUCRS. **Keywords:** Medication adherence; blood glucose monitoring; COVID-19 outbreak.

106281

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

ANALYSIS OF FACTORS THAT INFLUENCED GLYCEMIC CONTROL IN PATIENTS WITH INTENSIVE INSULIN THERAPY FOLLOWED AT A MULTIDISCIPLINARY DIABETES' REFERENCE CENTER DURING 1-YEAR COVID-19 PANDEMIC

Gustavo Santana Esperidião¹, Igor Marques Jordão¹, Mônica Aramuni Gonçalves¹, Yuri Martins Silva¹, Natália Fenner Pena¹, Virgínia Capistrano Fajardo¹, Márcio Weissheimer Lauria¹

¹ Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brasil

Introduction: COVID-19 pandemic has altered the behavioral patterns, daily life and food intake habits of many people with diabetes around the world, but it is unclear which of these parameters had a significant impact on glycated hemoglobin (A1c) variation during the lockdown period. **Objective:** To assess factors that affected A1c variation during the COVID-19 pandemic and establish the profile of these patients at a diabetes reference center. **Methods:** Retrospective analysis based on medical records of patients followed in a reference center in the city of Belo Horizonte, Minas Gerais. Data collected during March 2020 to April 2021 were compared with data from the same patients in 2019. Quantitative data were presented as mean and standard deviation (\pm SD) or median and 25-75 percentiles, according to distribution. Data normality was verified by the Shapiro-Wilk test. To compare the groups of patients that presented greater variations in HbA1c during the period studied, they were divided into tertiles of A1c variation: tertile 1 (T1) group ($n = 20$), tertile 2 (T2) group ($n = 20$) and tertile 3 (T3) group ($n = 18$). T-Student, Mann-Whitney U or Chi-square tests were used to compare T1 and T3 groups. Analyses were performed considering a significance level of 5%. **Results:** The study included 59 people with type 1 diabetes mellitus (T1DM) (83,05%), other types of diabetes (11,86%) and latent autoimmune diabetes in adults (LADA) (5,08%). The mean age of participants was 36,8 ($\pm 10,7$) years and 52,5% ($n = 31$) were female. T1 group had an A1c increase $> 0,4\%$ and T3 group had an A1c reduction $\geq 0,3\%$; T2 group did not express an increase in A1c $\geq 0,4\%$ or a decrease $> 0,3\%$. The median A1c of T1 and T3 group in 2019 was 8,0% (7,3;9,1) and 9,0% (8,4;11,0), respectively ($p = 0,004$). The median A1c of T1 and T3 group in 2020 was 9,5% (8,2;10,8) and 7,9% (7,4;8,7), respectively ($p = 0,009$). There was no difference of gender, age, type of diabetes, weight variation, length of disease or types of insulin used among T1 and T3 groups during the period analyzed ($p > 0,05$). **Conclusions:** Patients who expressed relevant reductions in A1c were those who had higher A1c in 2019, while those who presented significant increase in A1c had lower values in 2019. The study suggests that patients with better glycemic control in 2019 were more affected, in a negative way, by the SARS-CoV2 pandemics. Other parameters did not impact the results. **Keywords:** Glycemic control; COVID-19 pandemic; intensive insulin therapy.

106724

FISIOLOGIA INTEGRADA E OBESIDADE

ANALYSIS OF NON-INVASIVE LIVER FIBROSIS SCORES IN PATIENTS WITH GRADES 2 AND 3 OBESITY UNDERGOING BARIATRIC SURGERY

Débora Monteiro dos Santos Alves¹, Álvaro Henrique Peneluppi Fortino¹, Marília Fernandes Ciccarino¹, Marcelo Fernando Ronsoni¹, Alexandre Hohl¹, Simone van de Sande-Lee¹, Rainer Rathje de Mendonça Lima Penna¹

¹ Hospital Universitário, Universidade Federal de Santa Catarina

Introduction: Non-alcoholic fatty liver disease, the hepatic manifestation of the metabolic syndrome, and its relationship with obesity and diabetes mellitus (DM), are rising, leading to a greater risk of progression to steatohepatitis and liver fibrosis. Because of both being mostly asymptomatic, but correlated with many multisystemic disorders, and liver biopsies being infeasible as a screening tool, the non-invasive liver fibrosis scores are becoming more frequently used for the evaluation of patients with obesity and DM. **Objective:** To analyze non-invasive liver fibrosis scores in patients undergoing bariatric surgery. **Methods:** Retrospective cohort study using medical records of patients with grades 2 and 3 obesity undergoing bariatric surgery between 2016 and 2018. Clinical, anthropometric and laboratory data were analyzed and the non-invasive scores NFS, FIB-4, AAR, APRI and BARD were calculated, using data from before surgery and from one year after it. To analyze the scores, patients were separated in groups with and without DM. Previous hepatic disease or the absence of a proper follow up were considered as exclusion criteria. **Results:** There were 89 patients in this study, with mean age of 44.02 ± 9.75 years and mostly females (82%). The average weight loss was 41.10 ± 12.09 kg, corresponding to $68.31 \pm 16.43\%$ of excessive body weight loss. 67% of patients achieved total remission of DM, and both fasting glucose and glycohemoglobin tests improved in the period. When analyzing the absolute values of the scores, only the NFS had significant improvement, with direct correlation with the weight loss ($r = 0.383$, $p = 0.003$). Regarding the presence or not of advanced fibrosis (F3-F4) at baseline, NFS ($p = 0.007$) and BARD ($p < 0.001$) had significant difference between the groups with DM and without DM. After one year follow up, only AAR ($p = 0.016$) presented difference between these groups. In preoperative evaluation, NFS classified 19 individuals as F3-F4, 56 as intermediate and only 14 as F0-F2; while FIB-4 excluded F3-F4 in all individuals, classified 4 as intermediate and all others as F0-F2. **Conclusion:** The data analysis demonstrated heterogeneity among the non-invasive scores, even between the ones indicated by the current guidelines (NFS and FIB-4). More studies are in need, preferably with comparative liver biopsies, to identify which would be the best approach concerning non-invasive scores and their cut-off points in patients with obesity and DM. **Keywords:** Obesity; non-alcoholic fatty liver disease; diabetes mellitus.

106807

FISIOLOGIA INTEGRADA E OBESIDADE

ANALYSIS OF THE ASSOCIATION BETWEEN WAIST AND NECK CIRCUMFERENCES AND GLYCATED HEMOGLOBIN AND TYG INDEX IN THE ELDERLY

Paulo Sergio Almeida Silva Júnior¹, João Pedro de Sousa Palmeira¹, Ivna Vidal Freire¹, Ícaro José Santos Ribeiro¹, Cezar Augusto Casotti¹, Rafael Pereira¹

¹ Universidade Estadual do Sudoeste da Bahia (UESB)

Introduction: Anthropometric indicators of obesity/body adiposity are potentially related to non-communicable chronic diseases, such as diabetes mellitus, however, variables such as sex and age can modify this relationship. In fact, aging is associated with changes in both body composition and glycemic homeostasis. **Objective:** In this context, we aimed to evaluate an association between waist and neck circumferences with indicators of glycemic homeostasis: glycated hemoglobin (HbA1c) and TyG index in community-dwelling elderly. **Methods:** One hundred and eighty-eight elderly residents in the community were volunteers, and waist circumference (WC) and neck (NC) measurements were collected, in addition to 10 mL of venous blood to assess biochemical parameters: blood glucose and triglyceridemia, which were used to calculate the TyG index [$TyG = \ln((\text{Triglycerides} \times \text{Glucose})/2)$]. The value of HbA1c was also obtained. The Person correlation coefficient was obtained for elderly men ($n = 72$) and women ($n = 116$). The level of significance was set at $p < 0.05$. **Results:** The anthropometric indicators did not show a significant correlation with HbA1c in men (WC: $r = 0.22$; NC: $r = 0.17$; $p > 0.05$), but showed a positive and significant correlation among women (WC: $r = 0.28$; NC: $r = 0.33$; $p < 0.05$). The analysis involving the TyG index indicated a positive and significant correlation with anthropometric indicators in both sexes (Men – WC: $r = 0.43$; NC: $r = 0.49$; $p < 0.05$ /Women – WC: $r = 0.35$; NC: $r = 0.43$; $p < 0.05$). **Conclusion:** The anthropometric indicators WC and NC were significantly associated with the TyG index in both sexes, while HbA1c was significantly associated only in elderly women, which may be associated with greater metabolic effects arising from menopause. **Keywords:** Anthropometric indicators; TyG index; elderly.

106285

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

ANALYSIS OF THE PROFILE OF ASSOCIATED COMORBIDITIES IN PATIENTS WITH DIABETES MELLITUS SUBMITTED TO LOWER LIMB AMPUTATION

Luis Fernando Santos de Jesus¹, Juliana do Nascimento Sousa¹, Sandra Marina Gonçalves Bezerra¹, Maria Clara Santos Fonseca¹, Bruna Victória de Sousa Sá¹, Claudiceia Francisca Noleto da Conceição²

¹ Universidade Estadual do Piauí (UESPI). ² Hospital Estadual Getúlio Vargas (HEGV)

Introduction: Every year, one million people with diabetes mellitus lose a segment in the world, resulting in an important impact on quality of life. This phenomenon is due to the progressive lack of control of blood glucose levels, resulting in a state of permanent hyperglycemia, associated with the incidence of complications such as vasculopathy, diabetic neuropathy and association with other comorbidities such as systemic arterial hypertension. **Objective:** Analyze the profile of associated comorbidities in patients with diabetes undergoing lower limb amputation in a public referral hospital. **Methods:** A study with a quantitative approach was performed through surgical book records and electronic medical records of a public reference hospital in the state of Piauí in the years 2019, 2020, and the first semester of 2021, in patients who underwent amputation procedures. For data collection, a semi-structured form containing age, sex, origin, type of amputation, and comorbidities was used. The research was carried out in two stages: the first search for amputation records in the surgical center books and the second: identification of clinical data in electronic medical records for analysis of comorbidities. As for ethical aspects, Resolution n° 466/2012 of the National Health Council was respected and was approved by opinion 4,758,688. **Results:** A total of 525 amputation procedures were quantified in the period analyzed, of which 344 (65%) were performed in diabetic patients, elderly (79%), with a mean age of 73 years, male (56.8%), coming from the countryside from the state of Piauí (68.8%). As for comorbidities, it was found that 168 (48.8%) had systemic arterial hypertension and 39 (11.3%) had a previous diagnosis of peripheral arterial disease (PAD). As for anatomical location, 148 (43%) were performed at the foot level and 130 (37.8%) transfemoral. **Conclusion:** Hypertension is the most common comorbidity found in association with diabetes in elderly male patients with foot and transfemoral amputations. These data reinforce the need for more comprehensive educational intervention and public policies from primary health care to elderly men assisted in the public service. **Keywords:** Diabetes mellitus; systemic arterial hypertension; amputation.

106286

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

ANALYSIS OF THE PROFILE OF ASSOCIATED COMORBIDITIES IN PATIENTS WITH DIABETES MELLITUS SUBMITTED TO LOWER LIMB AMPUTATIONLuis Fernando Santos de Jesus¹, Juliana do Nascimento Sousa¹, Sandra Marina Gonçalves Bezerra¹, Maria Clara Santos Fonseca¹, Bruna Victória de Sousa Sá¹, Claudiceia Francisca Noleto da Conceição²¹ Universidade Estadual do Piauí (UESPI). ² Hospital Estadual Getúlio Vargas (HEGV)

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106760

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

ANALYSIS OF THE SOCIODEMOGRAPHIC PROFILE AND GLYCEMIC CONTROL OF PATIENTS WITH TYPE 1 DIABETES MELLITUS TREATED AT A UNIVERSITY HOSPITALLeonardo Scandolara Junior¹, Jakeline Silva Santos¹, Bruna Pereira Padilha¹, Daniella Almeida Brito¹, Elvi Cristina Rojas Fonseca¹, Adriana Paula da Silva¹, Maria de Fátima Borges¹¹ Universidade Federal do Triângulo Mineiro

Introduction: Diabetes mellitus type 1 (DM 1) is an autoimmune disease, characterized by the destruction of beta-pancreatic cells which affects all individuals irrespective of their socio economic background. Its diagnosis is usually abrupt and often affects the youth. As a result of poor insulin production, hyperglycemia persists, resulting in complications such as hypertension, neuropathy, retinopathy and diabetic nephropathy. **Objective:** Characterize the sample in terms of its sociodemographic profile and analyze the glycemic control of patients diagnosed with type 1 diabetes mellitus treated at a university hospital according to the therapeutic goals recommended by the Brazilian Society of Diabetes (SBD). **Methods:** A total of 115 patients assisted at a specialized diabetes outpatient clinic from May 2017 to March 2018 were included. The sociodemographic profile and glycemic control markers were analyzed. In a sample divided into 2 groups: children/adolescents (≤ 20 years) and adults (> 20 years). The study was approved by the Research Ethics Committee. **Results:** Most were female (60.9%), with a mean age of 25.9 years (6.1-67), predominating patients with a diagnosis time less than or equal to 10 years (55.7%) and family income between 1.5 and 3 minimum wages (43.5%). The highest prevalence of diseases associated with DM1 was dyslipidemia (57.4%), followed by hypertension (16.5%), then hypothyroidism (14.8%). There were already reports of 17.4% of patients with family history of DM. Regarding glycemic control variables, Fasting Blood Glucose (GJ) was 193.3 ± 58.7 ; Pradial Post Blood Glucose (GPP) 216 ± 71.4 ; HbA1c of 8.6 ± 0.8 in children/adolescents. In adults GJ was 196 ± 69.1 ; GPP of 243.7 ± 106 ; HbA1c 9.1 ± 1.7 . The average fructosamine was 390.8 ± 77.8 in children/adolescents and 408.7 ± 102 in adults. **Conclusion:** The HbA1c measurements of children and adolescents compared to adults were significantly lower ($p < 0.033$). Knowledge of the profile of these users indicates the need for measures that help patients reach the recommended therapeutic threshold. **Keywords:** Diabetes mellitus; sociodemographic; glycem control.

106837

FISIOLOGIA INTEGRADA E OBESIDADE

ASSESSING CARDIOVASCULAR RISK USING THE CORONARY CALCIUM SCORE AMONG PATIENTS WITH CONGENITAL GENERALIZED LIPODYSTROPHYBartira Miridan Xavier Cortez Rodrigues Rebouças Feijo¹, Roberto Moreno Mendonça¹, Socrates Tabosa Egito¹, Débora Nóbrega Lima², Julliane Tamara Araújo de Melo Campos¹, Josivan Gomes de Lima¹¹ Universidade Federal do Rio Grande do Norte. ² Universidade Federal de Pernambuco

Introduction: Congenital generalized lipodystrophy (CGL) is a rare autosomal recessive disorder characterized by an almost total absence of subcutaneous adipose tissue. There are evidences of atherosclerotic disease in this population, but poor studied. The coronary artery calcification (CAC) was considered indicative of presence of subclinical atherosclerosis disease and has been increasingly applied for this purpose. We intend to assess the cardiovascular risk of these patients through the coronary calcium score (CCS). We prospectively evaluated 19 CGL patients without a history of previous cardiovascular events. Following standardized protocol to evaluate the CCS, computed tomography was carried out, and the presence of any coronary artery calcification (CAC) was considered indicative of coronary heart disease. **Results:** Mean patient age was 21.1 ± 13.1 years, with eight children (42.1%; aged 8.4 ± 2.1 years) and 11 adults (57.9%; aged 30.4 ± 9.0 years); Mean BMI was 19.1 ± 3.5 kg/m², and 11 patients (57.8%) were women. Five patients (26.3%) had CAC; they were older than patients with no CAC (33.6 vs. 16.6 11.1 years old, $p = 0.02$). No relationship was found between the presence of CAC and the use of metreleptin. Lower alanine aminotransferase (ALT) serum levels were found to be associated with the presence of CAC, and diabetes increased the risk of altered CCS (RR 2.25; CI 95 1.08-4.67). **Conclusions:** CAC is frequent in CGL patients and can indicate a high cardiovascular risk in this population. **Keywords:** Cardiovascular risk; Berardinelli-Seip syndrome; calcium score.

106797

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ASSESSMENT OF THE IMPACT OF NON-ADHERENCE TO TREATMENT ON THE QUALITY OF LIFE OF PEOPLE WITH TYPE 1 AND 2 DIABETES MELLITUSHellen Cristina Marques Teixeira¹, Sinthya Araújo Pereira¹, Thaynara Sâmella Santos da Fonseca¹, Ana Paula Franco Pacheco¹¹ Centro Universitário Euro-Americano

Introduction: Diabetes mellitus (DM) is a chronic, non-communicable disease of high prevalence in Brazil and worldwide. It is considered a serious public health problem due to the high number of existing cases and the great social and economic impact generated. It is known that people with DM are more likely to have a reduced quality of life compared to those who do not have the disease. **Goal:** Evaluate the impact of non-adherence to treatment on the quality of life of people with DM. **Methods:** This is a qualitative study, in which a Google Forms questionnaire was used as a tool for data collection. The questionnaire was divided into 3 sections. The first encompasses the interviewee's personal and sociodemographic data; the second presents a questionnaire developed by the researchers of this study, which assesses the level of adherence to treatment and the third section corresponds to the B-PAID, a life satisfaction scale, a specific and validated instrument for people with diabetes, which assesses the impact disease and treatment in the lives of patients. This study was approved by the Research Ethics Committee of UNIEURO, under opinion number 4.800.872. **Results:** The study included 151 people with a medical diagnosis of DM from all regions of Brazil. Most of the sample was composed of females, aged over 45 years, residents of the Southeast region, with T1DM with more than 10 years of diagnosis. It was observed that 49.2% of those analyzed achieved a score that shows adherence to treatment from very poor to regular. Regarding quality of life, observed by the total score of the B-PAID, it was evident that 52.3% of the sample reached a score equal to or greater than 40/100 points, indicating a high level of emotional distress. It was also possible to observe that most of those who had treatment adherence classified as very poor, have T2DM, in addition, these people achieved higher scores on the B-PAID with an average of 77/100 points, indicating low quality of life. **Conclusion:** In view of the analyzed data, it was noted that most of the sample has regular or poor adherence to treatment, and a considerable part of it has a high level of emotional distress, indicating that unsatisfactory adherence to treatment compromises quality of life. **Keywords:** Diabetes mellitus; quality of life; cooperation and adherence to treatment.

105878

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ASSESSMENT OF THE KNOWLEDGE OF PREGNANT WOMEN ABOUT GESTATIONAL DIABETES MELLITUS IN A HEALTH SERVICE IN BELO HORIZONTEManuel Ríos Ramírez¹, Tatiane Géa Horta¹, Alexandra Dias Moreira², Aleida Nazareth Soares¹, Janice Sepúlveda Reis¹, Suelen Rosa de Oliveira¹, Helen Sena Ribeiro¹¹ Santa Casa de Belo Horizonte. ² Escola de Enfermagem da Universidade Federal de Minas Gerais

Introduction: Gestational diabetes mellitus is defined as a decrease in glucose tolerance, which starts or is recognized for the first time in pregnancy, and may or may not persist after delivery. The knowledge of therapeutic measures allows the achievement of normoglycemia, reducing the incidence of complications. **Objective:** To evaluate knowledge about gestational diabetes mellitus among pregnant women in a health service in Belo Horizonte-MG. **Methods:** This is a cross-sectional study, carried out between March and November 2020. The sample was calculated based on the mean of the population of pregnant women diagnosed with gestational diabetes mellitus seen at the service. Fifty pregnant women were randomly interviewed using two semi-structured questionnaires (socioeconomic, epidemiological, obstetrical and knowledge of gestational diabetes mellitus profile). Linear regression analysis was used to assess the association between sociodemographic variables and the overall score of correct answers for the questions. **Results:** An average age of 29 years, mixed race, born in Belo Horizonte, married or in a consensual union, with complete high school, family income of 1 to 3 minimum wages; mean gestational age of 25 weeks. It was observed that 62% of pregnant women reported previous knowledge about gestational diabetes; 60% received guidance regarding the disease at the first prenatal consultation and 42% reported that they were unaware of the damage that the disease can cause to the fetus. In addition, 96% considered the disease to be curable; 98% reported that it is possible to control the disease; 88% do not use insulin; 80% knew how to monitor capillary blood glucose; 96% knew how to treat gestational diabetes; 84% knew what to eat during the day and 82% did not practice physical exercises. There was no statistical significance of the sociodemographic variables in relation to the general knowledge score (Table 1). **Conclusion:** Most pregnant women had previous knowledge about gestational diabetes mellitus and were unaware of the risks or care needed during pregnancy to avoid gestational diabetes. Investing in the orientation of women in pre-pregnancy, changing habits and lifestyle and good prenatal care are extremely important in preventing, diagnosing and treating the disease, including preventing gestational diabetes mellitus patients from developing diabetes in the future. **Keywords:** Gestational diabetes; hyperglycemia; pregnancy.

106813

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

ASSOCIAÇÃO ENTRE CONTROLE GLICÊMICO E DISTÚRBIO COGNITIVO EM PACIENTES IDOSOS COM DIABETES MELLITUS TIPO 2Caroline Bulcão¹, Claudio Henrique Cavalcanti Teixeira², Martha Mattos de Bitencourt², Ricardo Sampaio Hein da Silva², Fernando de Mello Almada Giuffrida³¹ Escola Bahiana de Medicina e Saúde Pública (EBMSP)/Centro de Diabetes e Endocrinologia da Bahia (Cedeaba). ² EBMSP. ³ Universidade do Estado da Bahia (UNEB)/Cedeaba;

Introdução: A *American Diabetes Association* (ADA) caracteriza o *diabetes mellitus* tipo 2 (DM2) como um grupo de doenças metabólicas unidas pela presença de hiperglicemia, sendo resultado de defeito na secreção de insulina, na ação da insulina ou em ambos. O controle glicêmico inadequado e a hiperglicemia crônica estão associados a diversas complicações como retinopatia diabética, nefropatia diabética e neuropatia diabética. Também são descritas na literatura complicações de origem neurológica associadas ao DM, como distúrbios cognitivos, especialmente em pacientes idosos, embora os estudos sejam conflitantes. **Objetivo:** Avaliar a associação entre controle glicêmico e distúrbios cognitivos em pacientes idosos com DM2 em insulino terapia ou uso de hipoglicemiantes orais em ambulatório de diabetes no Centro de Diabetes da Bahia no período de 2020 a 2021. **Métodos:** Trata-se de um estudo observacional. Foram avaliados idosos acima de 60 anos com diagnóstico de DM2 em insulino terapia ou hipoglicemiantes orais. Foram analisados controle glicêmico e adesão terapêutica, além de variáveis demográficas e clínicas. Além disso, foi utilizado, como instrumento de coleta de dados, o Miniexame do Estado Mental (MEEM) para avaliação da condição cognitiva dos pacientes. **Resultados:** O estudo ainda se encontra em andamento e o número previsto de indivíduos ainda não foi atingido. Foram analisados os resultados parciais de 33 pacientes. Foram comparadas as variáveis dos grupos com MEEM alterado e normal. Não foram encontradas diferenças estatisticamente significantes entre déficit cognitivo e níveis de hemoglobina glicada, glicemia de jejum, uso correto dos hipoglicemiantes e insulina ou frequência de hipoglicemia. Foram encontradas maior proporção de pacientes do sexo feminino com MEEM alterado ($p < 0,016$) e maior uso de metformina em pacientes com MEEM normal ($p < 0,003$). **Conclusão:** Os resultados obtidos pela análise parcial dos dados do estudo não demonstraram correlações estatisticamente significantes entre controle glicêmico e distúrbios cognitivos em pacientes idosos diabéticos. Foram observadas diferenças estatisticamente significativas para as variáveis sexo feminino e uso de metformina em consonância com evidências literárias que apontam para um possível efeito neuroprotetor da metformina, ao passo de que o sexo feminino constitui um fator de risco conhecido para distúrbios cognitivos. **Palavras-chave:** Diabetes; déficit cognitivo; controle glicêmico.

106510

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ASSOCIATION BETWEEN ADHERENCE TO CARBOHYDRATE COUNTING AND SOCIAL ISOLATION BY PEOPLE WITH TYPE 1 DIABETES MELLITUS DURING THE COVID-19 PANDEMIC IN BRAZIL

Gabriela Correia Uliana¹, Carliane Cardoso dos Reis¹, Beatriz Cibebe Brabo Mauro¹, Fernanda Ribeiro Rocha¹, Jeane Lorena Lima Dias¹, Manuela Maria de Lima Carvalhal¹, Daniela Lopes Gomes¹

¹ Universidade Federal do Pará

Introduction: Carbohydrate counting is a nutritional strategy that should be implemented in the context of healthy eating, in order to offer greater flexibility in eating and improve glycemic control in people with type 1 diabetes mellitus, promoting the balance between the amount of carbohydrates intake, blood glucose values and the application of the necessary insulin doses. The period of social isolation caused by the COVID-19 pandemic may have influenced food aspects and the acquisition of necessary inputs for carrying out the carbohydrate counting in this public, thus harming this practice. **Objective:** To verify the association between adherence to Carbohydrate Counting and social isolation in adults with type 1 Diabetes Mellitus during the COVID-19 pandemic in Brazil. **Methods:** Cross-sectional, descriptive, and analytical study, approved by the Research Ethics Committee (nº 4.147.663), carried out during the period of social isolation due to the COVID-19 pandemic. Simple random sampling was carried out with adults with type 1 diabetes mellitus, of both genders, who accepted to participate in the research voluntarily and anonymously and agreed to the Informed Consent Form. Data collection took place through the dissemination of the questionnaire online on social networks. The questionnaire contained questions about adherence to Carbohydrate Counting and characteristics of social distancing. The chi-square test of independence was applied with adjusted residual analysis (statistical significance of $p < 0.05$). **Results:** 472 adults participated, the majority (37.71%) reported doing the carbohydrate counting at the same frequency as before social isolation. In addition, being in total social distancing was associated with taking the carbohydrate counting, while being in partial social distancing ($p = 0.026$) and not being able to spend more than a full month in distancing ($p = 0.013$) was associated with not doing the carbohydrate counting. **Conclusion:** It was observed that not being able to stay in total social distancing negatively impacted adherence to Carbohydrate Counting of some adults with type 1 diabetes mellitus during the COVID-19 pandemic, highlighting the need for motivational and educational actions in diabetes to help in greater adherence to treatment. **Keywords:** Type 1 diabetes mellitus; social isolation; carbohydrates.

106512

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ASSOCIATION BETWEEN ADHESION TO CARBOHYDRATE COUNTING, SOCIOECONOMIC AND SOCIODEMOGRAPHIC DATA IN ADULTS WITH TYPE 1 DIABETES MELLITUS DURING SOCIAL DISTANCING BY COVID-19 IN BRAZIL

Gabriela Correia Uliana¹, Aline Fernanda Oliveira Ramos¹, Maria Eduarda Veloso Lima¹, Juliana Oliveira Ferreira¹, Jeane Lorena Lima Dias¹, Manuela Maria de Lima Carvalhal¹, Daniela Lopes Gomes¹

¹ Universidade Federal do Pará

Introduction: People with diabetes can make use of treatment control tools, such as carbohydrate counting, an important strategy in diabetes education and its use may be related to better glycemia management. However, due to the COVID-19 pandemic, there were several changes in the economic and social sphere that affected the treatment of chronic diseases. **Objective:** Verify the association between adherence to carbohydrate counting, socioeconomic data in adults with type 1 diabetes mellitus during social distancing by COVID-19 in Brazil. **Methods:** Transversal study carried out in July 2020, approved by the Ethics and Research Committee (number 4.147.663). An online survey form was used to collect socioeconomic data and adherence to Carbohydrate Counting, with a non-probabilistic convenience sampling performed with adults with type 1 diabetes mellitus, of both sexes, who agreed to participate voluntarily and anonymously, and agreed on the Informed Consent Form. For statistical analysis, the Chi-Square test of independence was applied with adjusted residual analysis (statistical significance of $p < 0.05$). **Results:** Of the 472 participating adults, 62.92% reported doing carbohydrate counting and 37.07% reported not doing carbohydrate counting during social distancing. Doing the carbohydrate counting was associated with having a higher education ($p < 0.000$), living in the state capital ($p = 0.027$) and a district of the upper-class type ($p = 0.025$), have a family income of between 5 to 20 minimum wage ($p < 0.000$) and not receiving emergency aid from the government for not attend the criteria ($p = 0.045$). However, having a family income between 1 and 2 minimum wages ($p < 0.000$), not having higher education ($p < 0.000$), living in the interior of the state ($p = 0.027$) and having received emergency financial assistance ($p = 0.045$) was associated to not perform the carbohydrate count during social distancing. **Conclusion:** It was possible to observe that not executing carbohydrate counting is associated with more vulnerable socioeconomic conditions, which highlights the need for diabetes education, especially considering social inequalities, seeking to improve the adherence to treatment. **Keywords:** Diabetes mellitus; carbohydrates; coronavirus infections.

106758

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ASSOCIATION BETWEEN CARBOHYDRATE COUNT ADHERENCE AND CHANGE IN NUTRITIONAL FOLLOW-UP OF PEOPLE WITH TYPE 1 DIABETES DURING SOCIAL DISTANCING BY COVID-19 IN BRAZIL

Kassia Clotilde Costa Ferreira¹, Carliane Cardoso dos Reis¹, Thielly Ribeiro Martins¹, Juliana Oliveira Ferreira¹, Gabriela Correia Uliana¹, Talita Nogueira Berino¹, Daniela Lopes Gomes¹

¹ Universidade Federal do Pará

Introduction: Carbohydrate counting is a fundamental strategy to optimize glycemic control in patients with type 1 diabetes. Nutritional follow-up associated with Food and Nutrition Education in diabetes is important to maintain patient motivation and ensure progress throughout treatment. However, due to the COVID-19 pandemic, the difficulty in maintaining nutritional follow-up may have affected treatment adherence. **Objective:** To verify the association between carbohydrate count adherence and change in nutritional follow-up of people with type 1 diabetes during social distancing by COVID-19 in Brazil. **Methods:** Cross-sectional, descriptive and analytical study, approved by the Research Ethics Committee (no. 4,047,909), conducted in July 2020 through an online form with 472 adults diagnosed with type 1 diabetes, of both sexes. After agreeing to the Free and Informed Consent Form, the individual anonymously answered questions about sociodemographic information (age group, biological sex, city and neighborhood); financial situation (family income); Supplies acquisition for the management (equipment used for insulin administration and blood glucose monitoring); eating habits and carbohydrate counting; physical activity (practice during the pandemic) and social distancing (total, partial or unrealized). Pearson's Chi-square test was performed with adjusted residual analysis ($p < 0.05$). **Results:** Most participants (86.4%) did not have nutritional follow-up during social distancing. It was observed that, during the distancing, nutritional follow-up, face-to-face or online, was associated with carbohydrate counting, while not doing nutritional follow-up was associated with not doing the carbohydrate count ($p = 0.003$). Maintaining nutritional follow-up online or initiating nutritional teleservice was associated with carbohydrate counting ($p = 0.047$). **Conclusion:** It was observed that people who did not follow-up with the nutritionist had lower adhering to carbohydrate counting during the period of social distancing. It is suggested the creation of strategies that encourage the search for nutritional assistance, in order to improve carbohydrate adherence and glycemic control. **Keywords:** Diabetes mellitus; carbohydrates; coronavirus infections.

106697

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ASSOCIATION BETWEEN COOKING HABITS AND SOCIODEMOGRAPHIC DATA OF INDIVIDUALS WITH TYPE 1 DIABETES MELLITUS DURING THE PANDEMIC BY COVID-19 IN BRAZIL

Jeane Lorena Lima Dias¹, Manuela Maria de Lima Carvalho¹, Juliana Oliveira Ferreira¹, Maria Eduarda Veloso Lima¹, Thielly Ribeiro Martins¹, Daniela Lopes Gomes¹

¹ Universidade Federal do Pará

Introduction: During the COVID-19 pandemic, measures of social distancing were implemented with the purpose of controlling the disease. However, during this period, socioeconomic inequalities were highlighted. Research indicates, regarding the period before the pandemic, socioeconomic factors such as education can be barriers to cooking behavior. **Objective:** To verify the association between the cooking habits and sociodemographic data of individuals with Type 1 Diabetes Mellitus during the pandemic by COVID-19 in Brazil. **Methods:** Transversal, descriptive and analytical study, carried out during July 2020. The study included individuals of both sexes, over 18 years old, diagnosed with type 1 diabetes mellitus. Sociodemographic data information about (sex, age, schooling, macro-region) and cooking habits were collected from an online form. For statistical analysis, the chi-square test of independence was applied, with analysis of adjusted residuals, considering a level of statistical significance of $p < 0.05$. The research was approved by the ethics and research committee (number 4.147.663). All participants had their anonymous and voluntary participation who agreed to the Informed Consent Form. **Results:** Out of the 472 participants, 50.9% reported that have been cooking more during the quarantine period. An association was found between cooking more during the pandemic and having higher education ($p < 0.000$). No associations were observed between cooking habits and sex ($p = 0.345$), age ($p = 0.725$) and macro-region ($p = 0.056$). **Conclusion:** It is extremely important to increase investment in public policies in the country that encourage the development of cooking skills, in addition to incentives as part of the actions of Food and Nutrition Education and Education in Diabetes. **Keywords:** Healthy eating; COVID-19; cooking.

106831

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

ASSOCIATION BETWEEN COVID-19 INFECTION SEVERITY AND BACKGROUND MEDICATION IN DIABETIC PATIENTSAlan Goes de Carvalho¹, Karem Mileo Felício¹, Loyane Tamyres Costa Leitão¹, Matheus Perini Furlaneto¹, Jocyelle Nascimento Vieira¹, Natércia Neves Marques de Queiroz¹, João Soares Felício¹¹ Federal University of Pará

Introduction: During the COVID-19 pandemic, several attempts were observed to associate the severity of the infection with the use of certain drugs used in patients with type 2 diabetes mellitus (DM2), such as insulins, oral antidiabetics, antihypertensives, statins, and antiplatelet agents. Among these patients, a relevant percentage evolves with hospitalization, orotracheal intubation, thromboembolic processes, and death. **Objectives:** Evaluate the association between the severity of COVID-19 and background medication in patients with DM2. **Methods:** retrospective study, evaluating diabetic patients who had confirmed diagnosis of COVID-19. We accessed clinical data and outcomes. **Results:** 101 persons with DM2 and dyslipidemia were included. They had COVID-19 in the asymptomatic or mild (n = 62), moderate (n = 32), or severe (n = 7) forms, confirmed by clinical and/or laboratory criteria, being stratified as proposed by Brazilian Ministry of Health. No association was found between COVID-19 severity and use of oral hypoglycemic agents, antihypertensives, statins or antiplatelet agents, however, considering the outcome death or cure, the use of insulin alone or combined to other drugs, GFR < 60 mL/min/1.73 m² and diabetes duration were associated to worse prognosis. **Conclusions:** Anti-hypertensive drugs, anti-platelet agents, and oral anti-diabetics do not seem to interfere in the COVID-19 infectious severity, but insulin therapy was a factor associated to mortality in diabetic patients. **Keywords:** COVID-19; diabetes mellitus; antiplatelet agent.

106696

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ASSOCIATION BETWEEN GLYCEMIC CONTROL IN DIFFERENT EMOTIONAL CONDITIONS AND ADHERENCE TO CARBOHYDRATE COUNTING IN PEOPLE WITH TYPE 1 DIABETES DURING THE COVID-19 PANDEMIC IN BRAZILJeane Lorena Lima Dias¹, Vandemberg Ramos Viana¹, Manuela Maria de Lima Carvalhal¹, Aline Leão Reis¹, Daniela Lopes Gomes¹¹ Universidade Federal do Pará

Introduction: Distancing measure caused by pandemic caused by the SARS-CoV-2 coronavirus can negatively influence the glycemic control of patients with type 1 diabetes and in adherence carbohydrate counting, due to restrictions on outdoor physical activities, psychological issues, deregulated sleep and the ingestion of less healthy foods. Furthermore, dealing with diabetes peculiarities can trigger emotions that, depending on the engagement process, will be positive or negative. **Objective:** Evaluate the association between glycemic control in different emotional perceptions and the adherence to carbohydrate counting by adults with type 1 diabetes during the COVID-19 pandemic in Brazil. **Methods:** This is a transversal, descriptive and analytical, carried out in July 2020 using a Google Forms® form. Socioeconomic and demographic data were collected; glycemic monitoring according to the individuals' emotions at the time of measurement (happy, motivated or hopeful; stressed or anxious; sad, distressed or with depressive symptoms); data on adherence to carbohydrate counting and social distancing. The research was approved by the Ethics and Research Committee (number 4.147.663). All participants signed the Informed Consent Form. Pearson's Chi-Square test was applied with adjusted residual analysis (p < 0.05). **Results:** 472 patients were evaluated. Associations were observed between having normoglycemia in any emotional situation and performing the Carbohydrate Counting (p < 0.000); perceiving oneself happy/motivated/hopeful and having hyperglycemia, as well as not measuring blood glucose was associated with not having the carbohydrate counting (p < 0.000); being stressed or anxious was associated with not measuring the blood glucose and not having the carbohydrate counting (p < 0.000). **Conclusion:** The need for multidisciplinary care to enhance mental health and adherence to treatment for people with type 1 diabetes is highlighted. **Keywords:** Type 1 diabetes mellitus; mental health; social isolation.

106767

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ASSOCIATION BETWEEN PERCEPTION OF FEELINGS OF ANXIETY, COOKING HABITS AND SNACK CONSUMPTION BY ADULTS WITH TYPE 1 DIABETES DURING SOCIAL DISTANCING DUE TO THE COVID-19 PANDEMIC IN BRAZIL

Waléria Do Socorro de Oliveira Ainett¹, Carliane Cardoso dos Reis¹, Anna Beatriz Conceição de Souza¹, Aline Leão Reis¹, Jeane Lorena Lima Dias¹, Alana dos Anjos Moreira², Daniela Lopes Gomes¹

¹ Universidade Federal do Pará. ² Centro Universitário Metropolitano da Amazônia

Introduction: Social distancing adopted as a control measure in the COVID-19 pandemic caused emotional and behavioral changes that can interfere with the perception of feelings, cooking practices and food choices. **Objective:** To analyze the association between the perception of feelings of anxiety, the cooking habit and the consumption of snacks in adults with type 1 diabetes mellitus (T1DM) during social distancing in Brazil. **Methods:** Cross-sectional, descriptive and analytical study, with 472 adults with T1DM, of both genders, approved by the Ethics and Research Committee (n° 4,147,663), carried out in July 2020, through an online questionnaire with simple random sampling by saturation. An instrument adapted from the Level 1 Transversal Symptom Scale was applied, classifying the frequency of feeling nervous, anxious, worried or tense during the last 2 weeks (None, not at all; Rarely, less than one or two days; Mild, several days; Moderate, more than half of the days; or Severe, almost every day). The habit of cooking in the last 30 days was classified as not knowing how to cook; does not like to cook and someone in the house cooks; cooks as much as before; cooks more than before. Snack consumption in the last 30 days was rated much higher; a bit higher; equal; or lower. The Chi-Square test of independence was applied with adjusted residual analysis (statistical significance $p < 0.05$). **Results:** Not noticing feelings of anxiety was associated with lower consumption of snacks, while noticing moderate and severe symptoms was associated with consuming a little more or a lot more snacks ($p = 0.033$). Not noticing feelings of anxiety was associated with not knowing how to cook and noticing severe symptoms was associated with cooking less than before ($p = 0.015$). **Conclusion:** Perception of more severe symptoms of anxiety was associated with cooking less and consuming more snacks during social distancing, highlighting the importance of maintaining multidisciplinary follow-up to maintain healthy habits and improve mental health. **Keywords:** Type 1 diabetes; mental health; eating habits.

106778

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ASSOCIATION BETWEEN PERCEPTION OF FEELINGS OF DEPRESSION, AND PREFERENCE AND CONSUMPTION OF SWEETS BY ADULTS WITH TYPE 1 DIABETES MELLITUS DURING SOCIAL DISTANCING BY COVID-19 IN BRAZIL

Waléria do Socorro de Oliveira Ainett¹, Aline Leão Reis¹, Fernanda Ribeiro Rocha¹, Thielly Ribeiro Martins¹, Thalya Cristina Ribeiro Brasil¹, Alana dos Anjos Moreira¹, Daniela Lopes Gomes¹

¹ Universidade Federal do Pará

Introduction: The COVID-19 pandemic in Brazil led to the adoption of measures of social distancing, which may increase the perception of feelings of depression and the consumption of sweets as an alternative to increase reinforcing stimuli. **Objective:** To verify the association between perception of feelings of depression and preference and/or consumption of sweets by adults with Type 1 Diabetes Mellitus (T1DM) during social distancing in Brazil. **Methods:** Cross-sectional, descriptive and analytical study, carried out in July 2020 through an online questionnaire, after approval by the Research Ethics Committee (n° 4,147,663). A total of 472 adults with T1DM, of both genders, were included by simple random sampling by saturation. A questionnaire adapted from the Level 1 Transversal Symptom Scale was applied, on the frequency that the person felt discouraged, depressed or hopeless during the last 2 weeks, classifying the intensity as nothing; not at all; rarely (less than a day or two); mild (several days); moderate (more than half the days); or severe (almost every day). The preference for sweets in the last 30 days was rated much higher than before; a little bigger than before; or equal. Consumption of sweets in the last 30 days was rated much higher than before; a little bigger than before; equal; or reduced. The Chi-Square Test of independence was applied with adjusted residual analysis (statistical significance $p < 0.05$). **Results:** Not noticing or rarely noticing feelings of depression was associated with maintaining the same preference for sweets ($p = 0.000$), while noticing moderate and severe depressive feelings was associated with preferring a little more or a lot more sweets ($p = 0.000$). Not noticing or rarely noticing feelings of depression was associated with decreasing or maintaining sweets consumption ($p = 0.000$), while noticing mild or moderate depressive symptoms was associated with consuming a little more sweets and perception of severe depressive symptoms was associated with consuming a lot more sweets ($p = 0.000$). **Conclusion:** Perception of severe depressive feelings was associated with greater preference and consumption of sweets during social distancing, evidencing the need to maintain multidisciplinary follow-up to maintain self-care and mental health. **Keywords:** Type 1 diabetes; depression; sweets consumption.

106699

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ASSOCIATION BETWEEN SOCIODEMOGRAPHIC DATA AND CHANGES IN THE PHYSICAL ACTIVITY PRACTICE OF INDIVIDUALS WITH TYPE 1 DIABETES MELLITUS DURING THE SOCIAL DISTANCE IN BRAZILDaniela Lopes Gomes¹, Paulo Henrique Carmona de Vasconcelos¹, Flávia Aline Lages Fernandes¹, Gabriela Correia Uliana¹, Thielly Ribeiro Martins¹, Anselmo de Athayde Costa e Silva¹¹ Universidade Federal do Pará

Introduction: Social distancing was implemented as a strategy to control the COVID-19 pandemic in Brazil. The regular practice of physical exercise is one of the pillars of the treatment of type 1 diabetes mellitus, however, social distancing can impact changes in the practice of physical exercise, impairing disease control. **Objective:** To verify the association between socioeconomic aspects and changes in the practice of physical activity of individuals with type 1 diabetes mellitus during social distancing in Brazil. **Methods:** Cross-sectional study. Approved by the Research Ethics Committee (n° 4,147,663), held in July 2020, through an online form for collecting sociodemographic data, adherence to physical activity and social distancing. A total of 472 adults, of both sexes, with type 1 diabetes mellitus participated, voluntarily and anonymously, after accepting the Informed Consent Form. To verify adherence to physical activity, the variable "Change in the practice of physical activity" was created, comparing adherence before and after social distancing. The Chi-square test with adjusted residual analysis was applied to test the associations between variables (statistical significance $p < 0.05$). **Results:** 472 adults participated, mostly female (86.0%), between 25 and 44 years (57.0%) and with higher education ($n = 237$, 50.2%). Being male was associated with maintaining the practice of physical activity ($p = 0.03$); having a graduate degree was associated with staying active, while having only high school was associated with remaining inactive ($p = 0.017$). Lower tolerance to distancing was associated with physical inactivity ($p = 0.045$) and the perception of a lot of stress in the home environment was associated with interrupting physical activity during distancing ($p = 0.001$). Maintaining the practice of physical activity was associated with a decrease in exercise intensity ($p = <0.000$). **Conclusion:** Social distancing negatively impacted the practice of physical activity in people with type 1 diabetes mellitus and sociodemographic factors, stress in the home environment and low tolerance to social distancing were associated with changes in the practice of physical exercise. The importance of strategies to motivate adherence to the practice of physical exercises is highlighted, even in the face of difficulties experienced in social distancing. **Keywords:** Physical activity; diabetes mellitus; social distancing.

106265

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ASSOCIATION BETWEEN SOCIODEMOGRAPHIC FACTORS AND EATING HABITS OF PEOPLE WITH TYPE 1 DIABETES DURING THE SOCIAL DISTANCING OF COVID-19Jullyana Vago de Vilhena¹, Flávia Aline Lages Fernandes¹, Beatriz Cibele Brabo Mauro¹, Heloisy Andrea da Costa Brasil¹, Jeane Lorena Lima Dias¹, Manuela Maria de Lima Carvalhal¹, Daniela Lopes Gomes¹¹ Universidade Federal do Pará

Introduction: The social distancing was widely recommended to contain the dissemination of COVID-19, but it is known that sociodemographic factors can impact the adherence to the social distancing and the treatment of people with chronic diseases, such as type 1 diabetes. Furthermore, the social distancing period may influence changes in the eating habits, so it is important to understand the relation between these factors since healthy eating habits are one of the pillars of the treatment. **Objective:** Evaluate the association between sociodemographic factors and eating habits in adults with type 1 diabetes mellitus during COVID-19's social distancing. **Methods:** Transversal, descriptive and analytical study carried out in July 2020, with adults with type 1 diabetes, from both sexes, using a form on the platform Google Forms® to collect sociodemographic data (sex, age, housing region, level of education, number of people with diabetes at home), information on social distancing and food choices (change in eating; increase in food consumption; number of daily meals; fruit consumption; vegetables consumption; sweets consumption; ultra-processed foods consumption; snacks consumption; industrialized beverages consumption; delivery orders; and water intake). All participants accepted the Informed Consent Form and this research was approved by the Ethics and Research Committee (Number: 4.147.663). For statistical analysis, it was performed the Chi-Square Test of Independence, with adjusted residual analysis to test associations between categorical variables (statistical significance $p < 0.05$). **Results:** 472 people were evaluated, with a mean age of $30,24 \pm 9,74$ years old, of which 86% were women. An association was observed between being female and increasing the consumption of snacks ($p = 0,003$) and sweets ($p = 0,016$). Being between 18 and 24 years old was associated with increasing food consumption ($p = 0,001$) and increasing consumption of snacks ($p = 0,005$). Being over 45 years old was associated with maintaining the dietary pattern during this period ($p = 0,001$). **Conclusion:** Sex and age are associated with changes in the eating habit of people with type 1 diabetes mellitus during social distancing, indicating the need for maintenance of nutritional assistance for this population to ensure a healthy eating pattern, especially for the young. **Keywords:** Social distancing; diabetes mellitus; eating habits.

106835

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ASSOCIATION BETWEEN THE CONSUMPTION OF PROCESSED AND ULTRA-PROCESSED FOOD AND CARDIOVASCULAR DISEASE AND ITS RISK FACTORS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

Renata Boscaini David¹, Cristina Pavinatto¹, Danie Hahn Weber¹, Joana Rogowski Souza dos Santos¹, Caroline Fraga Bassotto¹, Alice Hinda Lichtenstein¹, Themis Zelmanovitz¹

¹ Universidade Federal do Rio Grande do Sul

Introduction: A higher dietary ultra-processed food intake can be associated with obesity, increased prevalence of type 2 diabetes, and hypertension, all traditional cardiovascular risk factors. Therefore, regarding the prevention of cardiovascular disease (CVD), it is important to study the ultra-processed food consumption, especially in high risk patients. **Objective:** Analyze the association between consumption of processed and ultra-processed food and CVD and its risk factors in patients with type 2 diabetes. **Methods:** Patients from the diabetes research clinic at *Hospital de Clínicas de Porto Alegre* were consecutively recruited and oriented to perform the 3-day weighted diet records in order to evaluate dietary habits. The items of food consumption reported by the patients were classified in 4 groups: *in natura* or minimally processed foods, culinary ingredients (oil consumption), processed and ultra-processed foods. **Results:** A total of 481 patients (52% women; mean age: 61 ± 9 years and time since diabetes diagnosis: 12 ± 9 years) were evaluated. The consumption of processed and ultra-processed foods corresponded, respectively, to $20,4 \pm 12,4\%$ and $14,2 \pm 10,8\%$ of daily energy. The patients were divided based on the quartiles of the sum of processed and ultra-processed foods consumption. The patients from quartile 3 were younger ($59,1 \pm 9,8$ years; $P = 0,037$) than those from quartile 1 ($62,4 \pm 8,4$ years). Regarding the glycemic and blood pressure controls and lipid profile, no difference was observed among the quartiles groups. Furthermore, the frequency of CVD was not different among the groups. Regarding the dietary characteristics, the patients from quartile 4 presented a higher energy intake, compared with the patients from quartile 1. The trans and saturated fatty acids intake were higher in quartiles 3 and 4 compared with quartiles 1 and 2. The consumption of proteins and polyunsaturated fatty acids was lower in quartile 4 compared with quartile 1. **Conclusions:** In this sample of patients with type 2 diabetes, an inverse association between the consumption of foods with a higher processing level and age was observed. The consumption of these types of foods was associated with a higher intake of calories, trans and saturated fatty acids. No association was observed between highly processed foods and CV risk factors. Additional longitudinal studies are necessary to further confirm these results. **Keywords:** Ultra-processed food; cardiovascular disease; type 2 diabetes.

106709

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

ASSOCIATIONS BETWEEN PATIENT CHARACTERISTICS AND CARDIOVASCULAR DISEASE: A POST-HOC ANALYSIS FROM THE CAPTURE STUDY

Abdullah M. Alguwaihes¹, Sérgio Vêncio², Tatiana Martins Benvenuto Louro Berbara³, Jose Luis A. Leon⁴, Fahri Bayram⁵, Patrice Darmon⁶, Timothy Davis⁷

¹ Riyadh, Saudi Arabia. ² Goiânia, Brazil. ³ Novo Nordisk, Brazil. ⁴ San Luis Potosí, Mexico. ⁵ Kayseri, Turkey. ⁶ Marseille, France.

⁷ Fremantle, Australia

Objective: The CAPTURE study found that the prevalence of cardiovascular disease (CVD) in adults with type 2 diabetes (T2D) is approximately 1 in 3. This post hoc analysis determined the association between CVD risk factors (RF) and CVD. **Methods:** CAPTURE was a cross-sectional, non-interventional study in people with T2D across 13 countries. Participant data were collected during a single routine clinical visit in a primary or specialist settings between December 1st, 2018 and September, 2019. A multivariable logistic regression model was used to calculate prevalence odds ratios (PORs). **Results:** Data were from 6369 participants with the information available for all included variables from the total CAPTURE population ($N = 9823$). Age and chronic kidney disease (CKD) (assessed by eGFR) were positively associated with CVD status (both $p < 0.0001$). Other RF with high CVD PORs were: diagnosed hypertension (1.87), smoking (1.53), male sex (1.29), diabetes-related variables, HbA1c (1.07) and diabetes duration (1.01). Serum LDL-C and HDL-C had a negative association with CVD (both $p < 0.0001$, Table). **Conclusion:** The high CVD prevalence in the CAPTURE study is associated with demographics, classic CVD RF and diabetes-related variables, especially CKD. A negative association with LDL-C reflect confounding through indication for the use of lipid-lowering agents. These data support the use of antidiabetes drugs with proven CV benefit on several CV RFs in people with T2D and CVD. **Keywords:** Cardiovascular disease; type 2 diabetes; risk factors.

106806

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

AUTONOMIC SYMPTOMS QUESTIONNAIRE – A NEW TOOL TO HELP IDENTIFYING UNDERDIAGNOSED DYSAUTONOMY AMONG PEOPLE WITH DIABETES ATTENDING A REFERENCE HEALTH UNIT OF THE UNIFIED PUBLIC SYSTEM (SUS): A PILOT STUDY

Juliana Ferreira Sousa Figueiredo¹, Flaviene Alves Do Prado Romani¹, Andréia Ribeiro de Carvalho Cavalcante¹, Lara Benigno Porto Dantas¹, Thais Cabral Gomes Lauand¹, Helen Follador Matana¹, Hermelinda Cordeiro Pedrosa¹

¹ Hospital Regional de Taguatinga

Introduction: Diabetic autonomic neuropathies symptoms (DANs) are underdiagnosed due to their diversity and time-consuming assessment. Questionnaires to screen DANs have been applied in some countries but not yet in Brazil. **Objectives:** To conduct a pilot application of the translated and culturally adapted Survey of Autonomic Symptoms (SAS) into Brazilian Portuguese; to verify frequency of dysautonomia in people with diabetes at a SUS reference unit. **Methods/Materials:** Cross-sectional, observational, descriptive study carried out at the Endocrinology/Research Centre of Federal District SUS. SAS has been validated and its translation and cultural adaptation to Brazilian Portuguese resulted into the *Questionário de Sintomas Autônomicos* (QSA). It comprises presence/absence of autonomic symptoms scores (DAN-SS): sudomotor, orthostatic, vasomotor, gastrointestinal, urinary and sexual (in men) ranging from 1 to 5 and maximum positive scores of 11 (females) and 12 (males); and total impact intensity score (DANs-TIIS), reaching 55 and 60 scores. Electronic records and QSA application occurred from 18-28 JAN 2021. **Results:** Final sample consisted of 50 patients > 18 years old, 64% females, mean age 50.44 (± 14.14); DM duration 13.50 (± 8.05) years; weight 75.3 (± 18.45) kg, BMI 28.23 (± 6.03) kg/m²; HbA1c 8.5% (± 1.52). 80% were on basal insulin (32.5% glargine) plus 50% equal regular/rapid analogue ratio; 20% on oral antidiabetics (OAD). DM complications were present in 44% (Peripheral Neuropathy – PDN in 63%), MI reported by only 8%. Mean DAN-SS was 8.66 \pm 7.1 (females 9.25 \pm .07, males 7.60 \pm 7.42, p = NS). Most frequent symptoms among women: dizziness (related to hypotension), dry mouth and eyes (sudomotor) (62.5%); in men, dry mouth and eyes (55.6%). The highest DAN-SS scores (8 and 9) were observed among 50%, whose DAN-TIIS achieved 24-34 points (p-value < 0.001) confirming the greater the number of symptoms, the greater the dysautonomia intensity impact. **Conclusion:** Sample profile showed more female, high PDN and insulin use frequency, overweight, poor control and longer DM duration. Half of patients had moderate DAN symptoms, mainly sudomotor dysfunction (both sexes) also cardiovascular (in women), and similar intensity impact. QSA Brazilian version application proved to be simple, easily understood, short time application (mean 10 minutes) and feasible to be extended to a larger population of people with diabetes to overcome current underdiagnosis of DANs. **Keywords:** Neuropathic autonomic symptoms; autonomic symptoms questionnaire; diabetic dysautonomia intensity impact.

106702

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

CHARACTERISTICS OF THE PHYSICAL ACTIVITY PRACTICE OF ADULTS WITH TYPE 1 DIABETES MELLITUS BEFORE AND DURING THE SOCIAL DISTANCE IN BRAZIL

Daniela Lopes Gomes¹, Paulo Henrique Carmona de Vasconcelos¹, Aline Fernanda Oliveira Ramos¹, Aline Leão Reis¹, Bruno Mateus Viana Lima¹, Juliana Oliveira Ferreira¹, Anselmo de Athayde Costa e Silva¹

¹ Universidade Federal do Pará

Introduction: The practice of physical activity is one of the pillars of the treatment of Type 1 Diabetes Mellitus, however, the implementation of social distancing by the COVID-19 Pandemic may have negatively impacted the adherence to the practice of physical exercises. **Objective:** To describe the characteristics of physical activity practice of adults with type 1 diabetes before and during the social distancing in Brazil. **Methods:** Cross-sectional study, approved by the Research Ethics Committee (n° 4,147,663), carried out in July 2020, through an online form to collect data of the practice of physical activity before and during social distancing. A total of 472 adults, of both genders, with type 1 diabetes mellitus participated, after accepting the Informed Consent Form. To describe the characteristics of the practice of physical activity, it was asked about being active or not, time, frequency, duration and intensity of physical activity and practice of household activities before and during the pandemic. The Chi-square test was applied to verify the difference in the distribution of the analysis categories (p < 0.05). **Results:** The practice of physical activity 3 times and 5 times a week during social distancing decreased from 16.9% to 12.1% and from 18.0% to 10.8% (p < 0.000), respectively. While the proportion of inactive participants increased from 33.3% to 51.3%. Among the participants who remained active, before social distancing, 41.7% practiced physical exercise for 30 to 60 minutes and 18.9% for more than 60 minutes, falling to 24.2% and 6.8% (p < 0.000) during distancing, respectively. As for the perception of change in the intensity of physical exercises, 25.6% noticed a reduction, 10.2% noticed an increase and only 7.8% declared to maintain the intensity. As for the practice of domestic activities, participants who reported practicing at least once a week increased from 68.6% to 77.8% (p < 0.000). **Conclusion:** The social distancing impacted the adherence to physical activity practice of adults with type 1 diabetes negatively, with a reduction in frequency, duration and intensity even for those participants who already practiced physical exercise. The importance of adapting strategies and activities that can be carried out in the home environment and guided online is highlighted. **Keywords:** Physical activity; diabetes mellitus; social distancing.

106750

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

CHRONIC EFFECT OF COMBINED TRAINING ON THE BODY COMPOSITION OF PEOPLE WITH TYPE 2 DIABETES MELLITUSRaquel Cavalcanti Beltrão¹, Jonathan Nicolas dos Santos Ribeiro², Luís Filipe Alves dos Santos¹, João Euclides Martires Silva¹, Wellen Larissa da Silva Lima¹, Samantta de Araújo Pereira¹, Denise Maria Martins Vancea¹¹ Escola Superior de Educação Física, Universidade de Pernambuco. ² Instituto de Ciências Biológicas, Universidade de Pernambuco

Introduction: One of the most important of treatment to prevent over weight and obesity in people with type 2 diabetes is physical exercise. But what would be the best exercise protocol: aerobic or strength or combined, acute or chronic? **Objective:** To analyze the chronic effect of combined training on the body composition of women with type 2 diabetes. **Methods:** This research was characterized as descriptive and was approved by the Ethics Committee (No. CAAE 0008.0.097,000-09). The sample was non-probabilistic, consisting of nine women with type 2 diabetes, mean age was 58.8 ± 6.35 years and mean diagnosis time 8.6 ± 6.74 years, participating in the Doce Vida Project – Supervised Exercise Program for Diabetics. Women with type 2 diabetes continued with routine feeding. The intervention protocol was combined training with aerobic and strength exercises, with a frequency of three times a week, with a total of 53 sessions. The assessment of body composition was performed before and after the intervention, height and weight were collected to calculate the body mass index. The Wilcoxon test was used to compare body composition before and after the intervention. A significance level of $p < 0.05$ was adopted. **Results:** According to the data analysis, there was no statistically significant reduction in the body mass index of women with type 2 diabetes who underwent the combined training protocol chronically ($29 \text{ kg/m}^2 \pm 5.4 \text{ kg/m}^2$ vs. post intervention $28.6 \text{ kg/m}^2 \pm 5.7 \text{ kg/m}^2$). **Conclusion:** Combined training, chronically, wasn't effective in to reduce body composition, but it is to note that there wasn't increase in weight, but maintenance, despite remaining in the overweight classification. The lack of nutritional monitoring may have interfered with this result. **Keywords:** Diabetes; body composition; combined training.

106755

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

CHRONIC EFFECT OF COMBINED TRAINING ON THE GLYCEMIC CONTROL OF PEOPLE WITH TYPE 2 DIABETES MELLITUSSamantta de Araújo Pereira¹, Jonathan Nicolas dos Santos Ribeiro², Vinícius Santos Pessoa Silva¹, Gabriela Lins Cavalcanti¹, Diogo Tomás de Almeida Santos¹, Puheblas Ramonn Gomes da Silva¹, Denise Maria Martins Vancea¹¹ Escola Superior de Educação Física, Universidade de Pernambuco. ² Instituto de Ciências Biológicas, Universidade de Pernambuco

Introduction: Physical exercise is a non-pharmacological strategy for the control and treatment of DM2. **Objective:** To analyze the chronic effect of combined training on capillary blood glucose in people with type 2 diabetes. **Methods:** Due to the current SARS-CoV-2 pandemic that we are facing, new methodological strategies were needed. This research is characterized as descriptive. The sample was non-probabilistic, consisting of nine women with type 2 diabetes, the mean age was 58.8 ± 6.35 years and mean diagnosis time 8.6 ± 6.74 years, participants of the Doce Vida Project – Supervised Exercise Program for Diabetics. The combined training sessions happened in the morning, with a frequency of three times a week, duration of 40 minutes. Data from 53 sessions were analyzed. Capillary blood glucose measurement was performed before and after each training session. The Wilcoxon test was used to compare blood glucose levels before and after the intervention. A significance level of $p < 0.05$ was adopted. **Results:** Over a period of 53 sessions, 954 measurements of capillary blood glucose were collected, in the moments before and after the intervention. According to the data analysis, there was a reduction in capillary blood glucose of the diabetics in this study, at the time before and after the intervention of the combined training protocol ($165.2 \text{ mg/dL} \pm 22.7 \text{ mg/dL}$ vs. $129.6 \pm 17.3 \text{ mg/dL}$, $p = 0.00$) making clear the chronic effect of physical exercise. **Conclusion:** Combined training chronically was able to significantly reduce capillary blood glucose in women with type 2 diabetes in this sample. **Keywords:** Glycemic control; combined training; diabetes.

106788

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

CHRONOTYPE IN PREGNANCY: A STUDY OF 404 WOMEN WITH AND WITHOUT GESTATIONAL DIABETES MELLITUSVictoria Sudario Alencar¹, Thaine Mirla Rocha¹, Paula Soares Machado¹, Ana Beatriz Menezes Teixeira¹, Veralice Sales de Bruin², Rejane Belchior Mecêdo³, Cristina Figueiredo Sampaio Façanha³¹ Centro Universitário Christus (Unichristus). ² Universidade Federal do Ceará. ³ Universidade Federal do Ceará; Centro Integrado de Diabetes e Hipertensão

Introduction: Sleep is a circadian function fundamentally essential for a healthy pregnancy. In this context, chronotype can be defined as variations in the behavior of the individual circadian rhythm that express different forms of synchronization of the so-called biological clock. They determine the individual's predisposition to feel peak energy or tiredness, according to the time of day, influencing the well-being and health of individuals. Previously, it has been suggested that normal pregnancy predisposes to a morning chronotype in humans and animals. Nevertheless, circadian rhythm abnormalities may influence patients with gestational diabetes mellitus (GDM). **Methods:** A cross-sectional, comparative study designed to evaluate the circadian behavior using the Morning-eveningness questionnaire (MEQ) in a group with 404 pregnant patients with and without GDM. **Results:** The chronotype of 404 pregnant patients (311 GDM patients and 93 without GDM) was evaluated. Patients with GDM were older (33.12 ± 5.68 versus 28.39 ± 6.02 p < 0.001), had higher body mass index (32.2 ± 5.07 versus 28.42 ± 4.79 ; p < 0.001), and a higher mean fasting glycemia (98.68 ± 14.78 versus 79.4 ± 7.6 ; p < 0.001) but the gestational age was similar among the groups (p = 0.19). In regards to chronotype, morning preference was found in 151 (49.8%) GDM and 54 (59.3%) non-GDM patients. Intermediate: 131 (43.2%) in GDM and 34 (37.4%) non-GDM and evening preference: 21 (6.1%) GDM and 3 (3.3%) of non-GDM women. Additionally, the study showed a higher prevalence of morning preference in both groups studied (52%). A linear analysis of MEQ showed a higher score in non-GDM patients, suggesting a tendency toward morningness in this group (P = 0.05). **Conclusion:** In this large group of pregnant women, a tendency towards morningness was stronger in the non-GDM group. This data suggests that the circadian behavior among GDM patients should be investigated. **Keywords:** Gestational diabetes; chronotype; circadian rhythm.

106804

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

CLINICAL AND NUTRITIONAL CHARACTERISTICS OF CRITICALLY ILL DIABETIC PATIENTS HOSPITALIZED FOR COVID-19Sandra Tavares Brito Vieira¹, Thaisy Cristina Honorato Santos Alves¹, Caroline Ferreira Capinan¹, Viviane Sahade¹, Lucivalda Pereira Magalhães de Oliveira¹, Carla de Magalhães Cunha¹, Rosângela Passos de Jesus¹¹ Faculdade de Nutrição, Universidade Federal da Bahia

Introduction: Coronavirus 2019 disease (COVID-19) is characterized by high outbreaks of infection and death, whose worsening has been associated with risk factors such as obesity and diabetes mellitus (DM). **Objective:** To compare the clinical and nutritional characteristics of diabetic and non-diabetic patients hospitalized for severe COVID-19. **Methods:** Cross-sectional observational study involving adults and elderly, of both sexes, hospitalized by COVID-19 in the Intensive Care Unit of a public hospital from April 2020 to June 2021. A descriptive analysis was performed and the groups were presented by simple and relative frequency, mean and standard deviation (SD) of demographic, clinical and nutritional data. The groups were compared using Pearson's Chi-Square or Fisher's Exact test for categorical variables and Student's T-test for continuous variables. **Results:** 95 individuals were evaluated, with a mean (SD) age of 58.9 years (16.2) stratified according to the presence (38.9%) or absence (61.1%) of DM. Most diabetic patients were adults (62.2%), female (51.4%). There was a higher prevalence of patients without obesity in both groups (DM: 69.4%; without DM: 72.4%), with a mean hospitalization time of 26.3 days for patients with DM and 24.7 days for those without DM (p = 0.722), where blood glucose differed statistically. **Conclusion:** Clinical and nutritional characteristics did not differ between diabetic and non-diabetic patients hospitalized for COVID-19. However, blood glucose levels in critically ill diabetic patients were higher than in non-diabetic patients, but this finding did not influence the length of stay and clinical outcomes in this group. **Keywords:** COVID-19; diabetes; nutrition.

106406

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

CLINICALLY-RELEVANT GLUCOSE LEVEL IMPROVEMENT AND POSITIVE BEHAVIORAL CHANGES IN USERS OF A MOBILE DIABETES MANAGEMENT PLATFORMAdrian Proietti¹, Martin Merello², Esteban Rubin³¹ Instituto Integral de Diabetes y Tecnología Aplicada (IDTA). ² University of Oxford. ³ University of Buenos Aires

Introduction and objective: Mobile technology has transformed many aspects of clinical practice, and its patient-centered approach shows promise in tackling chronic diseases. The objective of this study, the first of its kind in Latin America, was to test the clinical and lifestyle advantages to patients with diabetes of using an integrated digital health platform that harvests data from different applications. **Methods:** The study used a digital management system, comprising a digital platform to collect and share clinical information, accompanied by health coaches to guide patients and consistent medical attention. The prospective cohort study was designed with two different groups, 30 type I diabetes patients, who participated for 90 days, and 20 type II diabetes patients, who participated for 60 days. BG control, estimated A1c, frequency of testing and weight variation were monitored throughout. **Results:** Patients in the study presented a reduction of blood glucose of 15%, which is statistically significant, and 1pp of eA1c when compared to the baseline (Figure 1). Reductions in average weekly weight were registered. Increase in test rate was statistically significant for both cohorts. Positive behavioral changes were also recorded. **Conclusions:** This study suggests that use of a mobile Diabetes management platform app can generate positive changes in blood glucose levels and A1c, while triggering beneficial behavioral changes around diabetes management. The improvement noted in this study is possibly the first reported data point of its kind in Latin America, and shows the need for more research in this area in the region. **Keywords:** Diabetes platform; technology; advances.

106773

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

COGNITIVE ASSESSMENT OF ELDERLY PATIENTS WITH TYPE 2 DIABETES THROUGH THE MINI-MENTAL STATUS EXAMINATIONBianca Medeiros de Abreu¹, Livia Porto Cunha da Silveira¹¹ Hospital do Servidor Municipal

Introduction: Diabetes is considered an independent risk factor for cognitive decline and dementia, but few patients are cognitively assessed even after many years of diagnosis. People with cognitive impairment are at increased risk of drug overdose and hypoglycemia that, in turn, may negatively influence cognitive performance. **Objective:** The aim of this study was to assess cognitive status of elderly patients with type 2 diabetes through the mini-mental state examination (MMSE) and to evaluate its correlation with age, sex, hypertension, smoking, length of formal education and duration of diabetes. **Methods:** This is a cross-sectional, observational, analytical, and descriptive study. The study included 34 patients with type 2 diabetes and older than 65 years with no previous history of dementia. All patients were informed about the research and signed the informed consent form. It was considered positive for cognitive decline subjects with a MMSE score lower than the minimum expected for their education level. Bioestat 5.3 software was used to calculate odds ratio and Willians G test. A $p < 0.05$ was considered significant. **Results:** The prevalence of cognitive decline (positive MMSE) was 47%. Patients with positive MMSE had 100% probability of having hypertension and/or age greater than 73 years ($p < 0.0005$). There was no statistically significant association with gender, smoking, length of formal education and duration of diabetes. **Conclusion:** There was an expressive prevalence of cognitive decline in the study group since none of them had previous history of dementia. We recommend that elderly patients with type 2 diabetes are regularly evaluated for their cognitive function, especially those with hypertension and aged over 73 years. **Keywords:** Diabetes mellitus; cognitive decline; mini-mental state examination.

106777

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

COMMON MENTAL DISORDERS IN PEOPLE WITH DIABETES MELLITUS DURING THE COVID-19 PANDEMICNelson Silva Rodrigues Júnior¹, Francisca Rosana Gonçalves Mota², Antonio Alberto Ibiapina Costa Filho², Ana Luiza Barbosa Negreiros³, Delmo de Carvalho Alencar⁴, Aline Raquel de Sousa Ibiapina³¹ Universidade de Rio Verde (UNIRV). ² Universidade de São Paulo (USP). ³ Universidade Federal do Piauí (UFPI). ⁴ Universidade Regional do Cariri (URCA)

Introduction: The COVID-19 caused by the new coronavirus (SARS-CoV-2) initiated in China in December of 2019. With a high propagation index, there were many reports of this infection around the world, being declared a pandemic by the World Health Organization. In countries like Brazil, Mexico, India and the United States, diabetes mellitus (DM) or the association of it with another comorbidity is one of the main factors that lead to morbidity and mortality among the COVID-19 infected. That said, many measures were adopted by the World Health Organization (WHO) in order to mitigate the dissemination of the virus, emphasizing the social distancing of the population. However, the adoption of these measures of social distancing have aroused the emergence of psychological and emotional disorders, like depressions and anxiety, making them more likely to develop mental disorders. **Goal:** research the predominance of common mental disorders in people with diabetes mellitus during the COVID-19 pandemic. **Methods:** an exploratory cross-sectional study was performed, with a sample of 111 people with diabetes. In the data collection, a symptom survey denominated Self Report Questionnaire-20 (SRQ-20) was utilized. The data analysis was accomplished through descriptive statistics. **Results:** the prevalence of mental suffering among people with diabetes was 37,8%. In the depressive-anxious humor group, the most prevalent symptoms demonstrated that 64% of the diabetics felt nervous, tense or preoccupied. As for the decrease in vital energy, 51,4% of the diabetics got tired easily. For the somatic symptoms, there was identified that 30,6% showed unpleasant stomach sensations. Concerning depressive thoughts, it was verified that 31,5% had difficulty making decisions. **Conclusion:** the creation of strategies and integral lines of care that minimize the psychosocial impacts caused by the COVID-19 pandemic in this population segment is advised. **Keywords:** Diabetes mellitus; COVID-19; mental health.

106817

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

COMPARATIVE EVALUATION OF THE GLUCOSE PROFILE OBTAINED BY FLASH GLUCOSE MONITORING (FGM) BETWEEN DIFFERENT INSULIN TREATMENTSBarbara Karolyne Pereira Sousa¹, João Eduardo Nunes Salles¹, Pedro Campos Franco¹, Nilza Scalissi¹, Mariana Vilela Pereira¹¹ Santa Casa de Misericórdia de São Paulo

Introduction: Glucose sensors allows more practical and convenient assessment, providing, in addition to glucose values, the glucose trend and information about patient glycemic variability. The International Consensus on Time In Range (TIR), published in 2019, standardized new metrics for clinical care. The TIR target was defined as glucose between 70-180 mg/dL in more than 70% of the time. Using the standardized CGM report, the clinician can also address glucose variability (e.g., the coefficient of variation [%CV] metric). Glycemic Variability (GV), can be associated to oxidative stress and potentially contribute to the development of long-term complications in diabetic patients. **Objective:** Compare ambulatory glucose profiles of three groups of type 1 diabetes (T1DM) patients with similar glycated hemoglobin (A1C) < 7.5%, on different insulin treatments. **Methods:** Fifteen T1DM patients with A1C < 7,5% were rated; five (5) using Continuous Infusion System (CSII), five (5) using insulin analogues (long and fast action) in multiple daily insulin doses (MDI), and five (5) using NPH insulin plus regular insulin or fast-action analog also in MDI, all of them were selected to use “FreeStyle® Libre” for 14 days. **Results:** The NPH group presented a longer time in hypoglycemia compared to the other two groups - average time in hypoglycemia was 19.4% for the NPH group, versus 8.4% for the Analogue group, and 7.8% for the CSII group (p = 0.013). The NPH group had 2.3 times more risk of hypoglycemia compared to the Analogs group and 2.4 times more risk of hypoglycemia compared to the CSII group. A higher glucose variability (GV) was observed also in NPH group, GV was defined as percent coefficient of variation (%CV), NPH group presented %CV of 53.7% versus 43,5% in CSII group and 39,6% in analogue group (p = 0.017) – Table 1. **CONCLUSIONS:** FreeStyle® Libre is considered a safe method, well tolerated, and has a reliable accuracy. From the results, NPH was statistically the therapy with worst finds in the glucose variability outcome and hypoglycemia, even considering patients with similar A1C values. A1C reflects average glucose over the last 2-3 months, but fails in provide information about acute glycemic excursions and the acute complications of hypo- and hyperglycemia. Attachment – Table 1 – Collected data from FreeStyle® Libre - separated evaluation by each therapy group. **Keywords:** Type 1 diabetes; glycemic variability; glucose monitoring.

105460

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

COMPARATIVE STUDY OF TYPE 1 DIABETES IN CHILDREN AND ADOLESCENTS AT AN OUTPATIENT CLINIC IN BRAZILSofia Paula Barros¹, Gabriel Victor Fernandes Feitosa¹, Reinaldo José Gianini¹, Alcinda Aranha Nigri¹¹ Faculdade de Ciências Médicas e da Saúde da Pontifícia Universidade Católica de São Paulo (FCMS-PUCSP)

Introduction: Type 1 diabetes mellitus (T1DM) has significant national epidemiological importance since Brazil has the 3rd highest prevalence and incidence of T1DM in the world. It is more frequent among children and adolescents, and the management depends on insulin replacement, physical exercise, and nutritional approach. Good adherence to treatment prevents/delays the development of T1DM complications, which are associated with elevated glycated hemoglobin (HbA1c) levels. By managing complications, patient's quality of life improves, and national expenditures reduce. **Objective:** The aim of the study was to identify the factors that have a positive influence in glycemic control of T1DM patients between 0-18 years who are treated in an outpatient clinic. **Methods:** The cross-sectional observational study took place between Sep/2020-Jul/2021 and involved the application of a questionnaire and the evaluation of HbA1c values registered in medical records, under the approval of the ethics committee and the university's research program. We calculated relative and absolute frequencies of the variables, mean HbA1c, standard deviation, confidence interval (95%) and significance value ($p < 0.05$ as significant). The associations/differences among mean HbA1c were analyzed using Student's t-test, ANOVA, and linear regression. **Results:** In the study population ($n = 56$) we found that 51.8% were female, 53.6% had a 1-2 minimum wage family income, 51.8% had caregivers who completed high school, 55.36% didn't exercise/exercised irregularly, 60.7% didn't do carbohydrate-counting, 64.3% followed a food plan, 39.3% were overweight/obese and 75% used analogous insulin therapy with long and short-acting insulins. Patient ages were between 2-18 years and 44.6% were between 11-18. In 58.9% of patients the diagnosis of T1DM was made between 5-10 years of age, and in 53.6% the diagnosis was made up to 2 years ago. Among patients who had HbA1c values in their medical records ($n = 49$), the mean HbA1c was 9.57%, and there was an inadequate glycemic control ($HbA1c > 7.5\%$) in 77.5% of them. The mean HbA1c was lower in patients who used analogous insulins, had a food plan follow-up, were overweight/obese, and were between 2-10 years old (Table 1). **Conclusion:** The use of analogous insulins and the follow-up to a food plan should be encouraged in T1DM treatment to improve glycemic control and decrease complications, improving patients' quality of life in addition to reducing national expenditures. **Keywords:** Type 1 diabetes mellitus; analogous insulins; children and adolescents.

106761

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

COMPARISON OF GLYCEMIC CONTROL IN UNIVERSITY HOSPITAL PATIENTS ACCORDING TO FAMILY INCOMELeonardo Scandolara Junior¹, Jakeline Silva Santos¹, Bruna Pereira Padilha¹, Daniella Almeida Brito¹, Elvi Cristina Rojas Fonseca¹, Adriana Paula da Silva¹, Maria de Fátima Borges¹¹ Universidade Federal do Triângulo Mineiro

Introduction: Diabetes mellitus (DM) is currently a worldwide epidemic which serves as a major challenge for health systems. Among the various types, type 1 DM is a chronic metabolic disease characterized by deficiency in insulin production due to the destruction of the pancreatic beta cells. This reduction in insulin production leads to persistent hyperglycemia, resulting in several complications. The Intensive care process includes insulin therapy and capillary blood glucose monitoring, which entails the costs for adequate glycemic control. Therefore, considering the importance of the treatment of patients with type 1 DM to promote healthy conditions of development and prevention of comorbidities, the knowledge of factors such as socioeconomic status of this population is essential to determine the best therapeutic approach and better glycemic control. **Objective:** Compare the glycemic control of university hospital patients according to family income. **Methods:** One hundred and fifteen patients with type 1 DM were included. In order to classify the patients according to their income status, they had to respond to a questionnaire specifically directed to Brazilian citizens; CCEB (*Critério de Classificação Econômica Brasil*). The patients were successfully allocated to their respective groups. The mean glycemic control parameters in groups, were compared and correlated. The study was approved by the Research Ethics Committee. **Results:** A total of 115 patients with type 1 DM participated in the study, of which 70 (60.9%) were female, 59 (51.3%) under 20 years and 50 (43.5%) with family income between 1.5 and 3 minimum wages. When compared and correlated the mean of the fasting blood glucose level, post prandial blood glucose level, HbA1c and fructosamine according to income, no significant differences were observed. **Conclusion:** In the present study, no influence of family income on the glycemic control of the evaluated patients was observed. Although other studies emphasize this data for glycemic control, the data found suggests that the treatment performed at the university hospital and the equitable supply of medicines by the Public health system (SUS) minimizes the financial burden. **Keywords:** Income; diabetes mellitus; glicemic control.

106838

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

COMPARISON OF THE FREQUENCY OF DM2 COMPLICATIONS IN THE BRAZILIAN STATES WITH THE MOST DIFFERENCE PER CAPITA INCOME BETWEEN 2010 AND 2012Vinicius de Sousa Morais¹, Eduarda Simon¹, Thaylise Caroline Yurk¹, Andressa de Melo Takemura¹, Luísa Rossetto Broch¹, Guilherme Augusto Minato¹¹ Centro Universitário Fundação Assis Gurgacz

Introduction: Diabetes is a chronic metabolic disease that affects millions of Brazilians, increasing the risk for the development of several other pathologies with mutilating and even lethal outcomes. The ideal management of the disease involves several factors, such as multiprofessional monitoring, use of medications and nutritional re-education, conditions that require massive investments in public health and a complex care network. However, not all states and municipalities have the funding or technical capacity to ensure this effective management network. The result of this is a service structure with unequal access between the richest regions of the country, with easier access to functional care and private service, and the poorest. **Methods:** First, São Paulo (SP) and Maranhão (MA) were selected respectively as states with the highest (\$188,22) and lowest per capita income (\$63,32), based on the 2010 National Institute of Geography Census and converting to the current dollar rate. Subsequently, from the HIPERDIA platform, data from DM2 patients with a history of diabetic foot (DF), kidney disease (KD), acute myocardial infarction (AMI) and Stroke between 2010 and 2012 in the states were collected and tabulated. **Objectives:** To investigate the frequency of diabetes complications among Brazilian states with higher and lower Per Capita Income (PCI). **Results:** As for chronic complications, 6.63% of diabetics in SP had kidney disease, against 5.41% in MA. The frequency of diabetic foot was almost equal in both states: 3.49% in MA and 3.50% in SP. Taking in the account the acute consequences of DM2, the frequency of AMI was 8.31% in SP and 3.74% in MA. As for stroke, the rates were 7% in SP and 7.8% in MA. **Conclusions:** It is known that the continental proportions of Brazil reveal great economic disparity within its territory, in our study it was shown that SP, with a PCI 3 times greater than MA, has a higher frequency of KD and AMI associated with DM2, which may be due to a higher rate of sedentary lifestyle and hypertension, compared to the northern state, or even a lower rate of underreporting cases, in view of the greater offer of medical care. On the other hand, the MA had a slightly higher rate of stroke and a frequency of DF almost identical to that of SP. Furthermore, further work is essential, analyzing more deeply the reflection of socioeconomic disparities in the presentation of diabetes, in order to manage it in a better and fairer way. **Keywords:** Complications; diabetes; disparity.

106800

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

COMPARISON OF THE GROWTH RATE OF OUTPATIENT PROCEDURES APPROVED IN BRAZIL BETWEEN TWO SEXENNIA (2009-2014 AND 2015-2020) FOR DIAGNOSIS AND FOLLOW-UP OF DIABETES COMPLICATIONS: RETINOPATHY, NEPHROPATHY, NEUROPATHY, AND DIABETIC FOOTRonney Argolo Ferreira¹, Pedro Resende Ferreira Rende¹, Bruna Baratto²¹ Universidade Federal da Bahia. ² Escola Bahiana de Medicina e Saúde Pública (EBSMP)

Introduction: Associated with prolonged hyperglycemia caused by uncontrolled diabetes mellitus (DM), there are a series of complications, such as nephropathy, retinopathy, neuropathy, and diabetic foot. These can have a significant impact on longevity and life quality. Therefore, early diagnosis, proper treatment, and follow-up are so important. **Objective:** To evaluate, in Brazil, the growth rate of approved outpatient procedures used to diagnose and follow-up some DM complications (retinopathy, nephropathy, neuropathy, and diabetic foot) and to compare the number of approved gold standard procedures with other procedures. **Methods:** Comparative retrospective cohort between two sexennia (2009-2014 and 2015-2020) in Datasus. This study gathers data from the following outpatient procedures: electroretinography (ERG), funduscopy, optical coherence tomography (OCT), microalbuminuria test, electroneuromyography (ENMG), esthesiometry, and the diabetic foot exam. **Results:** There was an increase in approval of all procedures in the sexennia compared. Funduscopy grew 25% and it is the most approved among eye exams, with more than 13 million approvals in the last six years. OCT was included in the database in 2019, but between 2019 and 2020 it increased by 47.5% (29,242 and 43,126, respectively). Smallest increase: ERG (less than 0.01%). The microalbuminuria test, used to assess nephropathies, increased from 4 million to more than 7 million approvals (+ 74.9%). Neuropathy tests: ENMG increased by 42.8%. It is the most approved of the category. Esthesiometry had an increase of 86.4%. The diabetic foot exam was included in the database in 2016, but between 2016 and 2020 there was a 205.4% increase in the number of approvals – 8,494 (2016) and 25,938 (2020). **Conclusion:** Despite the general increase in the request of all tests between the two sexennia, the assessment of neuropathies (esthesiometry and ENMG) and nephropathies (microalbuminuria test) stands out. In addition, it is important to mention the diabetic foot exam, which increases exceeded 205.4% between 2016 and 2020. Regarding eye exams, there is a greater approval of those that, in fact, are considered the gold standard tests: funduscopy (retinopathy) and OCT (macular edema). These increases demonstrate that not only there has been an increment in the number of investigations of these complications, but also people diagnosed with such complications have been looking for a better follow-up. **Keywords:** Diabetes; neuropathy; diabetic foot.

106742

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

CORRELATION BETWEEN COMPLICATED DIABETIC FOOT TREATMENT AND THE NUMBER OF HOSPITALIZATIONS CAUSED BY COMPLICATIONS OF DIABETES MELLITUS IN THE PERIOD OF 2010 TO 2020 IN THE STATE OF BAHIA, BRAZILPedro Resende Ferreira Rende¹, Ronney Argolo Ferreira¹, Bruna Baratto²¹ Universidade Federal da Bahia. ² Escola Bahiana de Medicina e Saúde Pública

Introduction: Diabetes mellitus (DM) is a complex disease whose main condition, hyperglycemia, when prolonged, is responsible for the development of a series of complications, including the diabetic foot. Such affection, when it occurs, happens after the appearance of several other milder signs and it indicates a failure or poor therapeutic adherence. Furthermore, it requires an adequate and immediate treatment, whose main objective is to prevent further injuries that can culminate in the foot or even the entire limb amputation, a procedure that has an extensive impact on the quality of life of patients with diabetes. **Objective:** To relate the variations between the treatment of complicated diabetic foot and the number of hospitalizations for complications of DM in the period from 2010 to 2020 in the state of Bahia, Brazil. **Methods:** Descriptive cross-sectional study, with analysis of secondary data from the Hospital Information System (SIH/SUS) from Datasus. Data will be collected in Hospital Morbidity and Hospital Production of the population of the state of Bahia. **Results:** Between 2010 and 2020, 13.670 patients were treated with complicated diabetic foot in the state of Bahia, being the year of 2010 the one with the smallest number of treatments (684) and 2019 the one with the highest (1.734), followed by 2020 (1.575). The rest of them remained near the average, calculated at 1.238,8 treatments per year. As to the internations for DM, it was observed that there were 153.848 hospitalizations from 2010 to 2020, in which 2020 the year with the least internations (10.143) and 2015 with the highest number (15.121). However, it is noteworthy that between 2015 and 2016 there was a drop in the average observed from 2010 to 2015 of 14.340 cases per year, to 10.995 cases per year. **Conclusion:** It is therefore possible to observe an increase of the number of complicated diabetic foot treatment, specially in 2019 and 2020, which can be associated with a decrease in the number of internations per year by complications of DM between 2016 and 2020. This phenomenon shows us that there may be a reduction in hospital follow-up of the complications caused by DM that could precede more serious complications, such as the diabetic foot. Consequently, it is clear that a reduction in the number of hospitalizations for monitoring other complications may be related to the increase in cases of complicated diabetic foot. **Keywords:** Diabetic foot; hospitalizations; diabetes mellitus complications.

106836

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

CORRELATION BETWEEN THE OMISSION OF MEALS AND THE BODY MASS INDEX OF PATIENTS WITH TYPE 2 DIABETES MELLITUS DURING THE PANDEMIC OF COVID-19Kamila Silva Camelo Rebouças¹, Fábila Karine de Moura Lopes², Renata Jataí Silva¹, Anne Karoline Martins Amorim¹, Synara Cavalcante Lopes¹, Carla Soraya Costa Maia³, Renan Magalhães Montenegro Júnior¹¹ Hospital Universitário Walter Cantídio, Universidade Federal do Ceará. ² Universidade Federal do Ceará. ³ Universidade Estadual do Ceará

Introduction: The omission of meals, especially the breakfast, is being related to metabolic risk factors, like the excess weight. Irregular eating patterns look less favorable to weight maintenance and to a metabolic healthy profile. **Objective:** To investigate the correlation between the omission of meals and the Body Mass Index of patients with type 2 diabetes mellitus during the COVID-19 pandemic. **Methods:** It is a cross cutting research with 58 individuals followed in the period from June of 2020 to June of 2021, in a Nutrition outpatients of a referral hospital in Fortaleza, Ceará. Weight and height were collected and the body mass index was calculated. The omission of meals was verified through the dietary recall of 24 hours. The correlation between the variables was verified by the Spearman test, taking as significant $p < 0,05$. **Results:** The average age of the participants was $60,67 \pm 10,22$ years, where most were women (64%). The average BMI was $29,82 \pm 4,99$ kg/m² and the majority showed excess weight (71%). The participants had on average $5 \pm 0,99$ meals a day. The medium of the number of omitted meals was 1 (0 - 3) and 60% were omitting at least 1 meal during the day. The most omitted meals were the supper (41%) and the morning snack (38%). It was observed a significant positive correlation between the number of omitted meals and the body mass index ($p = 0,018$). **Conclusion:** The frequency of daily meals can be related to the highest metabolic risk. Therefore, the evaluation of meals omission, as well as the time they are performed, must be evaluated in the clinic practice. However, additional data are necessary in order to have a better comprehension of factors associated with this result and its repercussions in health. **Keywords:** Nutritional status; type 2 diabetes mellitus; eating habits.

106841

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

CORRELATION BETWEEN WAIST-HEIGHT RATIO AND BODY ADIPOSITY IN METABOLICALLY HEALTHY NON-OBESE ADULTSFábia Karine de Moura Lopes¹, Larissa Luna Queiroz¹, Luana Matos de Souza¹, Natasha Vasconcelos Albuquerque¹, Bárbara Ribeiro da Silva¹, Renan Magalhães Montenegro Júnior², Virgínia Oliveira Fernandes²¹ Universidade Federal do Ceará. ² Hospital Universitário Walter Cantídio, Universidade Federal do Ceará

Introduction: Body adiposity assessment methods are widely used to predict metabolic risk. The gold standard used is the dual energy X-ray absorptiometry (DXA), which can provide accurate data on body composition. However it is a costly device and not always available. Therefore, it is important to verify the correlation with simple methods that are easy to apply in clinical practice, such as the waist-to-height ratio (WHtR). **Objective:** To verify the correlation between waist-to-height ratio and body fat in metabolically healthy non-obese adults. **Methods:** It was a cross-sectional study with 204 adults without comorbidities, aged between 18 and 59 years, from a reference hospital in Fortaleza, Ceará, from February 2020 to July 2021. Data on weight, height and waist circumference (measured in the region of smallest circumference between the costal arches and the iliac crest) were collected. From these data, the body mass index and the WHtR were calculated. In addition, the following parameters were evaluated using DXA: total body fat, percentage of body fat, visceral adipose tissue (VAT) and Fat Mass Index (FMI). The correlation between variables was verified by Spearman's test ($p < 0.05$). **Results:** The mean age of participants was 26.62 ± 8.16 years, most been women (63.2%). Mean total body fat mass, body fat percentage, FMI and VAT were $29.71 \pm .91\%$, 18.33 ± 5.48 kg, 6.63 ± 1.96 and 222.44 ± 199.94 g, respectively. A positive correlation was observed between waist-to-height ratio and all parameters related to body adiposity ($p < 0.05$). **Conclusion:** It was observed that there is an association between the WHtR and the parameters of body adiposity assessed by DXA. Suggesting that the WHtR, a simple and low-cost tool, can be used in the clinical practice as an indicator of body adiposity. **Keywords:** Adiposity; body composition; waist-to-height ratio.

106356

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

COST-BENEFITS AND COST-EFFICACY EVALUATION OF THE DPP4 INHIBITOR (DPP4i) SITAGLIPTIN USE IN HOSPITALAR SETTINGS FOR BLOOD GLUCOSE (BG) MANAGEMENT IN INDIVIDUALS WITH TYPE 2 DIABETES (T2D)Ronaldo José Pineda Wieselberg¹, Laura Pimenta Miana², Mariana Vilela Pereira², Pedro Campos Franco³, João Eduardo Nunes Salles⁴¹ Santa Casa de São Paulo, ADJ Diabetes Brasil, Imperial College London. ² Santa Casa de São Paulo. ³ Santa Casa de São Paulo, Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo (HCFMUSP). ⁴ Santa Casa de São Paulo, Sociedade Brasileira de Diabetes

Introduction: Intra-hospital hyperglycemia and decompensation of diabetes are risk factors for worse clinical outcomes during hospitalizations. It is very difficult to be successful in identifying and managing blood glucose in a hospital environment even with support from the Endocrinology team. The use of DPP4i is beneficial for hospitalized individuals, with low risk of side effects. DPP4i are medications that do not have important side effects, and can be an interesting option for in-hospital management, given its safety profile. **Objective:** Main goals are to evaluate the non-inferiority of Sitagliptin in the BG management of hospitalized individuals in comparison to insulin therapy, assessed by the reduction in mean BG, reduction in total insulin dose, and reduction of hypoglycemia during hospitalization. Secondary goals are reduced mortality, reduced ICU stay, reduced length of stay, and reduced cost of care during hospitalization. **Methods:** Open-label clinical trial with block randomization, in which intervention group (A) received Sitagliptin with adjusted dose according to renal function together with insulin therapy; control group (B) received insulin therapy only. 39 patients were recruited, 19 in group A and 20 in group B. Insulin doses were calculated according to InsulinApp algorithm. Patients were followed until hospital discharge, ICU admission or death. **Results and Discussion:** There were no statistical differences between groups A and B concerning the population distribution. There was no statistical difference in mean BG, ICU admission, or insulin dosage. The single death observed was from a palliative care patient. There was a significant reduction of hypoglycemia incidence (0.15 episodes/patient for intervention versus 2.95 episodes/patient for control) and average length of stay (13.9 days for intervention versus 27.1 days for control) between the two groups. The average cost reduction was estimated in R\$ 7814.37 between the two groups. **Conclusion:** The use of Sitagliptin led to a 94.9% reduction in the risk of hypoglycemia, and was not inferior to standard insulin therapy in terms of mean BG and insulin dosage. There was a reduction in the average length of stay by 13.2 days with significant cost reduction. There were no differences in mortality or number of ICU admissions. Sitagliptin should be considered for inclusion in the public health system as an option for the management of individuals with T2D in hospitalar settings. **Keywords:** Sitagliptin; hospitalar management; hospital stay length.

106802

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

DEEPLIPO – IDENTIFYING CONGENITAL GENERALIZED LIPODYSTROPHY USING DEEP LEARNINGRenan Magalhães Montenegro Junior¹, Natália Bitar da Cunha Olegario¹, Joel Sotero da Cunha Neto², Pedro Lino Azevêdo Landim², Paulo Cirillo Souza Barbosa¹, Virginia Oliveira Fernandes¹, Plácido Rogério Pinheiro²¹ Universidade Federal do Ceará. ² Universidade de Fortaleza

Introduction: Congenital generalized lipodystrophy (CGL) is a rare autosomal recessive disease characterized by near complete absence of functional adipose tissue from birth, and early metabolic manifestations, including diabetes. CGL diagnosis can be based on clinical data including acromegaly features, acanthosis nigricans, reduction of total body fat, muscular hypertrophy and protrusion of the umbilical scar. The identification and knowledge of CGL by the health care professionals is crucial once it is associated with severe and precocious cardiometabolic complications and poor outcome. Deep learning algorithms have been implemented in medicine and the application into routine clinical practice is feasible. **Objective:** Therefore, the aim of this study was to identify congenital generalized lipodystrophy phenotype using deep learning. **Methods:** A deep learning approach model using convolutional neural network was presented as a detailed experiment with evaluation steps undertaken to test the effectiveness. These experiments were based on CGL patient's photography database. The dataset consists of two main categories (training and testing) and three subcategories containing photos of patients with CGL, individuals with malnutrition and eutrophic individuals with athletic build. A total of 337 images of individuals of different ages, children and adults were carefully chosen from internet open access database and photographic records of stored images of medical records of a reference center for inherited lipodystrophies. For validation, the dataset was partitioned into 4 parts, keeping the same proportion of the 3 subcategories in each part. The 4-fold cross-validation technique was applied, using 75% (3 parts) of the data as training and 25% (1 part) as a test. Following the technique, 4 tests were performed, changing the parts that were used as training and testing until each part was used exactly once as validation data. **Results:** As a result, a mean accuracy, sensitivity, and specificity were obtained with values of $[90.85\% \pm 2.20\%]$, $[90.63\% \pm 3.53\%]$ and $[91.41\% \pm 1.10\%]$, respectively. **Conclusion:** In conclusion, this study presented for the first time a deep learning model able to identify congenital generalized lipodystrophy phenotype with excellent accuracy, sensitivity and specificity, possibly being a strategic tool for detecting this disease. **Keywords:** Congenital generalized lipodystrophy; deep learning; diagnosis.

106776

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

DESFECHOS PERINATAIS ADVERSOS RELACIONADOS AO DIABETES MELLITUS GESTACIONAL EM UMA MATERNIDADE DE JOINVILLE-SCPedro Bonilauri Ferreira¹, Jean Carl Silva¹, Rodrigo Ribeiro e Silva¹, Laura Luiz¹, Felipe Farah¹, Katrini Santana Feliciano²¹ Universidade da Região de Joinville (Univille). ² Centro Universitário – Católica de Santa Catarina

Objective: To evaluate adverse perinatal outcomes related to gestational diabetes mellitus (GDM). **Methods:** This is a case-control study, conducted at a maternity hospital in Joinville-SC, from August to December 2020. An interview was conducted with a sample composed of patients over 18 years old who have recently given birth. Patients were divided into 2 groups, patients with and without GDM. In the adjusted odds ratio calculation, a 95% confidence interval was used. The confounding factors used were age, previous cesarean section, smoking, alcoholism, and other drugs. **Results:** Patients who have recently given birth were divided into 2 groups: ones with GDM ($n = 345/20.6\%$) and ones without GDM ($n = 1,325/79.3\%$). As for maternal characteristics, patients with GDM were older, had less weight gain during pregnancy, had higher body mass index (BMI), had more prenatal appointments, previous pregnancies, cesarean sections and abortions, when compared to patients without GDM. Patients with GDM also had more previous diabetes mellitus, previous systemic arterial hypertension (SAH) and pregnancy induced hypertension (PIH), when compared to the other group. There was also a difference in race, schooling, and marital status. As for the characteristics of newborns of mothers with GDM, there was a lower gestational age, Apgar of 1st and 5th minutes, higher incidence of neonatal intensive care unit (NICU) use and cesarean section, in addition to a difference in weight adequacy. After calculating the adjusted odds ratio, it was found that pregnant women with GDM had a higher chance of having large for gestational age (LGA) newborns ($OR = 1.399$ IC95% 1.013-1.933) and newborns that will make use of NICU ($OR = 1.733$ IC95% 1.065-2.819), it did not interfere in maternal development of DHEG, cesarean section, low birth weight, prematurity and 1st and 5th minute Apgar. **Conclusion:** The presence of GDM increased the chance of LGA newborns by 1.39 times and use of NICU by 1.73 times. There was no significant influence on the other outcomes. **Keywords:** Gestational diabetes mellitus; gestation; neonatal complications.

106785

AÇÃO DE INSULINA E METABOLISMO MOLECULAR E CELULAR

DETERMINATION OF THE RELATIVE WEIGHT OF THE LIVER AND DOSAGE OF HEPATIC AND MUSCULAR GLYCOGEN IN AN EXPERIMENTAL MODEL OF TYPE II DIABETES TREATED WITH METFORMIN

Eryvelton de Souza Franco¹, Taciana Lima Novaes², Paulo Bernardo da Silveira Barros Filho³, Elizabeth do Nascimento², Maria Bernadete de Sousa Maia¹

¹ Departamento de Fisiologia e Farmacologia do Centro de Biociências da Universidade Federal de Pernambuco (UFPE).

² Departamento de Nutrição do Centro de Ciências da Saúde da Universidade Federal de Pernambuco (UFPE). ³ Hospital Santo Amaro – Santa Casa de Misericórdia do Recife

Introduction: One of the most important therapeutic alternatives for the control of type 2 diabetes mellitus (DM2) is the use of metformin, which improves the action of insulin in the liver, decreasing the hepatic production of glucose by 10% to 30%, and in muscle, increasing glucose uptake by 15% to 40% and stimulating glycogenesis. Its mechanism of action has been described to increase the number and improve the affinity of insulin receptors, both in adipocytes and in muscle. At the cellular level, metformin has been shown to increase insulin receptor tyrosine kinase activity by stimulating GLUT4 translocation and glycogen synthetase activity.

Objective: To evaluate the relative weight of the liver and the concentration of hepatic glycogen (GlycH) and muscular (GlycM) of obese Wistar rats treated with metformin. **Methods:** Eighteen male Wistar rats were used, divided into three groups (n = 6), one group fed with a Presence® diet (3.60 kcal/g) (PD) and the others with a westernized diet (WD) (4.08 kcal/g) for 150 days. One group that received WD was treated with metformin (500 mg/kg; SID, p.o.) and the other, as well as the one that received PD, were treated with vehicle (10 mL/kg water; SID, p.o.) for 30 days. At the end of the experiment, the animals were weighed, euthanized, the liver and tibial muscle were collected to determine the relative weight and determine the concentration of hepatic and muscle glycogen. The experimental protocol was approved by CEUA-FFPE (23076.035789/2012-03). **Results:** There was no significant difference between groups regarding the relative weight of the liver. The GlycH concentration (mg/g) in the WD-vehicle, WD-metformin and PD-vehicle group was 3.40 ± 0.20 ; 3.95 ± 0.40 and 4.90 ± 0.30 , respectively. These results showed that the PD-vehicle group had significantly higher GlycH concentration compared to the WD-vehicle and WD-metformin groups. However, the WD-metformin group had a GlycH concentration higher than that observed in the DO-vehicle group. The concentration of GlycM (mg/g) in the WD-vehicle, WD-metformin and PD-vehicle group was 0.24 ± 0.02 ; 0.50 ± 0.02 and 0.69 ± 0.03 , respectively. Evidencing that there was only significant difference between the PD-vehicle and WD-vehicle groups. **Conclusion:** Treatment with metformin allows the concentration of hepatic glycogen to remain higher than the group with untreated T2DM. However, it cannot bring these values to levels similar to those observed in the group without DM2 for both GlycH and GlycM. **Keywords:** Insulin resistance; westernized diet; Wistar rat.

106705

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

DEVELOPMENT AND VALIDATION OF THE "GLINS" MOBILE APP PROTOTYPE FOR SELF-MANAGEMENT OF GLYCEMIC MONITORING AND INSULIN ADMINISTRATION

Danielle Crystine Caetano Marques¹, Janice Sepúlveda Reis¹, Tatiane Géa Horta Murta¹, Helem de Sena Ribeiro¹, Suelen Rosa de Oliveira¹

¹ Faculdade Santa Casa de Belo Horizonte (FSCBH)

Introduction: Diabetes, a heterogeneous set of metabolic disorders, is among the main non-communicable chronic diseases in the world. Its complications have increased and increasingly require tools for managing the disease. Young people with DM1 are more likely to have fewer protective factors and greater risk behavior, resulting in problems with treatment adherence and self-management of their condition. Technologies are relevant in solving diabetes-related problems, highlighting the importance of developing educational and motivational materials accessible through digital means. The development of applications in the context of healthcare for people with DM can be a successful strategy in bringing about behavioral changes and greater adherence to treatment. **Objective:** To develop and validate a prototype mobile application for self-management of glycemic monitoring and insulin administration for young people with DM1. **Methods:** Methodological study developed in six steps: definition of the target audience; definition of the proposal and content; meetings with a committee of experts; prototyping; validation by the committee of judges and; test face-to-face. Application validation was performed by 8 judges, via e-surv and face-to-face testing with 8 young people. To verify the inter-judge agreement index, the Content Validity Index (CVI) was calculated, considering the minimum value of 0.78. For the validation of the face-to-face test with the target audience, the percentage of agreement values were calculated, adopting a minimum of 75% agreement of positive responses (Partially and Yes) for each item evaluated. **Results:** The application prototype was named GLINS, an abbreviation for the words glycemia and insulin. Built from an initial presentation screen, a primary screen for user registration and a secondary screen containing five icons were defined as follows: World Glins, My Glins, Speak Glins, Mini Glins and Planer Glins (Figure 1). As for the general and item evaluation of the application, done by the committee of judges, an average CVI of 0.98 was obtained, resulting in a high level of agreement and material adequacy. In the face-to-face test, a high percentage of general agreement among participants (98.3%) and high percentage of agreement by items was observed. **Conclusion:** The GLINS application prototype demonstrated a satisfactory acceptance and was considered valid for use by young people with DM1. **Keywords:** Health education; mobile applications; diabetes mellitus.

106364

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

DIABETES MELLITUS AND COVID-19-RELATED MORTALITYLaura Farias Caricchio Santana¹, Moema Farias de Oliveira², Gabriela Correia Matos de Oliveira¹, Luis Jesuino de Oliveira Andrade³¹ Faculdade de Medicina UniFTEC, Salvador, BA, Brasil. ² Secretaria Municipal de Itabuna, BA, Brasil ³ Departamento de Saúde, Universidade Estadual de Santa Cruz, Ilhéus, BA, Brasil

Introduction: Diabetes mellitus (DM) has been noted as an important risk factor associated with mortality in patients with coronavirus disease 2019 (COVID-19). Studies show that the probability of lethality from COVID-19 in diabetics is double when compared to non-diabetic individuals. **Objective:** The aim of this study was evaluate the prevalence of mortality in diabetics' patients with COVID-19. **Methods:** Medical certification of cause of death data obtained from the period January to December 2020, from the city of Itabuna, Bahia, Brazil, were used to assess the prevalence of mortality in patients with DM-associated COVID-19. The format of the certificate in conforms to the standard recommended by the World Health Organization included the immediate cause of death – COVID-19, and antecedent causes – DM. Only patients with a confirmed diagnosis of COVID-19 were included (U07.1: COVID-19, virus identified). **Results:** Three hundred seventy-three deaths during 2020 were attributed to COVID-19 on death certificates reported. Two hundred and twenty-four deaths (60.05%) were associated with DM, distributed as follows: according to the international classification of diseases (Table 1), sex (Table 2) and age group (Table 3). **Conclusion:** In our study, COVID-19 mortality associated with DM was very high, indicating that DM is an important risk factor for an adverse effect in individuals affected by COVID-19. **Keywords:** COVID-19; diabetes mellitus; mortality.

106772

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

DIABETES MELLITUS: MORTALITY IN BRAZIL ALONG ONE DECADEMatheus da Silveira Maia¹, Símia Bianca Soares Sabino¹, Cíntia Aniele Soares Sabino¹, Nicole da Silva Gomes¹, João Paulo Monteiro Soares¹, Maria Luana Souza Ferreira¹, Ana Emília Gomes Macêdo¹¹ Universidade do Estado do Pará – Campus Santarém, Santarém, PA, Brasil

Introduction: Diabetes mellitus (DM) is one of the major public health concerns in 21st century. In the global scene, Brazil shelters large part of the cases, taking the 4th position among countries with largest number of diabetic patients and, together with its complications, Diabetes is among the major death causes in the world. **Objective:** Analyze and understand diabetes mellitus mortality in Brazil between 2009 and 2019. **Methods:** This is Descriptive and transversal study, with quantitative approach. It was used information provided by the *Sistema de Informação de Mortalidade (SIM)*, managed by *Secretaria de Vigilância em Saúde do Ministério da Saúde*, about diabetes mellitus death in the five Brazilian regions, considering variables sex, color, age, schooling level and occurrence place. Datas were entered into Microsoft Office Excel 2019 program and analyzed using statistical description in order to win better datas interpretation and description. This is about unrestricted and accessible datas to the public. **Results:** It has been registered 653.866 diabetes mellitus complications death on the period talked about. There was a progressive increase with highest rate in 2019 (66.711), representing an addition of 28,03% towards 2009. About death total, 39% took place in southeast region, followed by 32% in northeast region and 15,4% in south region. About sex, it was observed prevalence of female (55,1%) over male (44,8%) population. There was higher incidence among white (49,25%), followed by the brown (36,03%) and black people (9,04%). There was schooling level prevalence of 1 to 3 years (25,85%) and 22,13% of people had no schooling level and 21,41% ignored this variable. Besides that, 29,77% of deaths were between age of 80 or more, followed by 70 to 79 (28,33%) and 60 to 69 years old (22,71%). About occurrence place mortality rate in hospital (67,60%) was the most evident, followed at home (24,14%) and in other health place (5,84%). **Conclusion:** Diabetes Mellitus is an important issue to be talked about among society and health bodies. Datas' expressiveness on this study is related to socioeconomic, territorials, low or no schooling and high age factors, that contributes to Diabetes risks prevalence. **Keywords:** Diabetes mellitus; mortality; epidemiology.

106365

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

DIABETIC FOOT – COMPUTATIONAL MODELING OF OVER-EXPRESSED MICRORNAS IN DIABETIC FOOT ULCER HEALING

Luís Jesuino de Oliveira Andrade¹, Alcina Maria Vinhaes Bittencourt², Moema Farias de Oliveira³,
Laura Farias Caricchio Santana³, Gabriela Correia Matos de Oliveira³

¹ Departamento de Saúde, Universidade Estadual de Santa Cruz, Ilhéus, BA, Brasil. ² Faculdade de Medicina, Universidade Federal da Bahia, Salvador, BA, Brasil. ³ Faculdade de Medicina UniFTEC, Salvador, BA, Brasil

Introduction: Vasculopathy associated with diabetic neuropathy are important risk factors for the diabetic foot ulcers development. Diabetic foot ulcers is severe complication that occur in about 15% of people with diabetes, being able require hospitalization and amputation in its treatment. **Objective:** Design *in silico* the molecular structure of micro-ribonucleic acid (miRNA) over-expressed in diabetic foot ulcers healing. **Methods:** We performed a careful search of the nucleotide sequence of 8 miRNAs over-expressed in diabetic foot ulcers, designing *in silico* the molecular structure of following miRNAs: miRNA-146a, miRNA-155, miRNA-132, miRNA-191, miRNA-21, miRNA-203a, miRNA-203b, and miRNA-210. The nucleotides were taken from GenBank of National Center for Biotechnology Information genetic sequence database. The sequences acquired were aligned with the Clustal W multiple alignment algorithms. The molecular modeling of structures was built using the RNAstructure, an automated miRNAs structure modelling server. **Results:** We showed a search for nucleotide sequence and the design of the molecular structure of following miRNA over-expressed in diabetic foot ulcers healing: miRNA-146a, miRNA-155, miRNA-132, miRNA-191, miRNA-21, miRNA-203a, miRNA-203b, and miRNA-210. We produced a tutorial on a molecular model of the 8 miRNAs overexpressed in the diabetic foot by processing *in silico* projection of their molecular structures. **Conclusion:** We show *in silico* secondary structures design of selected of 8 miRNAs over-expressed in diabetic foot ulcers healing by means of computational biology. **Keywords:** Diabetic foot ulcers; microRNA; molecular structure.

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RELATO DE CASO

106748

IMUNOLOGIA E TRANSPLANTE

DIABETIC KETOACIDOSIS AS A COMPLICATION OF THE NEW IMMUNOTHERAPIES: CASE REPORTCaroline Cardo¹, Christian Roberto Rodrigues Lopes Jr.¹, Marina Borges Alves Brasileiro de Faria¹, Marília Bortolotto Felipe¹¹ Hospital e Maternidade Celso Pierro, Pontifícia Universidade Católica de Campinas

Case presentation: S.M.B.L., female patient, 68 years old, with cancer at the base of the tongue and Type 2 Diabetes Mellitus, in use of metformin, with previously Glycosylated hemoglobin = 6.2%. Nivolumab immunotherapy was instituted 1 year after the cancer diagnosis, at that time with pulmonary nodules. One week after the first application, the patient was admitted at the hospital with symptoms of vomiting, polyuria, polyphagia and polydipsia. She was hospitalized after being diagnosed with diabetic ketoacidosis (DKA) with the following lab tests: glycemia = 230 mg/dL, arterial blood pH = 7.04, HCO₃ = 4.3, lactate 6.7, base excess = -23. DKA was reversed, and the patient was discharged with insulin regimen. **Discussion:** In the setting of malignancy, the balance between immune stimulation and inhibition is augmented, allowing tumors to evade immunomodulated cell death. Recently, monoclonal antibodies have been developed against immune checkpoints like programmed cell death protein 1 (PD-1), which is expressed on activated T cells, including T regulatory cells, B cells, and myeloid cells. Its major role is to limit the activity of T cells in peripheral tissues at the time of an inflammatory response, causing inhibition of T cell receptor-mediated positive signaling, leading to reduced proliferation, reduced cytokine secretion, and reduced survival of effector T cells. PD-1 is also expressed on regulatory T cells, where it may enhance their proliferation. This combined effect suppresses intrinsic immune-mediated antitumor activity. Thus, resulting in decrease of cytotoxic T cell function, and leading to enhanced anti-tumor immune response. Blocking these regulatory molecules, however, also causes breaches in self-tolerance leading to a large spectrum of immune-related adverse events (IRAEs). Endocrine IRAEs reported with immune checkpoint inhibitors include hypophysitis, thyroiditis, and in rare cases adrenalitis or diabetes mellitus. **Final comments:** According to studies, the new-onset insulin-dependent diabetes induced by PD-1 inhibitors has a 1% incidence. It is characterized by more rapid progression to severe insulin deficiency as compared with spontaneous type 1 diabetes, frequently presented with DKA and doesn't seem to undergo remission. Besides that, PD-1 inhibitors can also hinder glycemic control in pre-existing diabetes. ICI-induced diabetes requires complex insulin therapy and adds significantly to the morbidity of oncologic patients. **Keywords:** Diabetic ketoacidosis; nivolumab; monoclonal antibodies.

106840

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

DIABETIC KETOACIDOSIS AS THE FIRST MANIFESTATION OF TYPE 1 DIABETES DIAGNOSIS IN CHILDREN AND ADOLESCENTS DURING THE COVID-19 PANDEMICMarcia Puñales¹, Sabligny Carreiro¹, Marina Bressiani¹, Paula Mondadori¹, Carolina Piccoli¹, Balduino Tschiedel¹, Marcia Puñales¹¹ Instituto da Criança com Diabetes, Serviço de Residência de Endocrinologia Pediátrica, Hospital Criança Conceição, Grupo Hospitalar Conceição – Ministério da Saúde, Porto Alegre, RS, Brasil

Introduction: It is worldwide estimated that one third of type 1 diabetes (T1D) patients present diabetic ketoacidosis (DKA) as the first manifestation at the disease diagnosis, being more frequent in younger children. During the COVID-19 pandemic, a marked increase in the frequency of DKA at T1D diagnosis was described by different authors, even in certain countries known to have lower prevalence. **Objective:** To evaluate age at T1D diagnosis and regional prevalence of DKA as the initial presentation of T1D in children and adolescents during the pandemic period. **Methods:** The medical records of 249 T1D children and adolescents from March/20 to July/21 (pandemic) were retrospectively analyzed. The age at T1D at diagnosis was evaluated (median and interquartile range), compared with the presence or not of DKA and its severity assessed in different age groups (G): G1: 0-4 years; G2: 5-9 years; G3: 10-14 years and G4: 15-21 years. **Results:** The age at T1D diagnosis was 9 years (5.5 -12.1), being earlier in those with DKA (8.3 vs. 9.9 years, p = 0.007). Of the sample, 52.2% (130/249) presented DKA at diagnosis, being more prevalent in the younger group (G1 63.5% (33/52); G2 56.8% (54/95); G3 51.9% (41/79) and G4 8.7% (2/23), p < 0.001). The severe form of DKA was detected in 45.7% of the patients and according to the different age groups, this severity was found in 55.6% of G1, 36.1% G2, 45.7% G3 and only one patient in G4. **Conclusion:** During the COVID-19 pandemic, more than half of the T1D diagnosis had DKA as first presentation, mainly at younger ages. In addition, this group had greater severity forms of the disease, suggesting that the youngest have more difficulties at diabetes diagnosis, intensified by the restrictions imposed during the pandemic. **Keywords:** Ketoacidosis; type 1 diabetes; COVID-19 pandemic.

106294

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

DIABETIC RETINOPATHY AFTER COVID-19 INFECTIONFernando Korn Malerbi¹, Jacira Xavier de Carvalho², Sílvia Ferreira Bortoto², Mozania Reis de Matos³, Marisa Passarelli², Maria Lúcia Correa-Giannella¹, Márcia S. Queiroz²¹ Universidade Federal de São Paulo. ² Universidade Nove de Julho. ³ Unidade Básica de Saúde Dra. Ilza Weltman Hutzler

Introduction: The central nervous system can be attacked by SARS-CoV-2 through the olfactory bulb and cerebral blood circulation, with implications for retinal endothelial cells and blood-retinal barrier. The retina of individuals with diabetes mellitus (DM) may be more susceptible to direct damage by SARS-CoV-2 as the vascular angiotensin-converting enzyme 2 expression is increased in diabetic retinopathy (DR) retinas. The objective of the present case-control study was to evaluate the retina of individuals with type 2 DM (T2DM), who had been previously screened for DR, after recovering from COVID-19 disease. **Methods:** This study enrolled 14 individuals with a previous T2DM and COVID-19 diagnosis (T2DM+COVID-19 group), and other 28 individuals with a previous T2DM diagnosis, but without COVID-19 diagnosis (T2DM control-group). All individuals were evaluated on a clinical basis, concerning COVID-19 systemic manifestations, its severity was classified as mild-moderate symptoms (no need for oxygen support or hospitalization) or severe (severe symptoms, requiring hospitalization or oxygen support). The eye examination occurred at the recovery phase, with at least 30 days after the first symptom of COVID-19, and individuals of control group had their eyes assessed in the same period by a smartphone-based hand-held device. **Results:** Fourteen individuals in T2DM+COVID-19 group and other 28 patients in T2DM-control group underwent retinal re-evaluation. Clinical and demographics variables were not different between two groups. Most patients in both groups had no change in DR severity between the two time points. Only 2 patients in the T2DM+COVID-19 group presented worsening of retinopathy in both eyes (Figure 1). These patients were also classified as having severe COVID-19. In the control group, we observed an improvement in DR in the left eye of 1 patient, from moderate to mild non proliferative DR. Another patient experienced a progression of DR in both eyes from moderate to severe non proliferative in the same period. **Conclusions:** In this small controlled series, no association was found between COVID-19 infection and the progression of DR. Even though the sample was of reduced size, most patients showed stable retinal findings after the infection. We believe our data contribute to the understanding of the impact of COVID-19 on diabetic microvascular complications. **Keywords:** COVID-19; diabetic retinopathy; diabetic complications.

106781

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

DIABETIC RETINOPATHY AND EDUCATION-RELATED FACTORS IN DIABETES: EXPERIENCE OF A SECONDARY CARE CENTERLaura da Silva Girão Lopes¹, Amanda Lima Pimentel¹, Kenya Vitória D.A. Queiroz¹, Márcia Benevides Damasceno¹, Cristina Figueiredo Sampaio Façanha¹¹ Centro Universitário Christus (Unichristus)

Introduction: Patient education in diabetes, health literacy (HL), self-care (SC), and knowledge in diabetes (KD) are being studied as cornerstones in management of this clinical condition. **Objective:** The aims of this study were to evaluate the relationship between the prevalence of diabetic retinopathy, and the health literacy, self-care and KD in patients submitted to ophthalmological evaluation in a secondary care center in northeast of Brazil. **Methods:** This was a cross-sectional study with 76 patients. Data were obtained from medical records, and/or surveys. The diagnosis of diabetic retinopathy was made by the same ophthalmologist, and the patients were classified in two groups: with diabetic retinopathy (group DR), and without diabetic retinopathy (group WDR). The short test of Functional Health Literacy (S-TOFHLA) was used to evaluate HL, the Summary of Diabetes Self-Care Activities Questionnaire (SDSCA) to evaluate SC, and the DKN-A (Diabetes Knowledge Scale Questionnaire) to evaluate KD. **Results:** Were enrolled 76 patients, including 65 with type 2 diabetes and 11 with type 1 diabetes. Most patients were women (64%), 51,2% had 8 years or less of formal education, and 42% were patients with a low income (from US\$ 170 to 510/month). The ophthalmologic evaluation included 34 (44,7%) patients in group DR, and 42 (55,3%) patients in group WDR. Of the total of 76 patients, 15 patients (19,7%) of group DR, and 5 patients (6,5%) were submitted to the first ophthalmologic evaluation in that time ($p < 0,05$). The main characteristics of the groups were similar: Group DR – age $58,4 \pm 9,3$ years, diabetes duration of $19,6 \pm 11$ years; group WDR: $52,3 \pm 15,5$ years and diabetes duration of $14,3 \pm 9,4$ years. Mean HbA1c was $8,9 \pm 1,9$ in group DR, and $9,1 \pm 2,1\%$ in group WDR ($p = 0,2$). Not all the patients had visual acuity considered adequate to perform the tests: 36 (47%) patients answered S-TOFHLA, 61 (80%) answered SDSCA and 41 (54%) answered DKN-A. The overall score of S-TOFHLA score was a median of $53,4 \pm 29$ (group DR) and $57,9 \pm 29,5$ (group WDR) ($p = 0,541$). Regarding self-care activities, individuals were most likely to adhere to diet, physical activity and blood glucose monitoring, but the groups were similar. Only 23 patients had satisfactory KD according DKN-A questionnaire, without differences between the groups. **Conclusion:** The subjects included in this study were patients with low health literacy, failures in self-care related to the disease and unsatisfactory KD. **Keywords:** Diabetes; diabetic retinopathy; education.

106769

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

DIASTOLIC DYSFUNCTION IN PATIENTS WITH TYPE 2 DIABETES: ASSOCIATED FACTORS AND COMPARISON WITH CONTROL GROUPJennifer Vogel¹, Ana Carolina Marino Saran Carrijo de Andrade², Stephanie Corradini Tormin², João Eduardo Nunes Salles², Rogerio Krakauer²¹ Faculdade de Ciências Médicas da Santa Casa de São Paulo. ² Irmandade da Santa Casa de Misericórdia de São Paulo

Diabetes type 2 is one of the most increasing chronic disease that affects the world population and has an independent risk factor for the occurrence of cardiovascular disorder, causing the high morbidity and mortality rates. In this context, the heart failure is one of the important consequences of cardiovascular disease and is responsible for the majority of hospitalizations in patients with type 2 diabetes, in with recent studies showed that contrary of the commonly heart failure with reduced ejection fraction, those patients had a preserved ejection fraction. The diastolic dysfunction can increase risk of developing heart failure, therefore this study evaluates diabetic cardiomyopathy, regardless of other risk factors or macrovascular complications, and possible relationship between microangiopathy and myocardial dysfunction, by comparing echocardiography of patients with and without type 2 diabetes and the prevalence of diastolic dysfunction. For that, was analyzed 30 patients (18 with diabetes type 2 and 12 without) that had no cardiovascular knowing disease and had not been medicated with SGLT-2 inhibitor, pioglitazone or saxagliptin and compared disease duration, BMI, glycated hemoglobin level and cardiac alterations with clinical history, laboratory tests and echocardiography. In this observational and cross-sectional study, we could verify that the left atrial volume was superior in the diabetic group (mean of 26 in the diabetic group and 24 in the non-diabetic group, 82% probability and CI 94%), and the mean longitudinal Strain was greater in the non-diabetic group (mean of 18 in the non-diabetic group and 16 in the diabetic group, with 90% probability and CI 94%). In the patients with diabetes, we observed that those who had retinopathy the lowest Strain values (mean of 17 in the non-retinopathy group and 16 in the retinopathy group, with 69% probability CI 94%). With that, the hypothesis of a correlated relation with diabetics and cardiomyopathy can be strengthened and the worst values in the group with diabetes and retinopathy can suggest that patients with microangiopathy complications can be already progressing to a myocardial dysfunction and have better chances of evolving to a heart failure disease.

Keywords: Type 2 diabetes; diastolic dysfunction; microangiopathy.

106833

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

DISCARD OF INSULIN THERAPY WASTE PRODUCED IN THE HOUSEHOLDS OF PATIENTS WITH DIABETES MELLITUS MONITORED AT A PUBLIC UNIVERSITY HOSPITAL IN RIO DE JANEIRO, BRAZIL: A LONG WAY TO GO FOR PATIENTS AND HEALTH CARE PRACTITIONERSAmália Lucy S. Q. Telles¹, Giselle Fernandes Taboada¹, Marcela Arruda Karl¹, Fabiana Scarpa D'angelo¹, Giovanna Aparecida Balarini Lima¹¹ Universidade Federal Fluminense

Introduction: Insulin therapy results in the production of perforating-cutting (lancets and needles), chemical (remains of medication) and biological waste (used test strips). However, many patients are unaware of the risks that such materials bring to them, to the population and to the environment in case of incorrect discard. **Objectives:** To evaluate how patients with diabetes mellitus (DM) in use of insulin therapy discard their perforating-cutting, chemical and biological waste and to assess if they are receiving instructions about disposal from health care practitioners. **Methods:** Cross-sectional study that included patients with DM, over 10 years-old, using insulin therapy and followed up at the Endocrinology Service of a public university hospital in Rio de Janeiro. Exclusion criteria were pregnancy and mental illness. Through an interview, the patients answered a questionnaire informing how they discard their perforating-cutting, chemical and biological waste. In addition, they were asked about having received guidance on the disposal and who provided the information. The project was approved by the Research Ethics Committee. **Results:** 106 patients were included, 55% were women, with a median age of 39 years (IQR 22-60). Regarding the storage before the discard, 47.1% of the patients store their perforating-cutting, chemical and biological waste in plastic bottles, 10.6% in cardboard containers, 2% in glass bottles and 35.6% don't use any containers. Regarding final discard, 57.1% dispose the material stored directly in normal household waste, 38.1% deliver the container to a health care unit and 3% burn it at home. Thirty-five percent reported having already received guidance on the disposal, with information provided by the nurse in 59.5% of cases and by the doctor in 16.2% of cases. **Conclusion:** Most of the patients inappropriately discard insulin therapy waste. The Brazilian Society of Diabetes recommends puncture resistant containers, such as hard plastic bottles, or cardboard containers and that these containers should be delivered at the nearest health care unit. In addition, more educational campaigns should be directed to the health professionals - doctors, nurses, pharmacists. Lastly, community sites, such as shopping malls, should be encouraged to have biohazard disposal containers, to minimize inappropriate disposal. **Keywords:** Needle disposal; diabetes education; public health.

106712

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

DISTRIBUTION OF CARDIOVASCULAR RISK IN TYPE 2 DIABETES: RESULTS OF AN ANALYSIS USING DATA FROM THE CAPTURE STUDYJan Westerink¹, André Vianna², Tatiana Martins Benvenuto Louro Barbara³, Ellen Margo Hengeveld⁴, Julie Broe Honore⁴, Valerie humphreys⁵, François Mach⁶¹ Department of Vascular Medicine, University Medical Center Utrecht, Utrecht, Netherlands. ² Centro de Diabetes Curitiba, Curitiba, PR, Brazil. ³ Novo Nordisk, Brazil. ⁴ Novo Nordisk A/S, Søborg, Denmark. ⁵ Diabetes Ireland Advocacy Group, Dublin, Ireland. ⁶ University of Geneva, Geneva, Switzerland

Introduction: Patients with type 2 diabetes (T2D) are at an estimated twofold increased risk of developing cardiovascular disease (CVD), but absolute risk differs from patient to patient. SGLT-2is and GLP-1 RAs have demonstrated benefits in CVD risk reduction in patients with T2D and CVD, and their use is supported by recent guidelines. **Objectives:** To estimate 10-year and lifetime CVD risk distribution in individuals from the CAPTURE study using the DIAL model, and to assess current treatment patterns, including use of SGLT-2is and GLP-1 RAs, based on risk. **Methods:** CAPTURE was a cross-sectional, non-interventional study of CVD prevalence in people with T2D across 13 countries. 10-year and lifetime risks of CVD were calculated in the DIAL model using patient-level data from the CAPTURE study. High CVD risk was defined as a 10-year CVD risk > 10% or a lifetime CVD risk > 50%. **Results:** For patients with a history of CVD, the mean 10-year CVD risk was 40%, and 96% had a 10-year risk > 10%. For patients with no history of CVD, the mean 10-year CVD risk was 5% and only 14% had a 10-year risk > 10%. For patients with a history of CVD, the mean lifetime CVD risk was 65% and 80% had a lifetime risk > 50%. For patients with no history of CVD, the mean lifetime CVD risk was 10% and only 0.4% had a lifetime risk > 50%. Both SGLT-2i and GLP-1 RA use tended to be lower in patients with CVD and higher predicted lifetime CVD risk. There were marked regional differences in SGLT-2i and GLP-1 RA use. **Conclusions:** Both 10-year and lifetime CVD risk is strongly linked to history of CVD, as observed in the CAPTURE study population. Only a minority of patients at high risk of CVD, including those with prevalent CVD, received a glucose-lowering agent with demonstrated benefit in CVD risk reduction. **Keywords:** Cardiovascular risk; GLP1 receptor analogues; cardiovascular benefit.

106739

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

DYSGLYCEMIA BEFORE AND AFTER ADRENALECTOMY IN PHEOCHROMOCYTOMAS AND PARAGANGLIOMAS - A RETROSPECTIVE STUDYJonathan Oliveira de Medeiros¹, Filipe Barbosa Linhares¹, Luiz Filipe Rocha de Sá¹, Joao Bosco Nascimento¹, Barbara Soares Rocha¹, Alice Helena Dutra Violante¹, Melanie Rodacki¹¹ Universidade Federal do Rio de Janeiro (UFRJ)

Introduction: Pheochromocytomas and Paragangliomas are tumors of neuroendocrine origin that produce catecholamines. Dysglycemia may occur in this setting, due to increase in insulin resistance and impairment of its release. **Goals:** To evaluate the prevalence of diabetes mellitus (DM) and pre-diabetes in patients with pheochromocytoma and paraganglioma, in addition to identifying whether there is improvement in blood glucose after surgical resection of the tumor. **Methods:** Retrospective study in which we reviewed the medical records of patients with pheochromocytoma or paraganglioma who underwent adrenalectomy in a tertiary hospital between 1994 and 2019. **Results:** 41 patients were included, but glucose measurements were available only in 23 cases. In these patients, the prevalence of pre-diabetes and DM were, respectively, 60.9% and 17.4%. The mean pre-surgical and post-surgical blood glucose levels were 114 mg/dL and 98 mg/dL, respectively. There was a significant reduction in fasting blood glucose after surgery ($p = 0.018$). However, 2 patients remained with the diagnosis with DM and one additional case was re-classified as pre-diabetes after surgery. Tumor size, sex and age were not significantly associated with glucose in patients with pheochromocytoma and paraganglioma ($p0.885$, $p0.22$, $p0.661$, respectively). **Conclusion:** Dysglycemia is common in patients with pheochromocytoma and paraganglioma and a significant proportion of patients develop DM. The disturbance in glycemic control does not seem to be related to tumor size. Although there is a decrease in glucose levels after surgery, dysglycemia might persist and should be investigated in the post-operative period. **Keywords:** Dysglycemia; pheochromocytoma; adrenal.

106805

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

EATING ACCORDING TO THE PROCESSING DEGREE BY ADULTS MONITORED IN A BENEFICENT UNIT IN THE CITY OF NOVA FRIBURGO – RJCamila Matias da Silva¹, Francine dos Santos-Macedo², Sâmela Caetano Tavares¹, Bianca Martins Gregório³, Thereza Cristina Lonzetti Bargut², Fernanda Amorim de Moraes Nascimento Braga¹, Caroline Fernandes-Santos²¹ Universidade Federal do Rio de Janeiro, Centro Multidisciplinar de Macaé. ² Instituto de Saúde de Nova Friburgo, Universidade Federal Fluminense. ³ Departamento de Anatomia, Universidade do Estado do Rio de Janeiro

The Dietary Guidelines for the Brazilian Population (2014) recommends that healthy eating should be based on the consumption of natural or minimally processed foods. Scientifically, this eating habit is recognized to reduce the risks for Chronic Non-Communicable Diseases (NCDs) such as diabetes. To analyze the type of food consumption of men and women followed up in a social entity located in the city of Nova Friburgo-RJ. This is a cross-sectional study approved by the Research Ethics Committee (CAAE:49864015.2.0000.56.26), which analyzed the food consumption of men and women followed up in a social entity. A Food Frequency and Consumption Questionnaire (FFCQ) was applied to assess the usual and daily dietary intake. Four food categories, defined by The Dietary Guidelines for the Brazilian Population according to the type of processing used in food production, were used to divide the foods of the FFCQ: natural and minimally processed, processed and ultra-processed. Socioeconomic data, nutrition status (body mass index – BMI) and medical history were also collected. Mean, standard deviation and frequency were analysed. Both sexes participated (n = 57, 60% men with a mean age of 39 ± 11.98 years old). Most participants have a family income of 1-3 minimum wages (40%) and consume natural and minimally processed foods on a daily basis, such as legumes (72%) and vegetables (63%). Rice and beans were consumed regularly (5-6 times a week or more) by 79% e 60% of the participants, respectively. However, 84% reported consuming skimmed milk, while 58% consume whole milk only three times a month. Anthropometry by BMI showed that the mean was 28.17 ± 7.74 kg/m². The medical history demonstrated that most participants did not have diabetes mellitus (DM) or arterial hypertension. The dietary analysis presented that the frequency of consumption of natural and minimally processed foods and source of calcium are below the recommended by the Dietary Guidelines for the Brazilian Population, while overweight was observed at the same time. Although we have not found a medical history of NCDs, the low consumption of these foods can increase the risk of developing these diseases, such as DM. **Keywords:** Eating; feeding behavior; heart disease risk factors.

106713

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

EFFECT OF A REMOTELY SUPERVISED PHYSICAL EXERCISE PROGRAM DURING THE COVID-19 PANDEMIC ON THE LEVEL OF STRESS, ANXIETY, QUALITY OF SLEEP AND QUALITY OF LIFE OF PEOPLE WITH TYPE 2 DIABETESMaria Carolina Barbosa Pinheiro¹, Elizabeth Pereira Costa¹, Thays Helena Matias da Silva², Isis Cordeiro Alves¹, Laura Lis dos Santos Souza¹, Daniele Maria da Silva², Denise Maria Martins Vancea¹¹ Escola Superior de Educação Física/Universidade de Pernambuco (ESEF/UPE). ² Doce Vida – Programa de Exercício Físico Supervisionado para Diabéticos – ESEF/UPE

Introduction: Social distancing due to COVID-19 affected glycemic control and the level of anxiety and stress. The change in routine impaired the quality of sleep and quality of life of people with type 2 diabetes. The options for the practice of physical exercise were impacted, which is why exercise performed remotely is a strategy to promote health benefits. **Objective:** To evaluate the impact of a remotely supervised physical exercise program, during the COVID-19 pandemic, on the level of stress and anxiety, sleep quality and quality of life of people with type 2 diabetes. **Methods:** Cross-sectional study, approved by the Ethics Committee (No. CAAE 46588721.3.0000.5192). Twelve people with type 2 diabetes of both genders participated, mean age 66.3 ± 7.4 years and time since diagnosis 16.3 ± 10.4 years. The Sweet Life-Supervised Physical Exercise Program for Diabetics has been adapted for remote form. The intervention lasted three months, with remote classes held twice a week. Video calls were made to check the environment and carry out a screening. The training was divided into three methods: joint mobility, strength training (upper and lower limbs) and stretching exercises. According to clinical and physical conditions, the protocol was divided into light, moderate and intense, with 1-3 sets of 8-15 repetitions. Questionnaires were applied on the level of stress, anxiety, sleep quality and quality of life, at the beginning and at the end of the intervention, by phone calls. A descriptive analysis was used. **Results:** Regarding the level of anxiety, there was a decrease. At the time before the intervention, seven diabetics had minimal anxiety and five diabetics had mild anxiety; after the intervention, eleven diabetics had minimal anxiety and one diabetic had mild anxiety. Regarding quality of life, there was an improvement in the percentage of satisfaction (44.6% vs. 50.6%), the issue of diabetes not impacting your life (52.7% vs. 55.5%) and not worrying about diabetes-related issues (60% vs. 62.5%). There was an improvement in the stress level of 41.6%. Regarding sleep quality, 75% of diabetics increased their sleep time (1h-3h). **Conclusion:** The remotely supervised physical exercise program during the COVID-19 pandemic was effective in improving the level of stress, anxiety, sleep quality and quality of life of people with type 2 diabetes. **Keywords:** Physical exercise; quality of life; diabetes.

106717

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

EFFECT OF A REMOTELY SUPERVISED PHYSICAL EXERCISE PROGRAM DURING THE COVID-19 PANDEMIC ON THE LEVEL OF STRESS, ANXIETY, QUALITY OF SLEEP AND QUALITY OF LIFE OF PEOPLE WITH TYPE 2 DIABETES

Maria Carolina Barbosa Pinheiro¹, Elizabeth Pereira Costa¹, Thays Helena Matias da Silva², Isis Cordeiro Alves¹, Laura Lis dos Santos Souza¹, Daniele Maria da Silva², Denise Maria Martins Vancea¹

¹ Escola Superior de Educação Física/Universidade de Pernambuco (ESEF/UPE). ² Doce Vida – Programa de Exercício Físico Supervisionado para Diabéticos – ESEF/UPE

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106757

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

EFFECT OF A REMOTELY SUPERVISED PHYSICAL EXERCISE PROGRAM DURING THE COVID-19 PANDEMIC ON THE STRENGTH LEVELS OF PEOPLE WITH TYPE 2 DIABETES

Laura Lis dos Santos Souza¹, Catarina Deschamps Santiago¹, Maria Beatriz Pyrrho Luckwu¹, Breno Silva dos Santos¹, Eduardo Fellipe Vieira Vasconcelos¹, Heitor Rocha do Amaral Brito¹, Denise Maria Martins Vancea¹

¹ Universidade de Pernambuco

In the current context, due to the COVID-19 pandemic, the best way to practice physical exercise, effectively and safely, is remote. The regular practice of physical exercise may influence the improvement of the variables strength, muscle volume and physical fitness, and sedentary lifestyle, in turn, could anticipate sarcopenia. **Objective:** To evaluate the strength of the lower limbs of people with type 2 diabetes after the intervention of a supervised physical exercise program during the COVID-19 pandemic. **Methods:** This study was characterized as cross-sectional, with the participation of eight people with type 2 diabetes, of both genders, mean age 65 ± 6.2 years and mean time since diagnosis 14 ± 8 years. The study was approved by the Ethics Committee (No. CAAE 46588821.9.0000.5192.) The Doce Vida – Supervised Physical Exercise Program for Diabetics was adapted for the remote form. The intervention lasted three months, with remote classes held twice a week. Video calls were made to check the environment and carry out a screening. The training was divided into three methods: joint mobility, strength training (upper and lower limbs) and stretching exercises. According to clinical and physical conditions, the protocol was divided into light, moderate and intense, with 1-3 sets of 8-15 repetitions. The sit and stand test was applied before and after the physical exercise protocol intervention. The Wilcoxon test was used to compare strength before and after the intervention. A significance level of $p < 0.05$ was adopted. **Results:** According to the data analysis, there was an increase in the strength of the lower limbs, but not statistically significant (8.25 ± 1.90 *vs.* 10.75 ± 2.37 , $p = 0.016$). **Conclusion:** After three months of intervention of the supervised physical exercise program, during the COVID-19 pandemic, it is important to emphasize the clinical magnitude of the increase in lower limb strength, as it positively affects muscle mass gain, preventing sarcopenia, an important factor for people with type 2 diabetes. **Keywords:** Diabetes; pandemic; strength training.

106754

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

EFFECTS FROM A REMOTELY SUPERVISED PHYSICAL EXERCISE PROGRAM DURING THE COVID-19 PANDEMIC ON THE GLYCEMIC CONTROL OF PEOPLE WITH TYPE 2 DIABETES

Tiago Damaso Martins Vancea¹, Pedro Henrique Pimentel de Amorim Nascimento¹, Apuana Gomes Alves¹, Ítalo André Barros Alves¹, Caio César Martins do Rêgo¹, Thiago Borges Madureira Sabino², Denise Maria Martins Vancea¹

¹ Universidade de Pernambuco. ² Universidade Federal de Pernambuco

Introduction: Type 2 diabetes is one of the most significant pandemics of the century, but it is not the only one. At the end of 2019, the world was surprised by the new Coronavirus (COVID-19). Due to confinement and the possible increase in the time of sedentary behavior, physical exercise performed at home has become an alternative strategy to promote health benefits. **Objective:** To evaluate the impact of a remote and supervised physical exercise program during the COVID-19 pandemic on glycemic control in women with type 2 diabetes. **Methods:** This study was characterized as cross-sectional and was approved by the Committee of Ethics (CAAE No. 46588821.9.0000.5192). Six women with type 2 diabetes, mean age 62.7 ± 5.9 years and mean time since diagnosis 11.2 ± 4.4 years participated in the study. The Doce Vida – Supervised Physical Exercise Program for Diabetics was adapted for the remote form. The intervention lasted three months, with remote classes held twice a week. Video calls were made to check the environment and carry out a screening. The training was divided into three methods: joint mobility, strength training (upper and lower limbs) and stretching exercises. According to clinical and physical conditions, the protocol was divided into light, moderate and intense, with 1-3 sets of 8-15 repetitions. Capillary blood glucose measurement was performed before and after each exercise session. The Wilcoxon test was used to compare blood glucose levels before and after the intervention. A significance level of $p < 0.05$ was adopted. **Results:** According to the data analysis, there was a reduction in capillary blood glucose after three months of intervention ($171.7 \text{ mg/dL} \pm 51 \text{ mg/dL}$ vs. $153.9 \pm 50 \text{ mg/dL}$, $p = 0.00$). **Conclusion:** The remote and supervised exercise program during the COVID-19 pandemic was effective in glycemic control of women with type 2 diabetes. **Keywords:** Glycemic control; physical exercise; pandemic.

106829

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

EFFECTS OF HIGH DOSE SUPPLEMENTATION OF CHOLECALCIFEROL ON URINARY ALBUMIN EXCRETION IN PATIENTS WITH TYPE 1 DIABETES MELLITUS

Gabriela Nascimento de Lemos¹, Ana Carolina Contente Braga de Souza¹, Karem Mileo Felício¹, Natércia Neves Marques de Queiroz¹, Neylane Kely Vasconcelos Ferreira¹, Franciane Trindade Cunha de Melo¹, João Soares Felício¹

¹ Hospital Universitário João de Barros Barreto, Universidade Federal do Pará

Introduction: VD deficiency has been shown to be involved in several pathophysiological processes, such as inflammation, endothelial dysfunction and renin angiotensin aldosterone system up-regulation, which are associated with the development of diabetes mellitus complications. On the other hand, the relationship between VD deficiency and the origin and progression of DRD remains uncertain. The fact that kidney damage, by itself, causes a reduction in detectable VD levels from a $\text{GFR} < 45 \text{ mL/min/1.73 m}^2$, makes it difficult to establish whether hypovitaminosis D would be a precipitating environmental factor for DRD, or just consequence of disease progression. **Objective:** Evaluate the effects of high-dose cholecalciferol supplementation on urinary albumin 24-hours excretion (UAE) in type 1 diabetes mellitus (T1DM). **Methods:** Clinical trial was conducted with T1DM, patients with insufficiency and/or VD deficiency [serum $25(\text{OH})\text{D}$ less than 30 ng/mL] have received $10,000 \text{ IU/day}$ for 12 weeks. Those with $25(\text{OH})\text{D}$ levels between 30 and 60 ng/mL were treated with $4,000 \text{ IU/day}$ of VD, in order to maintain serum levels above 30 ng/mL and less than 100 ng/mL . We included 64 patients who received doses of $4,000$ and $10,000 \text{ IU/day}$ of cholecalciferol according to previous VD levels. They were submitted to laboratorial exams, including urinary albumin excretion before and after VD supplementation. **Results:** Sex, age, BMI, duration of T1DM were: 33 female, 31 male; 27.9 ± 10.6 years; $23.7 \pm 4.2 \text{ kg/m}^2$; 11.8 ± 7.9 years, respectively. 25-OH-vitamin D , HbA1c, UAE previous e pós-supplementation were: 27 ± 8.9 vs. $55.5 \pm 23.7 \text{ ng/mL}$, $p < 0.01$; 9.4 ± 2.2 vs. 9.6 ± 2.6 , NS; 76.4 ± 179.1 vs. $58 \pm 133.4 \text{ mg/24 hour}$, $p < 0.05$, respectively. Between those patients with DRD (albuminuria $> 20 \text{ mcg/min}$) at screening ($n = 24$), there also was a significant reduction in UAE (251.7 ± 257.1 vs. $130.2 \pm 197.5 \text{ mg/24 h}$, $p = 0.012$) after cholecalciferol supplementation. There was no difference in glycated hemoglobin, systolic blood pressure and body mass index at the end of the study. **Conclusion:** Our data suggest that high doses of cholecalciferol seems to reduce albuminuria in T1DM patients, especially in those with early-stage kidney disease. **Keywords:** Type 1 diabetes mellitus; urinary albumin excretion; vitamin D.

106730

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ELABORATION OF INSTRUMENTS FOR SELF-ASSESSMENT ON THE TREATMENT OF PATIENTS WITH DIABETES MELLITUSRenata de Lima Evangelista¹, Tatiane Géa Horta¹, Aleida Nazareth Soares¹, Janice Sepúlveda Reis¹, Suelen Rosa de Oliveira¹, Helem Sena¹, Alexandra Dias Moreira¹¹ Instituto de Ensino e Pesquisa (IEP) Santa Casa

Misinformation about diabetes mellitus is the main reason for difficulties in the treatment process of the disease. The educational practice in health is an important method that has been widely used for carrying out interventions in the treatment of patients, aiming at increasing the self-knowledge of their illnesses. However, there is a lack of tools aimed at self-assessment in relation to self-care of patients with diabetes, a fact that highlights the relevance of the elaboration of instruments for this purpose. Therefore, a methodological work was prepared with the aim of building and culturally adapting three instruments of self-assessment of insulin therapy in patients with diabetes mellitus. The analyses of the instruments evaluated their conceptual and item equivalences, as well as their cultural adaptations. Three committees of 24 judges analyzed and judged the instruments, using electronic questionnaires. The results of the analyzes were examined by a team of professionals from four areas of health, as follows: nursing, medicine, nutrition and biostatistics. Content analyzes were performed through the Content Validity Index statistical calculations, Intraclass Correlation Coefficient and Content Validity Reliability. The Index of Content Validity, considering clarity and relevance, was 0.91 for the Insulin Preparation and Application Questionnaire with the Pen; 0.91 for the Questionnaire on Preparation and Administration of Insulin with the Syringe; and 0.93 for the Glycemic Monitoring Questionnaire. Since all results exceeded the value of 0.78, we concluded that there is quality in the items evaluated and that these are effective and valid for the target population. **Keywords:** Diabetes mellitus; surveys and questionnaires; health education.

106746

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

ELABORATION, CULTURAL ADEQUACY AND VALIDATION "HEALTHY EATING ADHERENCE TEST IN CARBOHYDRATE COUNTING"Ana Paula Pereira Drummond¹, Sheyla Geralda Cordeiro Ferreira¹, Débora Bohnen Guimarães¹, Janice Sepúlveda Reis¹, Aleida Nazareth Soares¹, Helem de Sena Ribeiro¹¹ Instituto de Ensino e Pesquisa da Santa Casa de Belo Horizonte, Belo Horizonte, MG, Brasil

Introduction: Carbohydrate counting is part of the nutritional therapy of patients with diabetes, providing glycemic control with greater flexibility in food choices. There are validated instruments for the Portuguese language that assess the diet of individuals with diabetes, however, these instruments do not have the necessary specificities that a healthy diet in carbohydrate counting demands. Providing an instrument that allows the identification of issues related to adherence to healthy eating in carbohydrate counting may contribute to improving care for people with diabetes. **Objective:** To develop, culturally adapt and validate an instrument to assess adherence to healthy eating in type 1 diabetic patients who count carbohydrates. **Methods:** Methodological study covering 5 steps. Step 1: elaboration (with the participation of professionals from nutrition, endocrinology, linguistics and statistics). Step 2: content validation (based on the evaluation of a committee of judges including nutritionists, endocrinologists and linguistics), the Content Validity Index (CVI) and the percentage of acceptance of the judges were calculated. Step 3: The cultural adequacy was performed face to face with type 1 diabetic patients who count carbohydrates (pre-test). Step 4: analysis by the expert committee generating the final instrument. Step 5: Analysis of reliability, verified by internal consistency (Cronbach's alpha) and temporal stability by test-retest (intraclass correlation coefficient calculations – CCI and Kappa coefficient). Data were collected through questionnaires applied via digital platforms. **Results:** The instrument was consolidated with 21 questions and showed high concordance among the committee of judges with a CVI of 0.954. After the development of the instrument, adjustments were made in the committee of judges committee, in the pre-test and in the expert committee phases, generating the final version that was submitted to a reliability analysis. The instrument had a Cronbach's alpha of 0.768, classified as high internal consistency. The CCI was 0.925 (high correlation); Kappa of 0.676 (rated as satisfactory); indicating test-retest reliability. **Conclusion:** The present study collaborated to provide a reliable and valid instrument to be applied to patients with type 1 diabetes who count carbohydrates, in order to assess adherence to healthy eating. **Keywords:** Diabetes education; development of instruments; carbohydrate counting.

106790

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

EPIDEMIOLOGICAL CHARACTERISTICS OF TUBERCULOSIS AND DIABETES CASES IN THE NORTHEAST REGION

Adryane Gomes Mascarenhas¹, Tailande Venceslau Carneiro¹, Carolina Marques de Oliveira¹, Alex Gonçalves Reis¹, Maria Eduarda Klier Alves¹, Carla Ladeira Gomes da Silveira¹, Larissa Ferreira Correia Baesso¹

¹ Universidade Federal do Sul da Bahia (UFSB)

Introduction: Tuberculosis and diabetes are considered relevant pathologies mainly in developing countries like Brazil. Diabetes is a risk factor for the presentation and treatment of tuberculosis, while it can also influence glycemic indexes in patients with diabetes. **Objective:** To describe the epidemiological profile of patients with tuberculosis and diabetes from 2010 to 2020 in the Northeast region. **Methods:** This epidemiological study of a quantitative-descriptive nature used data from the Informatics Department of the Unified Health System. To compose the epidemiological profile, the variables used were region, sex, age, race, type of entry, form, AIDS, HIV, alcoholism, diabetes, mental illness, smoking, other illness and situation closed. Percentages, incidence coefficients, mortality coefficient and lethality were calculated. **Results:** In Brazil, there are 7.06% confirmed cases of tuberculosis associated with diabetes and the Northeast (31.06%) is the second region with more cases, especially Bahia (24.41%). However, 11% of cases were ignored/blank. The variation in the incidence coefficient is shown in Graph 1 with a peak in 2019 (4.01/100 thousand). The mortality coefficient was 3.76/100 thousand and the lethality 0.83. Males (60.56%) and the age group of 40-59 years (49.18%) were predominant. The most frequent entry was new cases (83.08%) with the most frequent form of pulmonary presentation (91.44%). Among the risk factors, alcoholism (17.07%) and smoking (10.46%) stands out. Regarding illnesses, there was a predominance of other diseases (19.69%) followed by mental illnesses (4.70%) and AIDS (3.22%). The HIV was positive only in 3.63% not having been performed in 30.32% and negative in 61.12%. Among the diagnostic tests, a higher percentage of laboratory confirmation was observed (67.09%). The directly observed treatment was initiated by 37.30% of patients with dropout of 6.72%. The situation was ended due to cure in 64.04% of cases and to 4.14% deaths from tuberculosis. **Conclusion:** The Northeast region stands out in the national scenario showing the percentage of cure and abandonment below the recommendations. During the period, there was a trend of increasing indicators, however, the analysis of variables became compromised due to the amount of ignored/blank cases. **Keywords:** Tuberculosis; diabetes; epidemiology.

106792

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

EPIDEMIOLOGICAL PROFILE OF DIABETIC AND HYPERTENSIVES WITHIN THE EXTREME SOUTH OF BAHIA: A RETROSPECTIVE ANALYSIS OF THE HIPERDIA SYSTEM

Adryane Gomes Mascarenhas¹, Carolina Marques de Oliveira¹, Carla Ladeira Gomes da Silveira¹, Alex Gonçalves Reis¹, Tailande Venceslau Carneiro¹, Maria Eduarda Klier Alves¹, Larissa Ferreira Correia Baesso¹

¹ Universidade Federal do Sul da Bahia (UFSB)

Introduction: It is necessary to study the factors that affect the prevalence of age-related non-communicable chronic diseases due to the epidemiological and demographic transition. Hypertension and diabetes represent risk factors for cardiovascular disease constituting public health problems where 60%-80% of cases can be treated in primary care services. **Objective:** To characterize the epidemiological profile of diabetic and hypertensive patients in HIPERDIA system in the extreme south of Bahia. **Methods:** A descriptive study of epidemiological data from Informatics Department of the Unified Health System on patients with type 1 or 2 diabetes and diabetes associated with hypertension in the extreme south of Bahia from April/2002-April/2013. The variables were: sex, age group, smoking, sedentary lifestyle, overweight, acute myocardial infarction (AMI), other coronary diseases, stroke, diabetic foot, amputation from diabetes, kidney disease, risk. **Results:** The Extreme South of Bahia has 7.26% of patients with diabetes/hypertension and 6.87% with type 1 or 2 diabetes. The prevalence was 4090.11/100.000 patients with hypertension/diabetes and type 1 or 2 diabetes. The highlighted municipality was Eunápolis (16.69%) for diabetes/hypertension, Porto Seguro (18.38%) for type 1 diabetes and Teixeira de Freitas (20.27%) for type 2 diabetes. In 2006, there was the highest number of diabetics/hypertensive individuals (16.20%) and type 1 or 2 diabetics (17.31%; 13.94%). The age of 60-64 years (14.85%) stood out among hypertensive/diabetic patients and 45-49 years old (13.28%/13.39%) in type 1 and 2 diabetics. The female gender was predominant being higher in hypertensive/diabetic patients (68.42%). The risk was estimated only in hypertensive/diabetic patients as high (59.45%) and very high (13.70%). The diabetic foot and amputation were predominant in diabetes/hypertension (2.65%; 1.54%). The sedentary lifestyle and overweight stood out as risk factors especially in hypertensive/diabetic individuals (47%; 40.82%). In complications, stroke and AMI (5.96%; 4.42%) stood out in hypertension/diabetes, whereas in type 1 or 2 diabetes the predominance were other coronary diseases (3.08%; 1.57%) and renal (2.68%; 2.49%). **Conclusion:** There is a decreasing trend until 2013 with a prevalence of preventable and modifiable elements such as lifestyle and complications. However, it is necessary to return notifications for better characterization. **Keywords:** Diabetes mellitus; hypertension; epidemiology.

106303

BIOLOGIA CELULAR E SECREÇÃO DE INSULINA

EPIDEMIOLOGICAL, CLINICAL AND LABORATORIAL PROFILE OF NON-DIABETIC PATIENTS WITH ENDOGENOUS HYPERINSULINAEMIC HYPOGLYCAEMIA AT A PUBLIC REFERENCE CENTER BETWEEN 2000 AND 2020

Giovana de Gobbi Azevedo¹, Natália Rossin Guidorizzi¹, Nathalie Lobo de Figueiredo Feitosa¹, Francisco José Albuquerque de Paula², Patrícia Moreira Gomes¹

¹ Hospital das Clínicas da Faculdade de Medicina de Ribeirão Preto da Universidade de São Paulo (FMRP-USP), Ribeirão Preto, SP, Brasil. ² FMRP-USP, Ribeirão Preto, SP, Brasil

Introduction: In non-diabetic adults, the Endocrine Society recommends evaluation and management of hypoglycaemia only in patients in whom Whipple's triad is seen: symptoms, signs, or both consistent with hypoglycaemia; a low plasma glucose concentration; and resolution of those symptoms or signs after the plasma glucose concentration is raised. Endogenous hyperinsulinaemic hypoglycaemia (EHH) is a rare condition that accounts for 0.5% to 5% cases of hypoglycaemia in adults. It is characterized by elevated beta-pancreatic polypeptides and the diagnostic findings are well established. The most common cause of EHH in adults is the insulinoma with an incidence of 4 cases per million per year and that occurs sporadically or as a part of multiple endocrine neoplasia type 1 (MEN-1). Among other less frequent etiologies, the noninsulinoma pancreatogenous hypoglycemia syndrome (NIPHS), also called nesidioblastosis, corresponds to an estimated relative frequency of 0.5-7%. **Objective:** Evaluating the epidemiological, clinical and laboratorial aspects of non-diabetic patients diagnosed with EHH in a tertiary referral hospital between January 2000 and December 2020. **Methods:** Retrospective descriptive study of 24 cases of EHH by reviewing medical records. **Results:** 24 patients were diagnosed with EHH: 18 insulinoma, 5 nesidioblastosis and 1 still without histopathological evaluation (refused surgery). Among the insulinoma patients the mean age was 39.2 yo, with 11 men (61.1%) and 7 women (38.8%) and the BMI had an average of 28.8 kg/m². The mean values of fasting plasma glucose, insulin, proinsulin and C-peptide were, respectively: 33.82 mg/dL; 42.41 µUI/mL; 269.63 pmol/L and 5.94 ng/mL. Regarding to nesidioblastosis patients, the mean age was 43.2 yo, with 3 men (60%) and 2 women (40%), the BMI had an average of 26.0 kg/m² and the mean values of fasting plasma glucose, insulin and C-peptide were, respectively: 32.40 mg/dL; 121.80 µUI/mL; 219.56 pmol/L and 8.00 ng/mL. Three patients with insulinoma had MEN-1 (Table 1). **Conclusion:** Based only on the clinical and biochemical profile it is not possible to establish a distinction between insulinoma and nesidioblastosis. However, despite the challenge and considering the low incidence of these conditions, it is very important to suspect, promptly diagnose and treat these patients. New studies will be developed to compare the different molecular markers between these conditions. **Keywords:** Hypoglycaemia; insulinoma; nesidioblastosis.

106738

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

ESTIMATING CARDIOVASCULAR DISEASE-FREE LIFE-YEARS WITH THE ADDITION OF SEMAGLUTIDE IN PEOPLE WITH TYPE 2 DIABETES USING POOLED DATA FROM SUSTAIN 6 AND PIONEER 6

Emanuela Mello Ribeiro Cavalari¹, J. Westerink², K. Sommer Matthiessen³, S. Nuhoho³, U. Fainberg³, F. Visseren², N. Sattar⁴

¹ Novo Nordisk Brazil. ² University Medical Center, Netherlands. ³ Novo Nordisk Denmark. ⁴ University of Glasgow, United Kingdom

Introduction: Cardiovascular disease (CVD) is the leading cause of disability and death in people with type 2 diabetes (T2D). In a post hoc analysis of pooled data (POOLED cohort) from two phase 3, randomized CV outcomes trials, SUSTAIN 6 (NCT01720446) and PIONEER 6 (NCT02692716), the addition of the glucagon-like peptide-1 analogue semaglutide to standard of care (SoC) in people with T2D at high risk of CVD significantly reduced the risk of major adverse CVD events (3-point MACE: CV death, non-fatal stroke and non-fatal myocardial infarction). **Objective:** To estimate the effect of adding semaglutide to SoC on CVD-free life-years and 10-year CVD risk in patients with T2D by predicting individual patient-level risk of CVD events in the POOLED cohort using the DIAL CVD risk model. **Methods:** The 3-point MACE hazard ratio from the POOLED cohort (N = 6,480; HR = 0.76 [95% confidence interval [CI]: 0.62-0.92]) was applied to the patient-level lifetime risk of CVD events derived from the DIAL model. CVD-free life-years and 10-year CVD risk were then calculated based on the age-specific risks of CVD events and non-vascular mortality, using standard actuarial methods. Both new and recurrent CVD events were considered. The DIAL model was validated by comparing the predicted and observed number of CVD events after 1 year. The DIAL model was previously developed using data from people with T2D in the Swedish National Diabetes Registry and validated across geographical regions. **Results:** The DIAL model was considered valid for use in the POOLED cohort because the predicted number of CVD events at 1 year was within 5% of the number observed. Adding semaglutide to SoC was associated with a mean reduction in 10-year CVD risk of 20.0% (95% CI: 6.4-32.6%) and a mean increase of 1.72 (95% CI: 0.52-2.96) CVD-free life-years. The number of mean CVD-free life-years gained ranged from 0.62-2.91 years between age groups. For a 60-year-old male with baseline characteristics matched to the average male from the POOLED cohort, adding semaglutide to SoC reduced 10-year CVD risk by 20.8% and provided 2.53 additional CVD-free life-years. The number of CVD-free life-years decreased when baseline age was increased. **Conclusions:** The addition of semaglutide to SoC was associated with a gain in CVD-free life-years. This analysis helps contextualize the results of CV outcomes trials and may help to inform clinical decision-making. **Keywords:** Diabetes; cardiovascular disease; semaglutide.

106798

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

EUGLYCEMIC DIABETIC KETOACIDOSIS IN TYPE 2 DIABETIC PREGNANT WOMAN WITH INFLAMED ACUTE ABDOMENElisa Bernardes Bertulucci Nico¹, Anna Cecília Borborema Abreu¹, Thaísa Carvalho Fernandes¹, Deborah Akemi Lusvarghi Katori¹, Roberta Caroline Prado Takenobu¹, Beatriz Hallal Jorge Lara¹, Maria de Fátima Borges¹¹ Universidade Federal do Triângulo Mineiro

A 34-year-old pregnant woman, 5 para 0221 (0 full term, 2 preterm, 2 abortions, and 1 living child), Type 2 Diabetes (T2D) patient, diagnosed during pregnancy, on 5 daily doses of NPH insulin. Denied using SGLT2 inhibitors. She sought the emergency room being 34 weeks and 2 days pregnant, reporting epigastralgia associated with persistent vomiting for 1 day, on low food ingestion. She was admitted in regular conditions, dehydrated, showing tachycardia, tachypnea, low fever, visceral pain, no signs of peritonitis; no keto breath. Fetal vitality preserved. Laboratory tests showing noninfectious urine and 3 urinary ketones, glycohemoglobin at 5.6%, glucose 110 mg/dL, pH 7.29, pCO₂ 14 mmHg, bicarbonate 6.7 mmol/L, anion gap 22, lactic acid 1.2 mmol/L, leukocytosis with a shift to the left and chest x-ray with no alterations. Abdomen ultrasound showing signs of appendicitis. With a suggested diagnosis of euglycemic ketoacidosis due to inflamed acute abdomen, endovenous treatment following the institution's protocol was initiated and appendectomy was carried out uneventfully. Diabetic ketoacidosis during pregnancy is a medical emergency. Recognizing it in time is vital, since it increases both the mother and the fetus' morbidity and mortality, especially when the diagnosis may be delayed due to normal euglycemic values. Euglycemic diabetic ketoacidosis (EDKA) is defined by glycemia levels below 200 mg/dL, pH < 7.3, high anion gap, bicarbonate below 15 and presence of ketonuria or ketonemia. The highest incidence occurs in Type 1 diabetic (T1D) women, less frequently in T2D patients during their second or third quarter of pregnancy. Among the mechanisms of action are: increased insulin resistance due to the peak in gestational counterregulatory hormones (placental lactogen, progesterone, placental estrogen), increased maternal catabolism due to fetal demand, which may get worse with fasting, physiological haemodilution and increased glomerular filtration with glycosuria. T1D, T2D or gestational diabetes patients showing normal glycemic levels who experience nausea, vomiting, abdominal pain and decrease in caloric ingestion shall be excluded from EDKA. Once the diagnosis is proven, it is important to initiate early treatment and investigate the cause(s) secondary to pregnancy in order to achieve a successful clinical outcome. **Keywords:** Euglycemic diabetic ketoacidosis; pregnancy; inflamed acute abdomen.

106277

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

EVALUATION OF THE INFLUENCE OF 1-YEAR PANDEMIC IN GLYCEMIC CONTROL BY A1C IN PATIENTS IN INTENSIVE CONTROL WITH INSULIN OF A DIABETES' REFERENCE CENTERThais de Oliveira Rodrigues¹, Italo Henrique dos Santos¹, João Victor Silva Ribeiro¹, Leonardo Barbosa Ribeiro¹, Lívia Pinto e Fróes², Virgínia Capistrano Fajardo¹, Márcio Weissheimer Lauria¹¹ Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brasil. ² Serviço de Endocrinologia do Hospital das Clínicas – Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brasil

Introduction: The SARS-CoV 2 pandemic resulted in changes in the lifestyle of many people. For diabetics, whose glycemic control depends mainly on treatment adhesion, social distancing emerges as a challenge in keeping control of these habits. **Objective:** Evaluate the pandemic influence in glycemic control on diabetics in intensive control with insulin. **Methods:** Retrospective analysis of data gathered from patients that were followed-up in a diabetes' reference center, in Belo Horizonte, Minas Gerais, throughout the first pandemic year (March, 2020 – April, 2021) and whom were already followed-up in 2019. 13 eligible patients followed-up in 2019 dropped out due to the pandemic, resulting in a group of 59 insulin dependent diabetics, with ages between 16 and 66 years. 96.5% of the patients were on use of multiple insulin applications and 3.5% have used insulin pumps. Most patients were on use of insulin glargine (64.9%) with rapid-action insulin analogues (57.9%). The categorical data were presented as absolute frequency (n) and relative frequency (%). Quantitative data presents as mean, standard deviation (\pm DP) or median and percentiles 25-75, according to distribution. Data normality was verified by the Shapiro-Wilk test. In order to ascertain changes in glycated hemoglobin, body mass index and bodyweight between 2019 and 2020/2021 the Wilcoxon test was applied. Analysis was made considering a level of significance of 5% in the IBM SPSS® Statistics. **Results:** Among analysed patients, 52.5% were women and 47.5% men, the mean age was 36.8 years (\pm 10.7). Regarding the type of diabetes, 83.1% had type 1 diabetes mellitus, 5.1% latent autoimmune diabetes of adult and 11.9% inconclusive diagnosis. 72.9% had more than 15 years of diabetes, and 54.9% were followed-up for more than 5 years in the clinic. 46.6% of the patients did carbohydrate counting. Paired comparison analysis between data from 2019 and 2020/21 were not different ($p > 0,05$). A1C = 8.5% (7.5; 9.6) *vs.* 8.1% (7.5; 9.6), bodyweight = 63.5 (55.1; 78.9) *vs.* 65.5 (54.2; 77.7) and BMI = 23.6 (22.0; 27.5) *vs.* 24.2 (21.9; 28.1). **Conclusions:** The analysis of glycemic control, BMI and weight of patients did not show significant statistical changes comparing the pandemic year (2020/2021) with the year before the pandemic (2019). The findings indicate that albeit there were new challenges brought with the social distancing policies, they did not thwart the maintenance of glycemic control. **Keywords:** Pandemic; A1C; glycemic control.

106721

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

EVALUATION OF THE PRACTICALITY AND REPRODUCIBILITY OF THE “DIABETES SELF-REPORT TOOL” ADAPTED FOR THE BRAZILIAN POPULATION

Sirleia Rosana Neves¹, Tatiane Géa Horta¹, Aleida Nazareth Soares¹, Janice Sepúlveda Reis¹, Helem Sena¹, Suelen Rosa de Oliveira¹, Alexandra Dias Moreira²

¹ Instituto de Ensino e Pesquisa (IEP) Santa Casa. ² Universidade Federal de Minas Gerais

Introduction: The Diabetes Self-report Tool has 20 questions that allow health professionals to assess their knowledge about diabetes. The instrument has important issues such as etiology, complications, drug therapy, blood glucose monitoring, exercise and nutrition. It was previously translated to Portuguese and adapted for health professionals. **Objectives:** To carry out the cultural adaptation of the assessment instrument “Diabetes Self-report Tool” (DSRT) using the Brazilian target population and to assess the practicality and temporal reproducibility of the adapted version. **Methods:** This study included the participation of health professionals: nurses, physiotherapists, physicians, nutritionists, physical education teachers and psychologists. The pre-test was carried out from 2017 to 2018 with the participation of 42 professionals, while reproducibility was performed in 2018, considering a sample of 63 professionals. For the purposes of this study, respondents answered the test twice with an interval of 07 to 14 days. Data from this study were analyzed using Weighted Kappa, Intraclass Correlation Coefficient and Cronbach’s Alpha Coefficient. **Results:** The percentage of acceptability was 83.3%. At the final score, the Weighted Kappa presented a satisfactory result of 0.714. The Intraclass Correlation Coefficient was 0.878 (95% CI 0.864-0.891) and Cronbach’s Alpha Coefficient was 0.878, with a margin of error of 5% (Table 1). **Conclusion:** The adapted version of the Diabetes Self-report Tool had a good practicability, proving to be an instrument that is easy to understand and use by the subjects of this study. Satisfactory reproducibility indices were obtained, indicating temporal stability, as well as satisfactory levels of reliability and acceptability according to international parameters. **Keywords:** Diabetes mellitus; reproducibility of results; health education.

106747

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

EVALUATION OF THE QUALITY OF LIFE, SARCOPENIA, COGNITIVE DYSFUNCTION AND NUTRITIONAL STATUS IN ELDERLY PATIENTS WITH TYPE 2 DIABETES AND THEIR ASSOCIATION WITH COMORBIDITIES

Fábio Estevão Roriz Martins Vieira¹, Jobert Machado Vasques¹, Dannah Villa Verde A. Domingues¹, Isabelle Queiroz Favre¹, Dhianah Santini de Oliveira Chachamovitz¹, Patrícia dos Santos Vigário²

¹ Universidade Estácio de Sá. ² Centro Universitário Augusto Motta (Unisuam)

Introduction: The epidemiological transition is one of the most aggravating factors with the greatest impact in the current Brazilian scenario, associated with high health care costs. Among chronic diseases, type 2 diabetes mellitus (DM2) is a major risk factor for the diseases identified as major causes of morbidity and mortality in the elderly, especially dementia, malnutrition, sarcopenia, and neuropsychological disorders that affect the quality of life of these patients. **Objective:** Our main objective in this study is evaluate cognitive function, the prevalence of sarcopenia, identify patients at risk of malnutrition, and assess the quality of life of elderly patients and evaluate their association with DM2. **Methods:** We used a medical history focusing on comorbidities and risk factors associated with DM2 and the following validated questionnaires: Mini-Mental, SARC-F+CC, Mini Nutritional Assessment and SF-36 Quality of Life Questionnaire; with elderly people over 60 years of age, with DM2 and who were part of the territory covered by the primary healthcare in Rio de Janeiro, Brazil. Descriptive, quantitative and qualitative methods were used to analyze these factors and their associations. **Results:** Of the 27 individuals interviewed, 25 were analyzed and the results presented are: mean age 69.4 years, 60% female and 68% of the interviewees had been diagnosed with DM2 for over 10 years. In the evaluation of nutritional status, our study identified that only 8% of the patients were at risk of malnutrition. In the evaluation of quality of life, which delivers a score between 0 and 100, we have as the most affected domains: general health status and vitality. From the point of view of the Mini-Mental test, 60% of the patients evaluated presented cognitive alteration. The 30-Second Chair Stand test showed that 56% of the patients submitted to the test have an increased risk of falling, and the SARCF+CC showed that 20% have alterations suggestive of sarcopenia and, therefore, indication to proceed with the diagnostic evaluation. **Conclusion:** Therefore, what was found in the nutritional evaluation is in agreement with other studies with the elderly, i.e., overweight and not malnutrition is the main nutritional problem of Brazilians. There was also a probable association between elderly type 2 diabetic patients and a decrease in cognitive function, being also related to an alteration in mental health, vitality and functional capacity in their quality of life. **Keywords:** Diabetes; quality of life; malnutrition.

106839

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

EXCESS WEIGHT IS ASSOCIATED WITH DIFFICULTIES IN THE TREATMENT OF INDIVIDUALS WITH DIABETES MELLITUS TYPE 1 USERS OF CONTINUOUS INSULIN INFUSION SYSTEMRenata Cristina Machado Mendes¹, Natália Souza Dantas¹, Fábila Karine de Moura Lopes¹, Samila Torquato Araújo¹, Carla Soraya Costa Maia¹, Natasha Vasconcelos Albuquerque¹, Renan Magalhães Montenegro Júnior¹¹ Hospital Universitário Walter Cantídio, Universidade Federal do Ceará

Introduction: The management of diabetes mellitus can be influenced by factors such as low acceptance of the diagnosis, lack of education in diabetes, financial limitations, and personal difficulties, impacting, for example, on the nutritional status of individuals. The difficulties faced by patients are heterogeneous and may vary according to their social, physical, mental, and nutritional conditions, and must be tackled individually. **Objective:** To investigate the association between nutritional status and the difficulties faced during the treatment of patients with type 1 DM users of continuous insulin infusion system. **Methods:** This is a cross-sectional study, carried out with users of a reference center for Diabetes in Ceará. The sample consisted of 61 individuals and sociodemographic, clinical, anthropometric data and difficulties encountered during treatment were collected from a self-reported questionnaire structured on the REDCap platform. Pearson's Chi-Square and Fisher's Exact tests were performed to identify the association between categorical variables, with a statistical significance level of 5%. **Results:** The participants had a mean age of 29.6 (± 12.0) years, and most were female (59.0%), single (54.1%), with an income of less than 5 minimum wages (32.8%) and with 10 years or more of the disease (57.4%). The mean value of glycated hemoglobin was 7.3 (± 1.1) % and the average Body Mass Index was 24.5 (4.6) kg/m² and 44.3% were overweight (34.4% overweight and 9.8% obese). Overweight individuals had more difficulty waiting for insulin to take effect to eat ($p = 0.048$) and felt less difficulty with the lack of supply of insulin pump inputs ($p = 0.040$). **Conclusion:** The absence of waiting time after insulin application can result in dysglycemia, as well as better access to necessary inputs can indicate better financial condition and consequent greater access to food, and both can favor greater weight gain. It is evident that the approach, especially nutritional, must be adaptable according to the particularities of each case, to promote self-care, better quality of life and complications prevention. **Keywords:** Nutritional status; type 1 diabetes mellitus; insulin infusion systems.

106271

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

EXPERIENCE OF CHILDREN AND TEENAGERS WITH DIABETES MELLITUS IN THEIR SCHOOL ENVIRONMENTMarcela dos Santos Ferreira¹, Gabriel Muniz Amorim¹, Julia Maria Mota Lins Torres¹, Guilherme Soares Campos¹, Emanuelle Barroso Lopes¹, Sara Cortes da Silva Souza¹, Dandara Luna Teixeira Mateus Dourado¹¹ Centro Federal de Educação Tecnológica Celso Suckow da Fonseca (CEFET/RJ)

Introduction: Among all the illnesses that affect childhood and youth, the diabetes mellitus (DM) is a pathology that is marked by its presence long-term complications. For those at school age, there are some complications that can put treatment, mental and physical health, and even the learning in risk. **Objective:** To analyze the daily life and experiences of children and adolescents with DM, insulin users, during the school period. **Methods:** Quantitative approach study carried out in 2021. It was used an online form, to inquire about the treatment and the school routine. **Results:** Among all the collected data, 30,5% do only a single insulin application during the period, 44,74% do two or more times, while 24,76% do not apply during the school time. About whom those apply insulin during school, 29,51% needs help from their guardians and/or school staff, whereas 40,95% have autonomy about it. In relation to the administration, 30,5% uses a syringe, 19% uses an insulin pump and 71,4% uses an insulin pen. 57,14% of the students reported having their school performance impaired due the DM complications. **Conclusion:** Based on the seen results, we can conclude most of the students applies the hormone during the school period; as result; a portion of them needs help to apply the hormone. Therefore, it is of great importance that the institution is prepared to receive those students and their demands. **Keywords:** Diabetes mellitus; student health; insulin.

105875

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

FACTORS ASSOCIATED WITH FOOT EXAMINATION BY NURSES IN PEOPLE WITH DIABETES MELLITUS

Elessandra da Silva Sicsú¹, Tatiane Géa Horta¹, Alexandra Dias Moreira², Aleida Nazareth Soares¹, Janice Sepúlveda Reis¹, Suelen Rosa de Oliveira¹, Helen Sena Ribeiro¹

¹ Santa Casa de Belo Horizonte. ² Escola de Enfermagem da Universidade Federal de Minas Gerais (UFMG)

Introduction: Diabetes mellitus is associated with a high risk of complications such as diabetic neuropathy, which can be detected early with the neuromotor evaluation of the feet. If the neuropathy is detected early by health professionals through preventive action in the performance of the neuromotor assessment of the feet, most of the lower limb amputations can be avoided. **Objective:** To evaluate nurses' knowledge about foot examination in people with diabetes mellitus and the factors associated with their accomplishment in Family Health Strategies. **Methods:** It is a cross-sectional study carried out from March 2017 to November 2018 with one hundred and thirty nurses from the Family Health Strategies of Manaus, Amazonas. A questionnaire composed of socioeconomic items, professional profile and knowledge about the neuromotor evaluation of the feet was using. The sample was described with absolute and relative frequency comparing categorical variables and outcome variable (Chi-square test and Fisher's test) and logistic regression model to evaluate the joint association of study variables in relation to foot evaluation. **Results:** The majority of the nurses received training for neuromotor foot evaluation (76.2%), however, showed insufficient knowledge about the instruments, especially the tuning fork (12.1%). We observed an association between foot evaluation practice and receiving training on foot evaluation ($p = 0.014$) (Table 1). **Conclusion:** Unsatisfactory knowledge was identified in nurses when assessing the feet's neuroma. This study shows the need of specific training for nurses, considering the adequate methodology of foot evaluation. **Keywords:** Diabetes mellitus; nurse; diabetic foot.

106731

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

FACTORS ASSOCIATED WITH GESTATIONAL DIABETES MELLITUS IN PREGNANT WOMEN IN BELO HORIZONTE, MINAS GERAIS

Vivian Andrade¹, Fernanda Penido Matozinhos¹, Thales Philipe Rodrigues da Silva¹, Eunice Francisca Martins¹, Tatiane Géa Horta², Alexandra Dias Moreira¹

¹ Universidade Federal de Minas Gerais (UFMG). ² Instituto de Ensino e Pesquisa (IEP) Santa Casa

Introduction: Gestational diabetes mellitus is one of the most common diagnosed conditions during pregnancy. Its prevalence ranges from 7% to 18%, depending on the characteristics of the population and the diagnostic method used. In Brazil, there are few studies on the prevalence and factors associated with gestational diabetes mellitus. **Objectives:** To investigate factors associated with gestational diabetes mellitus among pregnant women in Belo Horizonte, Minas Gerais. **Methods:** Cross-sectional study, developed with data from the survey "Nascer em Belo Horizonte". The research population consisted of mothers with live births, in maternity hospitals with 500 or more live births, according to the Information System on Live Births. All women admitted to the selected maternity hospitals during childbirth, who had a single pregnancy, adults, and who had data on gestational diabetes mellitus, were included. The final sample, with data from medical records, consisted of 1,088 women. As explanatory variables, sociodemographic data, lifestyle, place of residence, maternal comorbidities and access to prenatal care were considered. The dependent variable was the diagnosis of gestational diabetes mellitus according to self-report or medical records. To assess the association between the explanatory variables and the dependent variable, a multivariate logistic regression model was used, considering a significance level of 5%. **Results:** In the study population, 8.75% women were diagnosed with gestational diabetes mellitus. In the final adjusted model, the following variables remained significantly associated with the diagnosis of gestational diabetes mellitus: maternal age greater than or equal to 35 years in relation to age less than 35 years (OR: 2.40; 95% CI: 1.47-3.92), yellow/oriental skin color in relation to white skin color (OR: 2.90; 95% CI: 1.05-7.87), not having adequate prenatal care (OR: 0.49; 95% CI: 0.25-0.97), body mass index (OR: 1.003; 95% CI: 1.001-1.006) and having history of coronary artery disease (OR: 2.98; 95% CI 1.07-8.29). **Conclusion:** In this study, advanced maternal age, the presence of coronary heart disease, body mass index and yellow/oriental skin color were positively associated with gestational diabetes mellitus, while not having adequate prenatal care was inversely associated with diagnosis of diabetes in pregnant women. **Keywords:** Gestational diabetes; risk factors; population studies in public health.

106815

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

FACTORS ASSOCIATED WITH GLYCEMIC CONTROL OF TYPE 2 DIABETES MELLITUS IN USERS OF THE FAMILY HEALTH STRATEGY IN A SMALL CITY IN MINAS GERAIS, BRAZIL

Naiara Patrícia Fagundes Bonardi¹, Pedro Henrique Santos Ribeiro¹, Raphael Souza Fernandes¹, Rayssa Prado Rodrigues¹, Rogério Santos Ferreira¹, Carlos Alberto Pegolo da Gama¹, Cláudia Di Lorenzo Oliveira¹

¹ Universidade Federal de São João del-Rei, campus Centro-Oeste

Introduction: Type 2 diabetes mellitus is a highly prevalent metabolic disorder characterized by chronic hyperglycemia and multifactorial etiology. This condition has a high morbidity and mortality and represents an important burden of disease. Thus, it is essential to search for factors associated with glycemic control. In Brazil, there are few studies that have evaluated missed appointments and glycemic control. **Objective:** The objective of this study was to evaluate the clinical, sociodemographic and behavioral factors associated with glycemic control in patients with type 2 diabetes mellitus from the primary care of Carmo do Cajuru, MG. **Methods:** This was a cross-sectional study based on clinical records carried out in eight primary care units in Carmo do Cajuru, through the review of the handwritten medical records of 605 patients over 18 years of age with a confirmed diagnosis of type 2 diabetes mellitus. Sociodemographic, clinical and behavioral variables were collected. Patients with fasting blood sugar ≥ 130 mg/dL were considered to have a poor glycemic control. A multivariate logistic regression model was used to analyze possible factors associated with high blood glucose levels. **Results:** 251 patients (41.5%) had good glycemic control, the majority being female (68.92%), while 270 (44.6%) had poor glycemic control, being 143 females (53.0%). There were no statistically significant differences between glycemic control and the variables: marital status, color, age, missed medical appointments, presence or absence of nutritional appointments, and participation in health education groups for patients with type 2 diabetes mellitus. After performing the multivariate analysis, only the variable female had a protective factor for glycemic control (OR 2,08). **Conclusion:** A higher percentage of females in the group of patients who achieved good control is in agreement with what was observed in other studies and can be justified by a series of behavioral and cultural factors. Women go to health services more often and are more aware of the importance of health care. The missed appointment was not related to worse glycemic control, it could be due to a possible under-reporting of missed appointments and due to the low quality of handwritten medical records. **Keywords:** Type 2 diabetes mellitus; primary healthcare; glycemic control.

106515

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

FAMILY SUPPORT, KNOWLEDGE ON DIABETES AND ADHERENCE TO TREATMENT IN ADOLESCENTS WITH DM1

Alana dos Anjos Moreira¹, Gabriela Correia Uliana², Flávia Aline Lages Fernandes², Daniela Lopes Gomes², Eleonora Arnaud Pereira Ferreira²

¹ Centro Universitário Metropolitano da Amazônia (Unifamaz); Programa de Pós-graduação em Teoria e Pesquisa do Comportamento da Universidade Federal do Pará (UFPA). ² UFPA

Introduction: Type 1 diabetes mellitus is diagnosed mainly in adolescence. Its treatment is complex, including a set of classes of behavior which demand a change in the adolescent's routine and social support. **Objective:** The objective of this research was to investigate the relation between family support, knowledge on diabetes and treatment adherence behaviors. **Methods:** Thirteen (N = 13) adolescents with DM1, who were being attended at the outpatient clinic of a university hospital, participated of the study. A descriptive and analytical cross-sectional study was carried out. Descriptive statistical analysis of data expressed through measures of central tendency and dispersion measures was performed. The Kolmogorov-Smirnov normality test and the Spearman correlation test were performed. The research was approved by the Ethics and Research Committee (number 73651317.9.0000.5172). The following instruments were used: Interview Guide on treatment routine, Family Support to Treatment Inventory and Diabetes Knowledge Assessment scales. **Results:** The results showed that the thirteen participants monitored blood glucose by themselves, three times a day; regarding the behavior of applying insulin, most used the pen as instrument of application (n = 7) and most performed self-applications (n = 10). The insulin therapy regimen of the majority was fixed (n = 9) and of basal-bolus type. Most had four to six meals a day (n = 10) but did not follow any meal plan (n = 8). Eight participants reported they practiced one modality of physical activity. Although participants had free access to state-of-the-art insulin therapy technology (such as basal bolus), they had difficulty in the access to reagent strips for a more appropriate glycemic control. Statistical tests showed there was a positive correlation among family support (p-value 0.004), knowledge on diabetes (p-value 0.013) and reports on the emission of treatment adherence behaviors, regardless of period since diagnosis or age of participants. **Conclusion:** Public policies should be implemented aiming at the insertion of the family in the treatment of adolescents with type 1 diabetes mellitus and confirm that interventions which utilize education on diabetes may favor the emission of treatment adherence behaviors. **Keywords:** Type 1 diabetes; family support; adherence to treatment.

105338

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

GESTATIONAL AND PREGESTATIONAL DIABETES: CLINICAL CHARACTERISTICS, GLYCEMIC CONTROL AND MATERNAL-FETAL OUTCOMES IN A PUBLIC REFERRAL CENTER IN BRAZILGiovanna Aparecida Balarini Lima¹, Rassyre de Jesus Ferreira dos Santos¹, Karime Oliveira de Menezes¹, Méliissa Abchiche¹, Kariny de Oliveira Azevedo¹, Carla Fernanda Melloni Silva¹, Natalia Yume Hissayasu Menezes¹¹ Universidade Federal Fluminense

Introduction: The prevalence of diabetes mellitus (DM) in pregnancy is increasing in the population and is associated with adverse maternal, fetal and neonatal outcomes. **Objective:** To evaluate and compare the clinical characteristics and frequency of maternal-fetal outcomes in pregnant women with gestational DM (GDM), type 1 and type 2 DM. **Methods:** The medical records of patients with pregestational and gestational diabetes who attended the Endocrinology Outpatient Clinic of a public University Hospital in the period of 2014-2018 were reviewed. A total of 138 pregnant women presented the necessary criteria for this retrospective cohort study. **Results:** Pregnant women with type 1 DM presented a median maternal age (22.5 *vs.* 33.0 *vs.* 34.0 y-o, respectively, $p < 0.01$) and gestational age at the first visit (9.5 *vs.* 26 *vs.* 22.5 weeks, respectively, $p < 0.01$) lower than those with GDM and type 2 DM, besides mean glycated hemoglobin (HbA1c) of 9.5% in the first trimester. The frequency of obesity was different among the groups: no pregnant woman with type 1 DM presented obesity, whereas 61.2% of GDM patients and 38.8% of type 2 DM patients were obese ($p < 0.01$). The frequency of chronic hypertension was lower in patients with type 1 DM when compared to pregnant women with GDM and type 2 DM (9.5% *vs.* 40.6% *vs.* 47.6%, respectively, $p < 0.01$). Considering glycemic control in the third trimester, the median HbA1c was higher in type 1 DM compared to patients with GDM (6.9% *vs.* 5.9%, respectively, $p < 0.01$). The frequency of gestational hypertension (33.3% *vs.* 10.1% *vs.* 4.8%, respectively, $p = 0.01$) and prematurity (38.1% *vs.* 7.0% *vs.* 25.6% respectively, $p < 0.01$) was higher in pregnant women with type 1 DM, compared to pregnant women with GDM and type 2 DM. Finally, the frequency of large for gestational age was higher in the group of women with type 2 DM when compared to patients with GDM and type 1 DM (36.6% *vs.* 14.5% *vs.* 20.0%, $p = 0.03$, respectively). However, the frequency of caesarean section was high in all three groups without a significant statistical difference (77.3% *vs.* 76.1% *vs.* 90.5% $p = 0.35$, respectively). **Conclusion:** Type 1 DM patients get pregnant at a younger age, with a worse glycemic control during the third trimester, and a higher frequency of gestational hypertension and premature delivery associated with a high rate of caesarean section. Therefore, the preconception counselling should be reinforced in the diabetes care routine of all type 1 DM women in fertile age. **Keywords:** Pregnancy in diabetes; gestational diabetes; diabetes complications.

106725

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

GLYCEMIC CONTROL IN MATURITY ONSET DIABETES OF THE YOUNG (MODY): CASE REPORTAmanda de Souza Barros¹, Livia Herculino Siqueira¹, Lucas Honorato Leite Ferreira¹¹ Universidade de Pernambuco

Case report: A 33-year-old woman, diagnosed with MODY-4 for 8 years, was referred to the outpatient clinic for lack of glycemic control for 1 year. On use of metformin (2 g/day) and pioglitazone (45 mg/day), with regular physical activity but no dietary compliance. She denied symptoms, presenting fasting plasma glucose (FPG) of 204 mg/dL and glycated hemoglobin (HbA1c) of 8.4%. Although combination therapy with gliclazide (60 mg/day) and nutritional counseling was initiated, the patient evolved with resistance to therapeutic targets and concomitant anxiety disorder. After psychiatric follow-up and adjustments in antidiabetic medication, with the addition of empagliflozin (10 mg/day), she showed improvement in glycemic levels (FPG of 143 mg/dL and HbA1c at 7.1%). As the target range had not been reached yet, an association of insulin degludec and liraglutide (10 UI/day) was started, with maintenance of metformin and empagliflozin and suspension of sulfonylurea and pioglitazone. The patient progressed with improvement to therapeutic targets. **Discussion:** The case study denotes the complexity of therapeutic approaches in diabetic patients in MODY modalities, especially when managing a late diagnosis of a clinical entity with a progressive evolution pattern. The prevalence of MODY remains unknown, although it is commonly considered a rare form of non-insulin dependent diabetes mellitus (NIDDM). It is, therefore, a propaedeutic challenge, since the disease is autosomal dominant and has a heterogeneous clinical course, mixing patterns of both insulin resistance and insulin deficit. Thus, the need for assertive conducts that expand the range of euglycemic alternatives to anticipate the most feared diabetic complications is highlighted. **Final comments:** The choice of the best treatment for those affected by MODY is directly related to the definition of which subtype of the disease the patient manifests. Moreover, the suspicion or confirmation that an individual is a carrier of the disease allows the diagnosis of other family members who were unaware of their condition. Thus, correct diagnosis enables proper treatment and prevention of chronic complications. **Keywords:** Diabetes mellitus; MODY; glycemic control.

106812

FISIOLOGIA INTEGRADA E OBESIDADE

GLYCEMIC IMPROVEMENT IN PATIENTS WITH OBESITY GRADE 2 AND 3 OPERATED BY THE ROUX Y GASTRIC BYPASS TECHNIQUE IN THE ONE-YEAR PRE AND POST-OPERATIVE FOLLOW-UP

Renata Riccetto Bertolucci Pereira¹, Renata Ferrari¹, Solange de Oliveira Braga Franzolin¹, Eduardo Curvello Tolentino², Nancy Bueno Figueiredo¹

¹ Universidade Nove de Julho. ² Universidade Federal de São Paulo

Introduction: Obesity is a major risk factor for the development of type II diabetes mellitus, as the accumulation of visceral fat can increase your risk by 10 times. For every 10% increase in weight, there is a 2 mg/dL increase in fasting blood glucose. It is described that weight loss induced by bariatric surgery leads to an improvement in type II diabetes mellitus, and may even induce its remission, especially with the Roux-en-Y gastric bypass technique, with the glycemic improvement being directly proportional to weight loss. The mechanisms responsible for weight loss and for the control of associated diseases occur mainly through the restrictive and disabsorptive effect, but also through hormonal effects responsible for controlling appetite and speed of intestinal transit. **Objective:** The aim of this study is to analyze the rate of glycemic improvement in patients after bariatric surgery in Roux-en-Y gastric bypass, comparing glycemic parameters through the measurement of glycosylated hemoglobin, fasting glucose during the pre-surgical evaluation and one year post-surgical. **Methods:** The methodology used was the retrospective analysis of medical records in a multidisciplinary private clinic in a city in the interior of the state of SP, of patients operated on in 2017 and 2018, with grade 2 and 3 obesity. Paired T tests for continuous variables and Wilcoxon tests for non-parametric variables. Data analysis was performed using the SigStat 3.5 package (Inc, Chicago, IL, USA). The significance level adopted was 5%. A total of 335 patient records were evaluated, separating all those with type II diabetes, which totaled 66, with a mean age of 47 ± 10 years, 44 women and 22 men, with a mean BMI of 42 ± 5 kg/m². However, evaluation without missing data was possible in 38. These 38 patients included in the final analysis have a mean age of 48 ± 10 years, 26 women and 12 men. **Results:** Patients' weight significantly decreases after surgery [110 (102-128) vs. 81 (68-86) kg]. BMI was also significantly reduced [40 (37-46) vs. 28 (25-32) kg/m²]. Fasting glucose [125 (98-150) vs. 86 (82, 95) mg/dL; $p < 0.001$] and glycated hemoglobin [6.7 (6.0-8.3) vs. 5.5 (5.0-6.0) %; $p < 0.001$] reduced after surgery. **Conclusion:** Thus, we conclude that the Roux-en-Y gastric bypass surgical procedure is effective in weight loss and also in blood glucose control in patients with grade 3 obesity and type II diabetes. Our next steps will be to classify patients regarding diabetes remission, relating to preoperative C-peptide dosage. **Keywords:** Obesity; type ii diabetes mellitus; bariatric surgery.

106314

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

GLYCEMIC INDEX AND GLYCEMIC LOAD OF DIETS OF INDIVIDUALS WITH TYPE 2 DIABETES

Karina da Silva Ramos¹, Viviane Sahade¹, Karine Lima Curvello Silva², Layanne Rodrigues Trindade Sampaio², Gabriela Gurgel¹, Aline Marcaden³, Carla Daltro²

¹ School of Nutrition, Federal University of Bahia (UFBA). ² Post Graduate Program in Foods, Nutrition and Health (PPGANS)/UFBA.

³ Heart Hospital (HCOR)

Introduction: The choice for carbohydrates has looked promising in the nutritional therapy and in the metabolic control of diabetic individuals. The glycemic index (GI) and the glycemic load (GL) characterize carbohydrates according to quality, quantity and the way they induce the glycemic response. **Objective:** Describe GI and GL of meals of individuals with DM2 that had been attended in a Nutrition ambulatory in the city of Salvador. **Methods:** Cross-sectional study with individuals with DM, aged > 30 , HbA1c $\geq 7\%$ and lack of nutritional guidance from, at least 06 months, from December 2019 to March 2020. The variables were: clinical story, lifestyle, biochemical exams, and body mass index (BMI). The quality of carbohydrates was evaluated through GI and GL. The GI of each meal was calculated separately. The GI of the meals was characterized as low (≤ 55), moderate (56-69) or high (≥ 70), and a meal was adequate if the GI was low. GL of the meal was determined through the multiplication of the carbohydrate found in the food, in grams, by its GI, and divided by 100. It was then characterized into low, mean or high (≤ 10 ; 11 to 19 and ≥ 20 , respectively), considering low GL as the adequate one. GL of the total diet intake along the day, was classified into low (< 80), moderate (81-119) and high (> 120), and the adequate GL was considered to be the low one. Records of food intake came from a 24-hour food recall by Vivanda. Data came from simple and relative attendance, mean and standard deviation (SD) or median (Md) and interquartile range (IQR). **Results:** 55 individuals were evaluated, with mean (SD) age of 61.4 (10.5) years, mainly females (70.9%), elderlies (61.8%), overweight (72.7%) and with mean (SD) HbA1c 9.0 (2.0) mg/dL. Two hundred and forty-three (243) meals were evaluated, being 54 breakfasts, 32 snacks in the morning, 54 lunches, 30 snacks in the afternoon, 54 dinners and 19 suppers. Table 1 shows the averages and the classification of GI and GL of each meal. The median (IQR) of total GL of the diet was 102.7 (71.7-130.2), which classifies it as moderate, being that 41.8% showed high GL, 25.5% moderate and only 32.7%, low. **Conclusions:** The analysis of GI and GL of the meals, showed that patients' diet was inadequate. The study made enabled the identification of divergences between GI and GL in a same meal. However, an analysis of these two parameters is necessary at the time of nutritional counseling. (Study supported by PROADI-SUS/MS). **Keywords:** Glycemic index; glycemic load; diabetes.

106689

FISIOLOGIA INTEGRADA E OBESIDADE

GREATER REDUCTIONS IN HBA1C AND BODY WEIGHT WITH ONCE-WEEKLY SEMAGLUTIDE VS. COMPARATORS ACROSS BASELINE BMI SUBGROUPS: A POST HOC ANALYSIS OF SUSTAIN 1-5 AND 7-10

Giulliana Parisi Rodrigues¹, Sara Stafford², Vanita R. Aroda³, Ofir Frenkel⁴, Juan P. Frias⁵, Charlotte Hindsberger⁴, Sten Madsbad⁶

¹ Novo Nordisk. ² Fraser Health, Surrey, BC, Canada. ³ Brigham and Women's Hospital, Boston, MA, USA. ⁴ Novo Nordisk A/S, Søborg, Denmark. ⁵ National Research Institute, Los Angeles, CA, USA. ⁶ Hvidovre Hospital, Copenhagen, Denmark

Objective: Semaglutide is a glucagon-like peptide-1 (GLP-1) analogue approved for the treatment of type 2 diabetes (T2D). In the SUSTAIN clinical trial program, once-weekly (OW) subcutaneous (s.c.) semaglutide significantly reduced glycated hemoglobin (HbA1c) and body weight (BW) *vs.* all comparators. Individual factors (e.g. body mass index [BMI]) may impact therapeutic choices and treatment goals; this post hoc analysis evaluated whether glycemic and BW responses to OW semaglutide (*vs.* comparator) differed across baseline BMI subgroups in the SUSTAIN 1-5 and 7-10 trials. **Methods:** Subjects were randomized to OW s.c. semaglutide 0.5 mg or 1.0 mg, placebo, or active comparator (sitagliptin 100 mg, exenatide extended release 2.0 mg, insulin glargine (IGlar), dulaglutide 0.75 or 1.5 mg, canagliflozin 300 mg, or liraglutide 1.2 mg). Subjects were stratified into subgroups according to baseline BMI (<25, ≥25-<30, ≥30-<35, or ≥35 kg/m²). Change from baseline in HbA1c and BW was assessed in each subgroup. For each trial, the interaction between treatment effect and BMI subgroup was evaluated, and consistency across subgroups assessed using interaction p-values. **Results:** This analysis included 6,759 subjects. Diabetes duration and age generally decreased across increasing BMI subgroups. Changes in HbA1c from baseline were largely consistent with semaglutide and comparators across BMI subgroups. There was a tendency towards a greater absolute reduction in BW (kg) across increasing BMI subgroups with both semaglutide and comparators; however, there were no apparent associations between BMI subgroup and proportional change in BW relative to baseline (%) for most treatment arms. ETDs [95% CIs] for the changes in HbA1c from baseline to end of treatment favoured semaglutide *vs.* comparators. ETDs [95% CIs] for the changes in BW from baseline to end of treatment favoured semaglutide *vs.* comparators (ETD 0.05), with the exception of that for semaglutide 1.0 mg *vs.* IGlar in SUSTAIN 4 (p = 0.005). The proportion of subjects with AEs in each treatment arm was largely similar across the BMI subgroups in each trial. **Conclusion:** OW s.c. semaglutide resulted in consistent, greater HbA1c and BW reductions *vs.* comparators across a wide range of BMIs. Understanding the expected effects of semaglutide on glycemia and BW in individuals with T2D across a range of BMIs may further inform patient-centred therapeutic choices and treatment goals. **Keywords:** GLP-1; HbA1c; BMI.

104962

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

HIGHER DOSES OF DULAGLUTIDE INDUCE WEIGHT LOSS IN PATIENTS WITH TYPE 2 DIABETES (T2D) REGARDLESS OF BASELINE BMI: POST HOC ANALYSIS OF AWARD-11

Enzo Bonora¹, Juan Frias², Raleigh Malik³, Anita Kwan³, Sohini Raha³, Angelyn Bethel³, David Cox³

¹ University of Verona, Verona, VR, Italy. ² National Research Institute, Los Angeles, CA, USA. ³ Eli Lilly and Company, Indianapolis, IN, USA

Introduction: The AWARD-11 trial demonstrated that dulaglutide (DU) 3 mg and 4.5 mg once weekly improved glycated hemoglobin (A1C) and bodyweight (BW), compared to DU 1.5 mg once weekly, in patients with T2D inadequately controlled with metformin monotherapy. **Objective:** The aim of this post hoc analysis was to assess the effect of DU on BW in clinically relevant baseline body mass index (BMI) categories as defined by clinical practice guidelines. **Methods:** Eligible patients had screening A1C 7.5%- 11% and BMI ≥ 25 kg/m². Patients (N = 1,842) were randomized to DU 1.5 mg, DU 3 mg, or DU 4.5 mg. Total treatment period was 52 weeks with primary efficacy endpoint at 36 weeks. Baseline BMI (kg/m²) was categorized as overweight (<30), obesity Class I (30 - <35), Class II (35 - <40) or Class III (≥40). Mixed model for repeated measures was used within the BMI subgroups for assessing change in BW. **Results:** At 36 weeks, mean absolute reduction in BW within each DU dose group increased by baseline BMI category, whereas mean percentage weight loss was similar regardless of BMI category in DU 3 mg and 4.5 mg groups (Figure). Treatment-by-BMI subgroup interaction was not significant for either change or % change in BW (p = 0.905 and 0.473, respectively). The pattern of common adverse events was similar across BMI subgroups. **Conclusion:** Treatment with DU 3 mg and 4.5 mg induces weight loss across a range of clinically relevant BMI categories in patients with T2D. **Keywords:** Type 2 diabetes; weight loss; dulaglutide.

106822

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

HIGHER TRIGLYCERIDEMIA IS ASSOCIATED WITH EARLIER DIABETES PRESENTATION IN CONGENITAL GENERALIZED LIPODYSTROPHY

Renan Magalhães Montenegro Junior¹, Grayce Ellen da Cruz Paiva Lima¹, Mayara Ponte Madeira¹, Virgínia Oliveira Fernandes¹, Erika Bastos Lima Freire¹, Ana Paula Dias Rangel Montenegro¹, Amanda Caboclo Flor¹

¹ Hospital Universitário Walter Cantídio (HUWC)

Introduction: Congenital Generalized Lipodystrophy (CGL) is a rare autosomal recessive disease characterized by near complete absence of functional adipose tissue from birth, and early metabolic manifestations, including insulin resistance (IR), diabetes mellitus (DM) and hypertriglyceridemia (HT). Diabetes in CGL occurs due to high levels of free fatty acids associated with amyloid deposits in the pancreas. **Objective:** Aims of the study is to evaluate the association between triglyceride levels and the development of diabetes in CGL subjects. **Methods:** This is a retrospective study, through medical records review of CGL patients followed since 2014 in a tertiary reference center. The inclusion criteria were the CGL clinical diagnosis, confirmed by molecular analysis. Demographic, clinical and laboratory data were obtained. Continuous variables were expressed as median (minimum-maximum) and categorical as relative and absolute frequency. Kruskal-Wallis test was used to compare non-parametric data. The observed differences were assumed to be statistically significant if the probability of occurrence was less than 5% ($P < 0.05$). **Results:** Twenty-seven CGL patients, aged 16.5 (1.9-42) years old (yo). Seventeen (62.9%) were women. Eighteen patients were of subtype 1 (CGL1), while 9 subtype 2 (CGL2). DM was diagnosed in 21 patients of them 13 and 8 respectively in CGL1 and CGL2. HT was observed in almost all cases (26/27 patients), but one CGL2 diabetic woman. Higher triglyceridemia were associated with early diabetes onset (in the first decade of life) ($p = 0.006$). When patients were divided according to mutation, the CGL subjects presented higher triglyceride levels between the groups of patients with DM onset in the first decade of life versus diabetes with diabetes onset after 10 years of age ($p = 0.039$) and versus not diabetics ($p = 0.017$). **Conclusion:** This study showed an association between triglyceridemia and age of DM onset in CGL patients, possible due to pancreatic lipotoxicity effect of triglycerides. **Keywords:** Lipodystrophy; hypertriglyceridemia; dyslipidemia.

106825

FISIOLOGIA INTEGRADA E OBESIDADE

HIPOVITAMINOSE D EM PACIENTES PÓS-CIRURGIA BARIÁTRICA POR BYPASS GÁSTRICO EM Y DE ROUX (BPGYR)

Ana Carla de Oliveira Lopes¹, Alessandra da Rocha Mulder¹, Camila Faria Lima¹, Luiz Guilherme Kraemer-Aguiar¹, Glauciane Lacerda Miranda²

¹ Universidade do Estado do Rio de Janeiro. ² Universidade Federal do Rio de Janeiro

Introduction: Obesity is a chronic disease of multifactorial etiology, resulting from complex interactions between genetic, psychological, socioeconomic, cultural and environmental factors. Bariatric surgery is considered the most effective tool in the control and treatment of severe obesity, however, individuals undergoing this method may present, in the medium and long term, signs of malabsorption and the most varied degrees of protein-energy malnutrition, anemia and hypovitaminosis. **Objectives:** To evaluate the prevalence of hypovitaminosis D in post-bariatric patients undergoing BPGYR using conventional multivitamin supplementation (group with supplementation, CS) or not (group without supplementation, SS). **Methods:** A cross-sectional, retrospective study was carried out based on the analysis of medical records of female patients who underwent BPGYR in the late postoperative period. Data regarding time after surgery, weight before and after surgery, % loss of excess weight and serum levels of vitamin D and calcium were analyzed. **Results:** The medical records of 42 women were analyzed, with a mean age of 44.5 ± 8.8 in the SS group and 43.5 ± 9.2 in the CS group. The mean time after bariatric surgery was 47.9 ± 29.2 months in the SS group and 55.4 ± 39.7 in the CS group, with no difference between groups. Bariatric surgery was effective in the loss of excess weight in the patients studied (SS – $73.2\% \pm 28.9$; CS – $79.8\% \pm 37.9$; $p = 0.43$), however, hypovitaminosis D was found (SS – 24.0 ± 10.5 ; CS – 24.5 ± 9.6 ; $p = 0.90$) even in the group that supplemented with conventional multivitamins. **Conclusion:** BPGYR proved to be an effective procedure for long-term weight loss, however, these patients are deficient in vitamin D and supplementation with multivitamins is not enough to prevent this hypovitaminosis, requiring a specific supplementation of this vitamin D to prevent long-term complications. **Keywords:** Bariatric surgery; gastric bypass; sleeve gastrectomy.

106844

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

HOW DID SEDENTALITY IMPACT ON THE FREQUENCY OF ACUTE COMPLICATIONS IN PATIENTS WITH DM2 IN A SOUTHERN STATE OF BRAZIL?Vinicius de Sousa Morais¹, Eduarda Simon¹, Luísa Rossetto Broch¹, Thaylise Caroline Yurk¹, Andressa de Mello Takemura¹, Jaime Ventura da Silva Júnior¹¹ Centro Universitário Assis Gurgacz

Introduction: Diabetes mellitus (DM2) is a chronic, multifactorial disease related to insulin deficiency and resistance. With a worldwide prevalence of 3% and around 6.2% in Brazil, the disease is associated with chronic microvascular alterations that cause dysfunction of various organs, often having fatal consequences. The treatment of this public health problem requires multiple strategies, including diets, medications, medical monitoring and regular physical exercise, in order to increase insulin availability and sensitivity, mitigating the chronic hyperglycemic state and organ dysfunctions resulting from the disease. **Methods:** This is a retrospective cross-sectional study, carried out using the HIPERDIA platform, in which patients with diabetes mellitus (DM2) cataloged in the system between 2010 and 2012 in the Brazilian state of Paraná were selected. The cases were tabulated and analyzed regarding the history of sedentary lifestyle, acute myocardial infarction (AMI) and stroke. **Objectives:** To investigate the relationship of sedentary lifestyle with the frequency of strokes and AMI in diabetic patients in the state. **Results:** Of the total of 26,602 patients with DM2 registered, 45.4% said they were sedentary. Of these, 9.34% reported a history of stroke and 9.79% had already had an AMI. As for those who practiced some physical exercise continuously, the percentages of vascular events were: 6.4% for stroke and 8.63% for AMI. **Conclusion:** Despite the much publicized beneficial effect of physical exercise in the treatment and prevention of complications in patients with DM2, the rate of sedentary lifestyle was significant (45.4%). It stood out in the studied population that almost 1 in 10 diabetic and sedentary patients had already had an acute cardiovascular event. It is noted, however, that sedentary individuals had a 0.4x greater risk of having a history of Stroke than non-sedentary individuals and, regarding AMI, a 0.13x greater risk. Despite the less significant difference than expected, physical exercise is reported as an important protector against several comorbidities that significantly increase the risk of these acute events, especially hypertension. **Keywords:** Sedentarity; diabetes; stroke.

106768

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

HYPERGLYCEMIA DUE TO MISUSE OF INSULIN PEN REFILLS IN A 0,5-UNIT PEN BY TYPE 1 DIABETES PATIENT: A CASE REPORTAmanda Inês da Silva Morais¹, Hugo Geovane Batista Lacerda¹, Ana Flávia Peixoto Campos², Nathália Campos Teixeira¹, Maria Noêmia Souza de Alcântara¹, Samantha Júlia Carvalho Lopes¹, Adriel Felipe de Rezende¹¹ Universidade Federal de Goiás (UFG); ² Hospital das Clínicas, UFG

Case presentation: Male patient, 6 years old, diagnosed with type 1 diabetes since 3. Treatment was being carried out with a fixed dose of 11 units of insulin glargine and 11 units of insulin lispro. The need to use a 0.5-unit insulin pen to optimize the treatment was perceived, and a pen compatible with the insulin lispro in use was prescribed. Patient returned with increased blood glucose, weight loss, nausea, decreased time on target, obtained by interstitial glucose sensor (30%, V.R. > 70%). During the medical consultation, the mother reported the worsening of hyperglycemia with the use of a 0.5-unit pen. Insulin application rotation, transport, conservation, dose validity, storage and care with needles were questioned. Correct management of insulin therapy was confirmed, however, the mother purchased the another pen, compatible with aspart insulins, and continued using lispro insulin refills. Corrected the compatibility error, and prescribed the insulin compatible pen in use. Thereafter, periods of hyperglycemia decreased and the time on target increased to 50%. **Discussion:** Children have greater insulin sensitivity, so the half-unit pen provides this population with more accurate doses and fewer volume errors. It is observed in the literature that about 72% of young people have inadequate glycemic control and the half-unit pen can bring a better precision to these patients' treatments. However, half-unit pens have a higher cost than the others, are not distributed by the SUS. Therefore, many patients with diabetes, when they manage to acquire this technology, end up purchasing the best price insulin refill or the one they have received in the SUS, not maintaining the compatibility required by the laboratory. **Final comments:** Among the multiple causes of glycemic decompensation, the inappropriate use of refills in 0.5 unit pens must be included. However, access to technologies demands a high cost to patients, who can create alternative but inadequate measures to access them. Thus, it is necessary that very well-marked guidelines and instructions of an educational nature are given to patients by the health care team, so that individual actions don't stand out from what is proposed in the therapeutic interventions. Allied to this, it is essential a continuous way towards the democratization of medical supplies. **Keywords:** Diabetes; health education; insulin.

106774

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

HYPERGLYCEMIA IN PATIENTS WITH TYPE 1 DIABETES MELLITUS DURING COVID-19 PANDEMIC AND ITS ASSOCIATIONS

Nathália Campos Teixeira¹, Amanda Inês da Silva Moraes¹, Thais Castanheira de Freitas¹, Samuel Souza Silva², Maria Noêmia Souza de Alcântara³, Bruno de Freitas Quinzani⁴, Monike Lourenço Dias Rodrigues¹

¹ Faculdade de Medicina da Universidade Federal de Goiás (UFG). ² Centro Universitário de Goiânia (UNICEUG). ³ Faculdade de Nutrição da UFG. ⁴ Centro Universitário de Anápolis (UniEvangélica)

Introduction: In order to minimize the spread of the new coronavirus (COVID-19), a series of restrictive and social isolation measures were adopted. During this period, there was a concern about the increase in blood glucose levels in patients with type 1 diabetes after the restriction of appointments. **Objectives:** To evaluate glycemic trends during pandemy, and to evaluate associations between hyperglycemia and physical activity, illness from COVID, time since last medical appointment, suspension of supplies distribution from SUS and weight gain in patients with type 1 Diabetes Mellitus during sanitary restrictions. **Methods:** This is an analytical cross-sectional study, developed by the Academic League of Diabetes, through the “Sala de Espera” extension project. The participants are patients from the type 1 diabetes outpatient clinic at a Federal University. After obtaining formal consent forms, an electronic questionnaire was applied through WhatsApp from June 1, 2021 to July 5, 2021. Glucose behavior during pandemy was questioned. Responses were categorized as stable (1), lower (2), or higher (3) than before social isolation. The degree of physical activity during the pandemic was also asked, categorized by frequency and intensity: as before the pandemic (1), more than before (2), less than before (3). Statistical analysis was performed using the SPSS program. The project was approved by the Ethics and Research Committee (CAAE 45111921.70000.5083, opinion 4.654.208). **Results:** 58 DM1 patients answered the questionnaire, 75.8% women, 60.3% adults, and mean age was 25.2 years. A total of 28 patients (48%) reported increased blood glucose during the period of social isolation. There was a significant association between increased blood glucose levels and status 3 of physical activity. ($p = 0.031$, Chi Square test). There was no association with age, sex, weight gain, illness due to COVID, time of suspension of presental appointments or lack of diabetes supplies due to SUS failures. **Conclusion:** The reduction in the frequency and/or intensity of physical exercise during social isolation, due to the COVID-19 pandemic, was an independent risk factor for increased blood glucose levels in our DM1 patients. **Keywords:** COVID-19; diabetes; physical activity.

106740

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

HYPOGLYCEMIA DUE TO NESIDIOBLASTOSIS IN A DIABETIC PATIENT: A CASE REPORT

Amanda Araújo¹, Andrea Faria Dutra Fragoso Perozo¹, Rosane Kupfer¹

¹ Instituto de Diabetes e Endocrinologia Luiz Capriglione (IEDE)

Case report: A 49-year-old woman with type 2 diabetes, using NPH insulin, started episodes of symptomatic fasting hypoglycemia. The correct use of prescribed medication was confirmed and, even with gradually withdrawal of that, the episodes continued. The prolonged fasting test was performed, with insulin and C-peptide dosages within reference values. Abdominal MRI and endoscopic ultrasonography were performed without evidence of pancreatic masses. Pancreatic catheterization (with intra-arterial calcium stimulation and intravenous insulin dosages) was positive in all analyzed territories. With the main hypothesis of nesidioblastosis, she started a diet, with regular hours containing whole foods and a low glycemic index, and verapamil, with an exponential improvement in hypoglycemia. **Discussion:** The Endocrine Society recommends evaluation of hypoglycemia in all patients with documented Whipple’s triad (low plasma glucose concentration, associated with symptoms and signs consistent with hypoglycemia and the resolution of those after the plasma glucose concentration is raised). In the case presented, it was to be expected that, after the withdrawal of the insulin, the episodes of hypoglycemia would solve, since the main cause of hypoglycemia in diabetic patients are drugs that lower plasma glucose. However, the persistence of the episodes changed the course of the investigation, leading to the evaluation of endogenous hyperinsulinism. In the absence of pancreatic mass identification (insulinoma, i.e.), nesidioblastosis should be investigated. This is a diffuse pancreatic islet hypertrophy and becomes very likely in the presence of hypoglycemia accompanied by normal or increased serum insulin, proinsulin and C-peptide dosages, unaltered pancreatic imaging and diffusely positive pancreatic catheterization. In the patient discussed, the diagnose of nesidioblastosis allowed dietary treatment and drug therapy, that were able to solve the hypoglycemic episodes. **Final considerations:** In diabetic patients, hypoglycemia usually results of drugs that raise insulin levels and thus lower plasma glucose concentrations. The case reported draws attention to the possibility of non-drug causes of hypoglycemia in diabetic patients. After all, the investigation of the differential diagnoses of hypoglycemia in diabetic patients should certainly start with the most frequent causes (drugs) but if not clarified, we should proceed with the investigation suggested in non-diabetics. **Keywords:** Nesidioblastosis; endogenous hyperinsulinemic hypoglycemia; diabetes.

106580

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

IDEGLIRA IMPROVES GLYCAEMIC CONTROL IN SUBJECTS WITH TYPE 2 DIABETES UNCONTROLLED ON BASAL INSULIN WITHOUT DETERIORATION DESPITE DISCONTINUING PRE-TRIAL SULPHONYLUREA

Andrej Janez¹, Caroline Costa de Oliveira², Robert Silver³, Tina Vilsbøll⁴, Randi Grøn⁵¹ Ljubljana University Medical Centre, Ljubljana, Slovenia. ² Novo Nordisk. ³ Southern New Hampshire Medical Center, Nashua, NH, USA. ⁴ Steno Diabetes Center, University of Copenhagen, Copenhagen, Denmark. ⁵ Novo Nordisk A/S, Søborg, Denmark

Introduction and objective: As combining sulphonylurea (SU) and insulin can elevate the risk of hypoglycaemia, prescribers often reduce SU dose or stop SUs altogether when initiating insulin. This can lead to a deterioration of glycaemic control. The DUAL II trial compared the efficacy and safety of insulin degludec/liraglutide fixed-ratio combination (IDegLira) versus insulin degludec (degludec), both plus metformin (met), in subjects with poor glycaemic control previously treated with met ± SU/glinides and basal insulin (20-40 U). This sub-group analysis compared clinical findings in subjects discontinuing SU (pre-trial SU users) to those not taking SU pre-trial (non-SU users). **Materials and methods:** Change from baseline in HbA1c, fasting plasma glucose (FPG) and body weight, and end of trial (EOT) insulin dose after 26 weeks of treatment were analysed with an analysis of covariance (ANCOVA) model with region, pre-trial use of SU at screening, randomised treatment and interaction between pre-trial use of SU and randomised treatment as fixed factors, and baseline value as covariate (and baseline HbA1c for insulin dose). Treatment-emergent confirmed hypoglycaemia was analysed using a negative binomial regression model. **Results:** IDegLira resulted in greater reductions in HbA1c, FPG and body weight from baseline and lower rates of hypoglycaemia (Table) compared with degludec in both pre-trial SU users and non-SU users. Minor differences were seen in EOT insulin doses. Treatment effect was consistent between the two groups, with no statistically significant interaction between randomised treatment and SU use for all endpoints. As insulin dose was reduced at randomisation from a mean of 27-32 U to 16 U and pre-trial SU stopped, a non-clinically relevant increase in mean self-measured fasting plasma glucose (SMPG) was seen in weeks 0-3 in both arms in the pre-trial SU users. This had returned to baseline by week 4, with a general decrease continuing until the EOT. Mean SMPG decreased from week 0 until EOT with IDegLira in the non-SU users group. **Conclusion:** In subjects who reduced their insulin dose and discontinued SU at IDegLira initiation, no clinically relevant deterioration in glycaemic control was seen. For all endpoints analysed, regardless of SU use pre-trial, IDegLira showed better results in all metabolic parameters versus degludec (both with a max dose of 50 U). The clinical findings were consistent between pre-trial SU users and non-SU users. **Keywords:** IDegLira; T2D; basal insulin.

105963

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

IMPACT OF PHYSICAL ACTIVITY LEVELS ON PREGNANCY OUTCOMES

Carla Christina Renzo¹, Tassiana Cristina Martins Grabovski¹, Antonia Aparecida Deluca de Oliveira¹, Leonardo Souza de Carvalho¹, Rodrigo Ribeiro e Silva¹, Jean Carl Silva¹, Sebastian Michael Strauch¹¹ Universidade da Região de Joinville (Univille)

Objective: To relate the levels of physical activity and adverse maternal fetal outcomes. **Methods:** This is a cross-sectional observational study, carried out at Darcy Vargas Maternity in Joinville, SC, Brazil, from August to December 2020. An interview was conducted with a sample composed of primiparous women over 18 years old, who were divided into 4 group depending on the level of physical activity during gestation: sedentary, light, moderate and vigorous. The primary outcomes were: delivery, gestational weight gain, prematurity, newborn weight, pregnancy induced hypertension (PIH), gestational diabetes mellitus (GDM) and neonatal intensive care unit (ICU). The 95% confidence interval (CI) was used in the calculation of the adjusted odds ratio (OR). Patients who practiced moderate physical activity served as standard group. The confounding factors adopted were: age, smoking, alcoholism and use of other drugs. **Results:** The groups were composed of sedentary puerperal women (n = 76/15.4%), patients who practiced light (152/30.9%), moderate (202/41.0%) and vigorous activities (n = 62/12.6%). As for maternal characteristics, there was a difference in age, body mass index (BMI), paid activity, education and smoking. There was no difference in the newborn's characteristics. For sedentary patients, there was an increased chance of GDM (CR = 2,113 95% CI 1,059-4,217) and neonatal ICU (CR = 3,408 CI 95% 1,155-10,051). For the groups of light and vigorous activity, however, there was no significant impact when compared to the standard group. **Conclusion:** Sedentary lifestyle during pregnancy of primiparous women increased the chance of GDM by 2.1 times and neonatal ICU by 3.4 times. The practice of light or vigorous activity on the other hand did not interfere with adverse maternal-fetal outcomes, compared to moderate practice. **Keywords:** Physical activity; pregnant; pregnancy outcomes.

105962

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

IMPACTS OF PHYSICAL ACTIVITY OF PRIMIPAROUS WOMEN ON PERINATAL ADVERSE OUTCOMESCarla Christina Renzo¹, Tassiana Cristina Martins Grabovski¹, Antonia Aparecida Deluca de Oliveira¹, Leonardo Souza de Carvalho¹, Rodrigo Ribeiro e Silva¹, Jean Carla Silva¹¹ Universidade da Região de Joinville (Univille)

Introduction: The objective of this research is to evaluate the impact of physical activity on adverse perinatal outcomes in the pregnancy of primiparous women. **Methods:** This is a cross-sectional observational study, carried out in a public maternity hospital in southern Brazil, from August to December 2020. The sample was composed of primiparous women over 18 years old. The 95% confidence interval (CI) was used in the calculation of the adjusted odds ratio (OR). The confounding factors adopted were: age, smoking, alcoholism and other drugs. The sedentary patient group was adopted as the standard in order to analyze the protective effects of physical activity. **Results:** The patients were divided according to the physical activity practiced into: sedentary (n = 76/15.4%), light activities (n = 152/30.9 %), moderate activities (n = 202/41.0%) and vigorous activities (n = 62/12.6%). As for maternal characteristics, there was a difference in age, BMI classification (body mass index), paid activity, education and smoking. There was no significant difference in the newborn's characteristics. Light practice was a protection factor for gestational diabetes mellitus (GDM) with OR 0.4 (95% CI 0.2-0.8) and neonatal ICU with OR 0.2 (95% CI 0.1-0.7). However, moderate activity also reduced the chance of GDM with OR of 0.4 (95% CI 0.2-0.9) and neonatal ICU with OR 0.3 (95% CI 0.1-0.9). Lastly, vigorous physical activities didn't cause adverse outcomes. **Conclusion:** The light and moderate practice of physical activities in pregnancy reduced the chances of DMG and neonatal ICU. Concerning vigorous practice, there was no influence in outcomes compared to sedentary patients. **Keywords:** Physical activity; pregnant; maternal fetal outcomes.

106323

FISIOLOGIA INTEGRADA E OBESIDADE

IMPACTS OF PRE-GESTATIONAL BMI AND WEIGHT GAIN DURING PREGNANCY ON MATERNAL AND FETAL OUTCOMES IN A PUBLIC MATERNITY HOSPITAL OF SOUTHERN BRAZILAntonia Aparecida Deluca de Oliveira¹, Rodrigo Ribeiro e Silva¹, Tassiana Cristina Martins Grabovski¹, Carla Christina Renzo¹, Leonardo Souza de Carvalho¹, Jean Carl Silva¹¹ Universidade da Região de Joinville (Univille)

Introduction: The main objective of this research was to evaluate adversal perinatal outcomes related to previous obesity and excessive maternal weight gain. **Methods:** This is an observational, analytical and cross-sectional study, from August to December 2020. The sample was composed of mothers over 18 years old. The primary outcomes assessed were: normal or cesarean delivery, gestational diabetes mellitus (GDM), gestational hypertension (PIH) and newborns large for gestational age (LGA). The mothers were divided into four groups, regarding pre-gestational obesity (body mass index ≥ 30) and excessive weight gain during pregnancy. The odds ratio (OR) was calculated considering the 95% confidence interval, adjusted for confounding factors. For the statistical calculation, the SPSS® – Statistics 21, odds ratio by Multinomial Logistic Regression was used. **Results:** Postpartum women were classified into Group 1 control – non-obese with non-excessive weight gain (n = 767/45.9%), Group 2 – obese with nonexcessive weight gain (n = 192/11.5%), Group 3 – non-obese with excessive weight gain (n = 521/31.2%) and Group 4 – obese with excessive weight gain (n = 190/11.3%). It was observed that the childbirth method was not influenced by the analyzed parameters. The chances were significant of GDM in groups 2 with OR 3,5 (95% CI 2,5-5,1) and 4 with OR 1,9 (95% CI 1,3-2,9). About the chances of PIH, the study showed OR 2,1 (95% CI 1,2-3,7), OR 1,9 (95% CI 1,2-3,0), OR 3,6 (95% CI 2,2-5,9) and LGA newborns odds with OR 1,9 (95% CI 1,2-3,1), OR 2,5 (95% CI 1,8-3,5) and OR 2,4 (95% CI 1,6-3,8), in groups 2, 3 and 4 respectively. **Conclusion:** The childbirth method was not influenced by obesity or excessive weight gain. The chance of GDM was higher in groups 2 and 4, while PIH and LGA newborn were higher in the three groups analyzed. **Keywords:** Previous maternal obesity; excessive weight gain during pregnancy; adverse perinatal outcomes.

106796

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

IMPLEMENTATION OF A CLINICAL PROTOCOL FOR GLUCOSE SENSOR PROVISION WITHIN PUBLIC HEALTH SYSTEM IN BRAZIL

Eliziane Brandão Leite¹, Michele Delarmelina R. Borba¹, Thais Cabral Gomes Lauand¹¹ Secretaria de Estado de Saúde do Distrito Federal

Introduction: The prevalence of type 1 diabetes (T1D) between 0 and 19 years old is 95.6 per 1000 and an increasing incidence has been observed worldwide. As a chronic condition, diabetic supplies are costly for individual and the society. Some papers have shown that the use of sensors for glucose monitoring can be cost-effective for T1D even in those using multiple doses of insulin regimen and are related to better glycemic control. Glucose sensors also have a positive impact on quality of life and treatment adherence. In order to provide access to glucose sensors for people with T1D through a public health program, a commission was set up to elaborate criteria and monitor the results. **Objective:** To describe a protocol for glucose sensors access by a public health service for people living with T1DM. **Methods:** Criteria for adherence and therapeutic goals were defined based on the guidelines of the diabetic societies and published studies. Cutoff points were established according to the risk for chronic complications. Diabetes education was defined as a prerogative of the program. Criteria for program maintenance or for temporary suspension were established. Electronic means of communication was defined. Data monitoring was established using electronic spreadsheets associated with the digital platform provided by the sensor manufacturer. **Results:** A clinical protocol was implemented with the inclusion criteria: T1D for more than 24 months; adherence to previous standard treatment (perform at least 3 capillary blood glucose measurements per day; glycated hemoglobin < 9%; in use of insulin analogues and in carbohydrates counting method). The initial request must come from the attending physician. Users must participate in a remote diabetic educational meeting, and sign the term of commitment to have access to the equipment. Continuity in the program is based on a minimum scan of 7 times a day, glycated hemoglobin below 9%, reaching time in range of 70% or having an improvement of 10% in 6 months. In the first semester of the program, 375 people were covered, approximately 10% of people with T1D registered in specialized clinics. **Conclusion:** Clinical protocols represent a way to expand access to new technologies for diabetic control within the public health systems. **Keywords:** Type 1 diabetes; glucose monitoring; glucose sensors.

106363

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

INADEQUATE PREGNANCY PLANNING IN DIABETICS, AND ITS IMPACT ON GLYCEMIC CONTROL AND COMPLICATIONS

Roberta Yukari Imai¹, Patrícia Teófilo Monteagudo¹, Rosiane Mattar¹, Sergio Atala Dib¹, Patricia Medici Dualib¹, Bianca de Almeida Pititto¹¹ Universidade Federal de São Paulo (Unifesp)

Introduction: Pregnancy planning in women with previous diabetes mellitus (DM) is relevant considering risks of maternal and fetal complications. **Objective:** To assess the planning of actual pregnancy and its influence on glycated hemoglobin (HbA1c) profile before and during the pregnancy of women with previous DM. **Methods:** Prospective cohort study included pregnant women with previous DM at Diabetes Center prenatal care outpatient, from October/2018 to October/2019. A standardized questionnaire was used, and data were collected from the medical records. The continuous variables were represented by mean and the categorical variables, by percentages. Comparisons of variables of interest (Student's t-test or chi-square test, respectively) were performed between the group of women who did or denied report having interest to become pregnant from the current pregnancy. **Results:** Sixty patients were included, with mean of pre-pregnancy, first and third trimesters level HbA1c of 9.3%, 8.1% and 6.8%, respectively. 7.7% women had HbA1c < 6.5% in the pre-pregnancy and 13.0% in the first trimester. 83.3% reported having received guidance on contraception before their current pregnancy. However, 28.3% commented on the intention to become pregnant during the current pregnancy, and 28.3% reported regular use of any contraceptive method before it, none of which had HbA1c in the recommended goal for pregnancy. There was no statistical difference in glycemic control between groups intending or not to become pregnant. However, women who reported intention showed a lower frequency of prematurity ($p = 0.008$). Furthermore, women with adequate glycemic control in the first trimester had a lower frequency of prematurity ($p = 0.015$) and fetal or neonatal complications ($p = 0.019$). **Conclusion:** Adequate glycemic control of women with diabetes before and during the pregnancy is still not a reality nowadays, both in women who reported or did not intention of becoming pregnant. It might be necessary to improve medical communication in pregnancy planning. **Keywords:** High-risk pregnancy; diabetes mellitus; family planning.

106540

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

INSULIN RESISTANCE BY THE TRIGLYCERIDE-GLUCOSE (TYG) INDEX IN A RURAL BRAZILIAN POPULATIONJúlia Rabelo Santos Ferreira¹, Eliana Zandonade¹, Olívia Maria de Paula Alves Bezerra², Luciane Bresciani Salaroli¹¹ Universidade Federal do Espírito Santo. ² Universidade Federal de Ouro Preto

Introduction: The TyG index was created in 2008 as a less costly and invasive alternative to determine the insulin resistance of an individual, being a viable option as a screening tool for individuals at higher health risk, especially those with difficult access to services health, such as rural, peripheral and indigenous populations. In this context, researchers have recently elaborated a cutoff point using a rural Brazilian population. **Objective:** The present study is the first in Brazil using this methodology and aims to estimate the prevalence of insulin resistance through the TyG index and its association with sociodemographic, occupational, lifestyle and health indicators in a rural Brazilian population. **Methods:** This is a cross-sectional study with 790 farmers in the state of Espírito Santo, Brazil. TyG was calculated and a cut-off point of Ln 4.52 was used. A hierarchical logistic regression for the association of insulin resistance with sociodemographic, labor, lifestyle and health variables of farmers living in Espírito Santo was performed. **Results:** The prevalence of insulin resistance was 33.7% (n = 266), and the association with insulin resistance was found in the age group 31 to 40 years of age (OR = 1.85; 95% CI 1.19-2.87); in smokers or former smokers (OR = 1.63; 95% CI 1.08-2.48) and overweight (OR = 3.06; 95% CI 2.22-4.23). **Conclusion:** The prevalence of insulin resistance was high in a rural population of Brazil, and was mainly associated with age, smoking and obesity. The use of TyG as an instrument for assessing the health of individuals living in areas where access to health services is difficult, such as rural areas, can represent an important advance in terms of health promotion, protection and recovery. In addition, by identifying the risk factors associated with IR, as well as their consequences, a more adequate scheme for the prevention and treatment of these comorbidities can be defined. **Keywords:** TyG index; insulin resistance; rural population.

106569

AÇÃO DE INSULINA E METABOLISMO MOLECULAR E CELULAR

INSULIN RESISTANCE HYPOTHALAMIC AND TYPE 2 DIABETES – SIGNALING PATHWAY DESIGNLuís Jesuino de Oliveira Andrade¹, Laura Farias Caricchio Santana², Moema Farias de Oliveira³, Alcina Maria Vinhaes Bittencourt⁴, Ana Paula Rodrigues dos Santos⁵, Luis Matos de Oliveira⁶, Gabriela Correia Matos de Oliveira²¹ Departamento de Saúde, Universidade Estadual de Santa Cruz (UESC), Ilhéus, BA, Brasil. ² Faculdade de Medicina UnifTC, Salvador, BA, Brasil. ³ Secretaria Municipal de Itabuna, BA, Brasil. ⁴ Faculdade de Medicina, Universidade Federal da Bahia, Salvador, BA, Brasil. ⁵ Colegiado de Medicina, UESC, Ilhéus, BA, Brasil. ⁶ Faculdade de Medicina, BA, Brasil

Introduction: The action of insulin in the hypothalamus is necessary for the glucose homeostasis. Clinical and laboratory evidence has demonstrated the presence of insulin resistance is expressed in the medial and lateral portions of the arcuate nucleus of the hypothalamus. It is presumed that hypothalamic insulin resistance induces to obesity, changing insulin secretion and consequently glucose metabolism. **Objective:** Evaluate the interaction between hypothalamic insulin resistance and development of type 2 diabetes mellitus through the signaling pathway design. **Methods:** Descriptive study with the elaboration of signaling pathway design, based in research articles. We used the Kyoto Encyclopedia of Genes and Genomes server to evaluate protein-protein interaction and carry out the signaling pathway map. The signaling pathway diagram design was elaborated with PathVisio software. **Results:** Backed on the analyzed articles, we choose well-founded pathways and we got representative expression descriptions of these pathways. The reproduction contigs transcribed from the Kyoto Encyclopedia of Genes and Genomes database projected the signaling pathway of the key biomolecules that lead to the alterations in the insulin secretion and as a result changes in glycemic metabolism (Figure 1). Thus, the insulin signaling in the hypothalamus, is key for the stability of glucose homeostasis and, the HIR changes the of systemic glucose homeostasis. **Conclusion:** The hypothalamic insulin resistance is important risk factor for development of type 2 diabetes mellitus as presented in the signaling pathway. **Keywords:** Hypothalamic insulin resistance; type 2 diabetes mellitus; signaling pathway.

106710

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

INSULIN THERAPY ASPECTS IN PATIENTS WITH DIABETES IN FOLLOW-UP WITH A NURSING TEAM

Tatiana Rebouças Moreira¹, Danielle Ethel Sousa Silva¹, Francisca Diana da Silva Negreiros¹, Samila Torquato Araújo¹, Lucilane Maria Sales da Silva², Thereza Maria Magalhães Moreira², Renan Magalhães Montenegro Júnior¹¹ Universidade Federal do Ceará. ² Universidade Estadual do Ceará

Introduction: Insulin therapy is a relevant aspect in the treatment of people with diabetes mellitus. Inappropriate and unsafe self-application practices can directly interfere with metabolic control, which can lead to the progression of damage to the individual's health. **Objective:** To evaluate insulin therapy aspects in patients with diabetes in follow-up with a nursing team. **Methods:** Study with a quantitative approach, of a descriptive, transversal character and based on secondary data, conducted at a referral service, with 87 patients in insulin therapy. The variables sociodemographic and clinical characteristics were evaluated, in addition to the checklist containing aspects related to safe insulin therapy practices in the first and second nursing consultations. For a better evaluation of the aspects related to insulin therapy, a score was applied, based on the sum of the correct answers in the checklist, each correct answer was equivalent to 1 point, totaling a maximum score of correct answers of 16 points. **Results:** There was a predominance of women, with a mean age of 57 years and low educational level. In the checklist, the following points were analysed: insulin packaging, transport, bottle hygiene, aspiration order, hand hygiene, validity, skin fold, needle angulation, flow proof, dose graduation, application technique, rotation of sites, lipohypertrophy, reuse of syringes, preservation of needle lubricant, and disposal. The analysis found a significant increase in aspects related to insulin therapy and in the total score of the insulin therapy checklist in the second consultation (14.22 ± 1.59), compared to the first (9.24 ± 3.13) ($p < 0.001$), suggesting an improvement in self-care practices and adherence to treatment with nursing follow-up. **Conclusion:** Thus, the importance of promoting systematic and continuous nursing care, with diabetes education actions, is reinforced, as a way of seeking empowerment for the self-care of people with diabetes, aiming at achieving greater effectiveness of insulin treatment. **Keywords:** Diabetes mellitus; nursing care; insulin.

105487

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

INTEGRATED THERAPEUTIC MANAGEMENT OF PATIENTS WITH DIABETES MELLITUS AND TUBERCULOSIS IN PRIMARY HEALTH CARE

Cíntia Vieira do Nascimento¹, Jaqueline Almeida Guimarães Barbosa¹, Sônia Maria Soares¹¹ Universidade Federal de Minas Gerais (UFMG)

Introduction: The association between diabetes mellitus and tuberculosis represents an important public health problem. Poorly controlled DM can lead to multiple complications, such as increased susceptibility to infections including tuberculosis, resulting from hyperglycemia and cellular insulinopenia, with indirect effects on the function of macrophages and lymphocytes. Tuberculosis can decrease glucose tolerance during treatment. The integrated therapeutic management of diabetes-tuberculosis is a demand of the World Health Organization and other bodies, such as the Brazilian Society of Diabetes, to avoid the complications that these combined diseases can cause. Coordination between communicable and non-communicable disease services is a synergistic strategy to alleviate the burden of disease, requiring the training of health professionals and patients concerning the occurrence of comorbidities. **Objective:** To develop and validate the content of integrated diabetes and tuberculosis management protocol for people assisted in primary health care. **Methods:** A methodological study was carried out in the following stages: 1) Integrative literature review; 2) Creation of a preliminary protocol; 3) Content validation by specialists and healthcare professionals (nurses, physicians, and nutritionists), through four on-site workshops; and 4) Evaluation of the protocol through the instrument "Appraisal of guidelines for research and evaluation", AGREE II, and by members of the National Tuberculosis Control Program (NTCP). **Results:** 20 articles were selected in the review. The protocol was developed by 11 experts and internally validated by four evaluators, with an agreement validity index of 85%. NTCP coordinators internally approved the protocol. The following domains are addressed in the protocol: the importance of the problem; epidemiology; concept and classification; bilateral screening and integrated diabetes-tuberculosis management; non-drug treatment; and referral criteria for referral and counter-referral, in addition to the development of two diagnostic tracking algorithms and a therapeutic approach. **Conclusion:** The protocol proved to be valid with potential for use by healthcare professionals for the therapeutic management of patients with comorbidities. It has an innovative character, considering the lack of resources to guide care practices towards diabetes and tuberculosis. **Keywords:** Diabetes mellitus; tuberculosis; comorbidities.

106298

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

INTRA-HOSPITAL AND AT ONE YEAR OUTCOMES IN PATIENTS WITH A DIABETIC FOOT INFECTION

Natália Anício Cardoso¹, Ligia de Lioila Cisneros¹, Carla Jorge Machado¹, Helena Duani¹, Ricardo Jayme Procópio², Túlio Pinho Navarro¹¹ Universidade Federal de Minas Gerais (UFMG). ² Hospital Risoleta Tolentino Neves

Diabetic foot, defined as infection, ulceration or tissue destruction of the foot in patients with diabetes mellitus, has an overall prevalence of 6.4%. In patients with diabetes, more than half (58.0%) of foot ulcers evolve with infection and 59.0% of amputations are attributed to infection. The objective of this study was to describe the in-hospital and at one-year follow-up outcomes in patients with a diabetic foot infection (DFI) in a prospective cohort study. Data from patients with a DFI from a public hospital in Belo Horizonte were analyzed. In-hospital interventions and mortality were recorded and patients were followed up for one year. For statistical analysis, the Stata/SE program for Mac (StataCorp LP) version 12.0 was used, in which absolute quantitative and proportions for categorical variables were presented. Ninety-eight participants were included from 2017 to 2019, with a mean age of 60.8 years (± 11.3), mostly men (68.4%). During hospitalization, minor amputation was performed in 64 (65.3%) participants, endovascular revascularization in 27 (27.6%), open revascularization in two (2.0%), debridement in 19 (19.4%) and major amputation in 15 (15.3%). Two (2.0%) participants died. The average length of stay was 28.5 days (± 19.7). During one-year follow-up, six (6.3%) participants were lost. Of the 96 surviving participants, 43 (44.8%) were readmitted. Of these, 12 (12.5%) participants underwent minor amputation, eight (8.3%) underwent debridement, seven (7.3%) underwent major amputation, and six (6.3%) underwent endovascular revascularization. Eight (8.3%) died during follow-up. Mean follow-up time was 344.9 days. The overall rate of major amputation (in-hospital and during follow-up) was 21.4% (21 participants). The overall mortality rate was 10.2% (10 participants). During hospitalization and one-year follow-up, the main outcomes were minor amputation, major amputation, debridement and revascularization. Major amputation and overall mortality rates were relatively low in this severe multisystemic diseased population.

Keywords: Diabetic foot; infection; outcomes.

106700

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

LIFESTYLE, EATING DISORDERS AND SLEEP QUALITY IN DIABETES: THE IMPACT OF COVID-19 OVER TIME

Julia Belato Teixeira¹, Isadora Nunes Erthal¹, Janine Alessi², Eduarda Herscovitz Jaeger¹, Gabriela D. L. G. Scherer¹, Beatriz D. Schaan², Gabriela Heiden Teló¹¹ Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS). ² Universidade Federal do Rio Grande do Sul

Introduction: The pandemic resulted in a lifestyle crisis, which may negatively affect patients with diabetes. Despite the knowledge so far, there is a lack of longitudinal studies evaluating this impact. **Objective:** To assess patients' perceptions about changes in eating and sleep patterns and lifestyle, and to identify predictors of outcomes that worsened after 18 months of the COVID-19 pandemic. **Methods:** This is a longitudinal study that followed patients with diabetes from April 2020 to July 2021 in Southern Brazil. Participants with type 1 or type 2 diabetes, aged ≥ 18 years were included. The study outcome was the assessment of daily habits during a 15-month period of the pandemic. Specific questionnaires were applied at the inclusion (3 months after the onset of the pandemic) and at the reassessment 15 months later, which included the Eating Attitude Test-26 (EAT-26), the Mini-Sleep Questionnaire (MSQ) and a specific questionnaire for dietary, physical activity and sleep related aspects. Data were compared within and between groups (type 1 and type 2 diabetes), and multivariable models were used to identify subgroups of worse outcomes. **Results:** A total of 118 (78.6%) participants remained in the study at follow-up (mean age 54.6 ± 13.9 years, 41.3% male). In total, 33.9% of participants perceived weight gain during the pandemic, especially those with type 1 diabetes (43.1% vs. 25.0% in type 2 diabetes, $P = 0.04$). About 1 in 4 participants reported emotional eating and 24.6% changed their eating habits for financial reasons. Regarding sleep patterns, more than half of the participants reported taking naps during the day and 30.5% of them reported worse sleep quality, with no difference between type 1 and type 2 diabetes groups. There were no within-group differences in MSQ and EAT-26 scores. Among participants with type 2 diabetes, age ≥ 60 years (OR 27.6, 95% CI 2.2-345.7), diabetes duration ≥ 15 years (OR 28.9, 95% CI 1.4-597.9) and perceived emotional eating (OR 10.9, 95% CI 1.1-107.5) were associated with worst food quality. Worse sleep quality was associated with age ≥ 60 years for both type 2 diabetes (OR 5.6, 95% CI 1.1-31.5), and type 1 diabetes (OR 5.5, 95% CI 1.0-29.9). **Conclusion:** Follow-up data from a cohort of patients with diabetes showed that, at the end of 18 months of social distancing, several lifestyle aspects were impacted, resulting in perceived weight gain, change in eating habits and worse quality of sleep. **Keywords:** Pandemic; diabetes; longitudinal study.

106523

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

LIPID-LOWERING POTENTIAL OF MORINDA CITRIFOLIA IN AN EXPERIMENTAL MODEL OF DIABETES

José Bêgue Moreira de Carvalho¹, Glaucete Socorro de Barros Viana², Thyciara Fontenele Marques³, Neusa Moreira de Carvalho¹, David Alex Magalhães Barreira¹, Saulo Wanderley Filho¹, Miguel Águila Toledo¹

¹ Centro Universitário de Patos (Unifip). ² Universidade Federal do Ceará. ³ Faculdade de Medicina Estácio de Juazeiro do Norte

Introduction: Metabolic syndrome has increased rapidly in parallel with sedentary lifestyles, leading to high healthcare costs. There are many studies in search for potentially anti-dyslipidemic natural products with low risk of side effects. **Objectives:** To evaluate the effects of the hydroalcoholic extract of *M. citrifolia* fruits on triglyceride levels in diabetic rats. **Methods:** A solution of Alloxan (40 mg/kg, IV) was administered to male Wistar rats (250 g) and, after 48 h, they were submitted to blood collection to measure blood glucose and triglycerides (mg/dL). Only those with blood glucose levels above 250 mg/dL were submitted to the study. The animals were administered daily 100 and 500 mg/kg of Noni extract (N100 and N500) and 120 mg/kg of metformin + 100 mg/kg of Noni extract (M120 + N100) by mouth for 1 month. After this period, the animals were subjected to a new blood collection to measure the glucose and triglycerides. Untreated diabetic controls (DC) received saline solution for the same period. For statistical analysis, ANOVA and Newman-Keuls (post hoc test) were used for multiple comparisons. Whenever necessary, Student's "t" test was used to compare the average before and after the treatment. Differences were considered significant when $p < 0.05$. **Results:** The N500 group reduced triglyceride levels by 56.8% compared to levels before treatment (N500: $n = 9$, before: 498.6 ± 86.0 ; post-treatment: 215.1 ± 58 , 35), while in groups N100, M120 + N100 and DC there was no statistical difference in triglyceride levels (N100: $n = 7$, before: 462.8 ± 78.05 ; post-treatment: 288.9 ± 73.87 , M120 + N100: $n = 6$, before: 341.6 ± 86.24 ; post-treatment: 320.5 ± 110.5 and DC: $n = 7$, before: 260.9 ± 66.5 ; post-treatment: 199.6 ± 38.34) with a reduction of 37%, 6.1% and 23.4% respectively. **Conclusions:** The repeated administration of the hydroalcoholic extract of *Morinda citrifolia* fruits in diabetic rats promoted a significant reduction in triglycerides at the dose of 500 mg/kg after one month, a result not observed at the dose of 100 mg/kg or when associated with metformin (120 mg/kg). The results obtained indicate that the lipid-lowering response of Noni is proportional to the dose used and that studies with progressively higher doses are necessary. **Keywords:** *Morinda citrifolia*; metabolic syndrome; experimental model.

106292

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

MACHINE LEARNING ALGORITHMS TO PREDICT IN-HOSPITAL MORTALITY IN PATIENTS WITH DIABETIC FOOT ULCERATION

Ligia de Loiola Cisneros¹, Héber Hwang Arcolezi², Selene Cerna², Jessica Lohane Brandão¹, Guilherme de Castro Santos¹, Tulio Pinho Navarro¹, Aparecido Augusto de Carvalho³

¹ Federal University of Minas Gerais. ² Université Bourgogne Franche-Comté. ³ São Paulo State University

Introduction: Up to 34% of people with diabetes will develop foot ulceration in their lifetime. A non-healing ulcer can lead to lower limb amputation with permanent disabilities and is frequently associated with mortality in hospitalized patients. By applying artificial intelligence, more precisely Machine Learning (ML) models, it would be possible to identify the risk of mortality in patients with diabetic foot ulceration (DFU). In this way, a continuously trained intelligent model with patient data would work as a triage tool and as an adjunct to a clinical decision for healthcare professionals. **Objective:** We investigated the accuracy of 5 ML models for a fully automated prediction of in-hospital mortality of DFU patients and the feature importance of variables as predictors. **Methods:** Retrospective electronic medical data of adults with DFU admitted to the Hospital Risoleta Tolentino Neves at Minas Gerais/Brazil, from 2015 to 2017, were used and analyzed. Our data set contains 20 variables of 326 patients such as demographic data, Wound, Ischemia and Foot Infection (WIFI) scores, clinical and physical examination findings and laboratory data, overtime of the hospital admission. The target "mortality" is a binary feature (0 – survived and 1 – died). The ML models compared were: Logistic Regression (LR), Support Vector Machine (SVM), Light Gradient Boosting Machine (LGBM) and two deep learning models, namely, Convolutional Neural Network (CNN) and Attentive Interpretable Tabular Learning (TabNet). Models were trained using a 5-fold cross-validation methodology, an oversampling technique to tackle the imbalance class problem named "Adaptive synthetic sampling approach for imbalanced learning" on each training set, and Bayesian Optimization for hyperparameters' tuning. **Results:** Table 1 shows the results of the 5 techniques tested, where SVM presented the best predictive ability by reaching a true positive rate (sensitivity) of 94.44% and an area under the receiver-operating-characteristic curve (AUC) of 83.17%, including the WIFI classification scores as predictors. In addition, we identified 5 variables with the most impact: bed-bound condition, age, hemoglobin, creatinine and WIFI amputation risk. **Conclusions:** Results demonstrated that predicting the mortality of DFU patients with good accuracy is possible and feasible for practical purposes. **Keywords:** Diabetic foot; hospital mortality; machine learning.

106741

BIOLOGIA CELULAR E SECREÇÃO DE INSULINA

MALIGNANT INSULINOMA: A RARE CASE REPORT WITH 5-YEAR SURVIVALChristian Roberto Rodrigues Lopes Jr.¹, Caroline Cardo¹, Ana Claudia Guidio Paquola¹, Wanessa de Lourdes Pinto Gonçalves¹, Sylka D'Oliveira Rodovalho Geloneze¹, Valeria Bahdur Chueire¹, Franco Battista Enio Folli²¹ Pontifícia Universidade Católica de Campinas. ² Universidade de Milão

Case presentation: FSS, 22 years, female, was admitted to the hospital in Feb/2016 with a seizure disorder secondary to hypoglycemia; Without previous comorbidities or use any medication. Screening was requested, with the following results: blood glucose: 19 mg/dL; basal insulin: 26.5 Uui/mL (2.6-24.9); peptide C: 3.44 ng/mL (1.1-4.4); basal cortisol: 20.78 ug/dL (6.2-19.4); TGO: 122U/L (<32) and TGP: 153 U/L (<33). Despite optimized dietary measures, she maintained the hypoglycemia. Images revealed focal hepatic lesions with features of malignance and lesion in the tail of the pancreas measuring 3 cm. A liver biopsy was performed, whose immunohistochemistry suggested neuroendocrine neoplasia (see table 1 for mutations). Octreotide and hydrocortisone were started and on the 25th day of hospitalization she was submitted to laparotomy with partial resection of the lesions; which confirmed malignant insulinoma. Chemotherapy (Dacarbazine and Capecitabine) was then started, followed by diazoxide. Despite the treatment, remained symptomatic and new imaging showed an increase in liver lesions, opting for a new surgical approach. After the procedure, she evolved with clinical improvement and was discharged. After 60 days, she presented hypoglycemia again, and everolimus was started, with partial response. In October 2018, with progression of the disease in the liver and bones and she was referred for femur radiotherapy. In Feb/2019, after cholestatic syndrome, it was changed the regimen to cisplatin + etoposide carried out until February/2020 with improvement in lung lesions and stability of liver damage, but temporarily suspended due to neuropathy. In August/2020, with disease progression, patient chose not to undergo a new cycle of chemotherapy, remaining in palliative care until March/2021, when she died.

Discussion: Insulinomas are rare pancreatic neuroendocrine neoplasms. Most are solitary and do not show signs of malignant spread. The diagnosis requires demonstration of inappropriately high insulin, proinsulin, or C-peptide levels for the prevailing hypoglycemia in a 72 h fast. When possible, surgical excision is the treatment of choice. **Final Comments:** In malignant cases, debulking can be considered. If hyperinsulinemia and hypoglycemia persist, diazoxide with a thiazide diuretic relieves hypoglycemia. Liver metastases can be resected or treated by different techniques. In unresectable disease, the long-acting somatostatin analog is the first-line therapy.

Keywords: Insulinoma; malignant cases; hypoglycemia.

106771

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

MALNUTRITION IN BRAZIL: MORTALITY PROFILE OVER A DECADEMatheus da Silveira Maia¹, Thyerre Castro Coelho¹, Ana Késsia Asevedo Aguiar¹, Davi Viana Melo de Farias¹, Lucas Chaves Bezerra¹, Bruna Maria Lima de Sousa¹, Ana Emília Gomes Macêdo¹¹ Universidade do Estado do Pará

Introduction: One of the causes of the high number of mortality in Brazil is malnutrition. In this sense, knowing and understanding the characteristics of mortality due to nutritional deficit is of paramount importance since it is a condition that can be avoided and treated with policies aimed at vulnerable populations. **Objective:** To analyze the epidemiological profile of mortality from malnutrition in Brazil from 2009 to 2019. **Methods:** This is a descriptive, quantitative and cross-sectional study, based on data obtained from the Mortality Information System (SIM). The variables addressed were geographic region, sex, color/race, age group, year of death and place of occurrence. Data were entered into Microsoft Excel 10 and analyzed using descriptive statistics. **Results:** A total of 67,930 cases of mortality were registered in the Brazilian regions due to malnutrition, with the Southeast Region (40.96%) being responsible for the highest number of deaths, followed by the Northeast (34.83%), South (10.13) regions. %, North (7.51%) and Midwest (6.58%). Regarding gender, males (51.81%) died more than females (48.17%). Few individuals (0.02%) ignored this variable. Regarding self-declared race/color, whites stood out with (44.58%), followed by browns (38.50%), blacks (9.12%), indigenous (1.50%), yellow (0, 71%), and the undeclared (5.59%). Regarding the age group, 60 to 80 years and over (80.64%) were the ages with the highest mortality, with individuals in the age groups from 20 to 59 years (12.26%) and under 1 year to 19 years (6.72%) had a lower number of deaths. Regarding the year of death, 2013 (10.04%) had the highest number of records, followed by the years 2010 (9.79%), 2011 (9.78%), 2009 (9.58%), 2012 (9.44%), 2014 (9.28%), 2015 (9.18%), 2016 (8.99%), 2017 (8.32%), 2019 (7.82%), 2018 (7.78 %). Most cases of death occurred in the hospital (67.64%), followed by places of residence (25.05%), another health establishment (5.03%), others (1.64%), public road (0.54%). Few individuals ignored this variable (0.10%). **Conclusion:** The data show that mortality from malnutrition in Brazil follows well-defined parameters. Thus, it is possible to see that the Southeast region, the elderly and the male gender are the variables in which death is exposed in the highest percentages, showing the great susceptibility of these agents to death due to malnutrition. **Keywords:** Morbidity; mortality; malnutrition.

106828

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

MAURIAC SYNDROME WITH MARKED DAWN PHENOMENON REVERSIBLE AFTER CSII USE AND SOMATOTROPIC AXIS NORMALIZATION: A CASE REPORTEstela Muzkat Jatene¹, Elisa Cardoso Bernardes¹¹ Universidade Federal de Goiás

Case presentation: A 17-year-old female patient has long-term (12y) poorly controlled type 1 diabetes mellitus (T1DM), presented with short stature ($Z = -2,5$), primary amenorrhea and hypertriglyceridemia. Low insulin-like growth factor (IGF-1) of 55 (190-429 ng/mL), 95 (183-850 ng/mL) and high GH of 34 and >40 (<8 mcg/L) suggested GH resistance. After several hospitalizations due to diabetic ketoacidosis, patient developed ascites, hepatomegaly and elevated liver enzymes (AST/ALP, ULN ~ 6). Mauriac syndrome (MS) was diagnosed, after discarding infectious, obstructive and autoimmune causes, and strict glycemic control indicated. Continuous glucose monitoring (CGM) was instituted, with multiple daily insulin dose (MDI). Patient presented a high fasting insulin sensitivity, (1:150) but also a high insulin: carbohydrate ratio (1:3-4), suggesting poor glycogen breakdown and postprandial storage. Time in range was 9% (figure A), specially with marked and early dawn phenomenon (03:00 AM). After 2 months of treatment change to continuous subcutaneous insulin infusion (CSII), considerable improvement in time in range to 50% (figure B) was achieved. Menacme and regular menses were restored after 4 months, and, after 6 months of CSII, GH = 0.48 ng/mL (<8 ng/mL) and IGFBP-3 = 4.7 mcg/mL (3.2-8.7 mcg/mL), basal insulin had to be quickly down-adjusted to avoid morning fasting hypoglycemia, with no more clear dawn phenomenon. **Discussion:** MS is a rare association from poorly controlled T1DM and hepatic glycogenosis. Pathophysiology of this syndrome has been recently associated with the coexistence of insulinopenia and mutations in glycogen metabolism chain, as KJCNI1 and PHKG2 genes. Intensive insulin treatment is recommended, and adequate insulin replacement in portal circulation can improve glycogen deposits and somatotrophic axis. However, dawn phenomenon is a CSII indication, and, as seen in our patient, MDI therapy was not able to restore glycemic control. Growth hormone resistance (low IGF-1 and high GH levels), due to hepatic impairment of IGF-1 generation, may be implicated in the marked dawn phenomenon observed, as it was reversible with GH normalization. **Final comments:** Mauriac syndrome should be included in CSII indications in DM1 due to marked dawn phenomenon and GH resistance. Other chronic hepatopathies with somatotrophic axis impairment may share the same pathophysiologic fasting hyperglycemia and should be prioritized for CSII indication. **Keywords:** Mauriac syndrome; continuous subcutaneous insulin infusion; somatotrophic axis.

106827

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

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TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

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106706

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

MAURIAC'S SYNDROME: A RARE COMPLICATION OF A FREQUENT ILLNESSAna Claudia Guidio Paquola¹, Giovana Coelho de Lima¹, Larissa Campos Silva¹, Mila Pontes Ramos Cunha¹, Karin Barbosa Kersten Moraes¹¹ Pontifícia Universidade Católica de Campinas

Case presentation: Patient R.O.S., 15 years, male, diagnosed with type 1 diabetes mellitus at age seven. At nine years old, investigation of short stature was initiated and primary hypothyroidism was evidenced. Patient with poor adherence, had presented 4 episodes of diabetic ketoacidosis, until the last one, in 2019, evolved with abdominal pain, nausea, vomiting, hepatomegaly and elevation of transaminases with no change in liver function. After discarding other etiologies for such change, patient showed improvement in transaminases with the normalization of glycemic control, suggesting Mauriac's syndrome (MS). In a consultation in 2021, complained of hyporexia, asthenia, loss of 8 kg in a few months, even in regular use of medications (levothyroxine, glargine insulin and fast acting analogue insulin according to carbohydrate count). He brought adequate capillary blood glucose controls from the last week but he had altered laboratory tests (fasting glucose 127 mg/dL, glycosylated hemoglobin 14,8%, TSH 52,16 μ UI/mL, free T4 0,82 ng/dL and transaminases – chart 1). The patient was admitted to hospital and screened for liver diseases. Use of hepatotoxic agents was ruled out as well as hepatitis A, B and C, Epstein-Baer, cytomegalovirus, herpes simplex, toxoplasmosis, HIV, HTLV, autoimmune hepatitis, Wilson's disease, hemochromatosis and cholestasis. He was evaluated by an Ophthalmology team that ruled out alterations compatible with Wilson's disease and diabetic retinopathy. After adequate glycemic control, he evolved with clinical and transaminase improvement, and was discharged from the hospital. **Discussion:** MS was described in 1930 as a consequence of type 1 diabetes in poorly controlled patients, which occurs as a result of the accumulation of glycogen in hepatocytes. It can be triggered by excessive doses of insulin replacement or recurrent episodes of ketoacidosis. It is characterized by late growth and puberty, hepatomegaly, cushingoid facies, elevated transaminases, reduced insulin-like growth factor 1 and hypercholesterolemia. It is estimated that one in every 2,500 children under the age of 5 years are affected and one in every 300 people under 18 years of age have Mauriac's Syndrome. **Final comments:** MS has become increasingly rare due to the improvement in treatment options and early diagnosis of type 1 diabetes, however it is not extinct. Adequate treatment of diabetes is essential for its control and prevention of complications. **Keywords:** Mauriac's syndrome; type 1 diabetes mellitus; liver's disease.

106783

FISIOLOGIA INTEGRADA E OBESIDADE

METFORMIN ACTION AGAINST SERUM CYTOKINE LEVELS IN OBESE WISTAR RATS WITH INSULIN RESISTANCE

Eryvelton de Souza Franco¹, Taciana Lima Novaes², Paulo Bernardo da Silveira Barros Filho³, Elizabeth do Nascimento², Maria Bernadete de Souza Maia¹

¹ Departamento de Fisiologia e Farmacologia do Centro de Biociências da Universidade Federal de Pernambuco (UFPE).

² Departamento de Nutrição do Centro de Ciências da Saúde da UFPE. ³ Hospital Santo Amaro, Santa Casa de Misericórdia do Recife

Introduction: Metformin is the most used drug to control type 2 diabetes worldwide. It works by stimulating the kinase activity of insulin receptors and improving the function of enzymes involved in insulin's intracellular signaling mechanisms. In this context, due to the understanding of the biological function of adipose tissue from the discovery of adipokines, many studies are focused on the chronic inflammatory process triggered by obesity, because the increased secretion of cytokines and interleukins, by adipocytes, lead to an inflammatory response with effect throughout the body. **Objective:** To quantify serum cytokines in obese Wistar rats treated with metformin. **Methods:** Eighteen male Wistar rats were used, divided into three groups (n = 6), one group fed with a Presence[®] diet (3.60 kcal/g) (PD) and the others with a westernized diet (WD) (4.08 kcal/g) for 150 days. One group that received WD was treated with metformin (500 mg/kg; SID, p.o.) and the other, as well as the one that received DP, were treated with vehicle (10 mL/kg water; SID, p.o.) for 30 days. At the end of the experiment, serum levels of IL-6, IL-8 and TNF- α were quantified using an ELISA[®] kit. The experimental protocol was approved by CEUA-UFPE (23076.035789/2012-03). **Results:** The quantification of IL-8 (pg/mL) revealed that the two control groups PD or WD (treated with vehicle) had different concentrations (p < 0.05) of 21.10 ± 3.00 and 27.00 ± 3.00 , respectively. In turn, the DO group, treated with metformin, reduced the serum concentration of IL-8 to 16.32 ± 3.00 , being significantly lower compared to the two controls. The serum concentration of TNF- α (pg/mL) verified in the DP or WD groups (treated with vehicle) were 9.25 ± 0.20 and 16.21 ± 0.50 , respectively. Meanwhile, the WD group, treated with metformin, presented a concentration of TNF- α (12.54 ± 0.30), which is statistically lower than that observed in the WD-vehicle group. However, in determining the concentration of IL-6 (pg/mL) it was found that the levels of this cytokine in the DP-vehicle group was 5.00 ± 0.60 , which was different (p < 0.05) from those observed in the groups WD-vehicle (15.12 ± 0.20) or WD-metformin (12.52 ± 0.70). In turn, there was no statistical difference between the IL-6 levels of the WD-vehicle groups compared to WD-metformin. **Conclusion:** Treatment with metformin in the model presented was able to reduce serum levels of IL-8 and TNF- α . However, it seems to have no effect on IL-6 levels. **Keywords:** Type 2 diabetes; IL-8; westernized diet.

106784

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

METFORMIN AS COADJUVANT IN THE CONTROL OF DYSLIPIDEMIA AND BMI CONTROL IN OBESE WISTAR RATS WITH TYPE 2 DIABETES

Eryvelton de Souza Franco¹, Taciana Lima Novaes², Paulo Bernardo da Silveira Barros Filho³, Elizabeth do Nascimento², Maria Bernadete de Sousa Maia¹

¹ Departamento de Fisiologia e Farmacologia do Centro de Biociências da Universidade Federal de Pernambuco (UFPE).

² Departamento de Nutrição do Centro de Ciências da Saúde da UFPE. ³ Hospital Santo Amaro, Santa Casa de Misericórdia do Recife

Introduction: Insulin resistance observed in obese patients predisposes to metabolic alterations that include: low levels of HDL-c, high triglycerides, high LDL and total cholesterol and arterial hypertension. In patients whose diet, exercise and weight loss are not enough to normalize blood glucose and other metabolic changes, medications are used to achieve metabolic control. In the United Kingdom Prospective Diabetes Study, metformin was the only drug that enabled a significant decrease in the incidence of macrovascular complications in obese or overweight patients, which represent the absolute majority of type 2 diabetics. **Objective:** To assess the serum lipid profile and the BMI of obese Wistar rats before and after metformin treatment. **Methods:** Eighteen male Wistar rats were used, divided into three groups (n = 6), one group fed with a Presence[®] diet (3.60 Kcal/g) (PD) and the others with a westernized diet (WD) (4.08 kcal/g) for 150 days. One group that received WD was treated with metformin (500 mg/kg; SID, p.o.) and the other, as well as the one that received DP, were treated with vehicle (10 mL/kg water; SID, p.o.) for 30 days. At time zero of the treatment, blood was collected to determine the lipid profile and measure the BMI of all animals. At the end of the 30th day of treatment, serum levels of triglycerides, total cholesterol, LDL-c, HDL-c and determined BMI of the animals were quantified. The experimental protocol was approved by CEUA-UFPE (23076.035789/2012-03). **Results:** The animals in the groups that received the WD for 150 days, before treatment, presented hypercholesterolemia, hypertriglyceridemia, increased LDL-c concentration, insulin resistance and different BMI (p < 0.05) compared to the group DP. In turn, the group that received WD and was treated with metformin for 30 days, presented a reduction in the serum concentration of total cholesterol and fasting blood glucose, reaching levels compatible with the PD group. However, the treatment with metformin, in WD animals, was not able to reverse the hypertriglyceridemia, nor to reduce the LDL-c concentration or increase the HDL-c concentration, nor to interfere in the BMI, keeping them compatible with those observed in the WD group, treated with vehicle. **Conclusion:** Metformin, as well established in the literature, was able to improve glucose uptake. However, in the studied model, it was only able to interfere in the reduction of total cholesterol and not in other lipid profiles or in the BMI. **Keywords:** Cholesterol; fasting blood glucose; westernized diet.

106823

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

MISDIAGNOSIS OF ACANTHOSIS NIGRICANS IN A CONGENITAL GENERALIZED LIPODYSTROPHY PATIENT: CASE REPORTRenan Magalhães Montenegro Junior¹, Grayce Ellen da Cruz Paiva Lima¹, Mayara Ponte Madeira¹, Virgínia Oliveira Fernandes¹, Erika Bastos Lima Freire¹, Ana Paula Dias Rangel Montenegro¹, Karine Aguiar de Freitas¹¹ Hospital Universitário Walter Cantídio (HUWC)

Introduction: CGL is a rare autosomal recessive disease, caused by mutations of the genes responsible for the adipocyte development, which lead to total or almost total lack of subcutaneous adipose tissue, leptin deficiency, and precocious ectopic lipid accumulation. Patients present intense insulin clinically presents as intense acanthosis nigricans (AN). We report a CGL patient with skin lesions in darkened, thickened patches of skin in the led to a misdiagnosis of AN. **Case:** Patient 1 was a 32-year-old woman, non-smoker, from Ceará, Brazil. Lipodystrophic phenotype was detected at birth and the diagnosis of CGL was given at the age of 6 months, when hypertriglyceridemia (223 mg/dL) was also detected. At 13 years of age, diabetes mellitus was diagnosed. Physical examination: She was 160.5 cm tall and weighed 58.9 kg. She had acromegaly facies, a generalized lack of subcutaneous fat, with preserved fat in the palmar and plantar regions, coalescent hyperpigmented papules over cervical, axillary, and inguinal region, extreme muscularity and phlebomegaly, umbilical hernia, and hepatomegaly. She was on metformin 1,700 mg/day, insulin 2.3 UI/kg/day and ciprofibrate 100 mg/day. However, she only evolved with better glycemic control after installing a continuous insulin infusion pump. Nonetheless, she was bothered by the persistence of skin lesions, especially in the posterior cervical region. Dermatologists performed a biopsy of the lesion that was compatible with AN. Treatment with isotretinoin and moisturizer was prescribed, with no improvement in the lesions. At the start of the coronavirus pandemic in 2020, the patient was infected. Azithromycin was prescribed and the patient evolved with mild viral infection and a surprising improvement in skin lesions. Some weeks after discontinuing the antibiotic, the skin lesions recurred. Dermatologists biopsied again and it was compatible with Confluent and reticulated papillomatosis (CRP) of Gougerot and Carteaud. In conclusion, misdiagnosis of acanthosis nigricans can occur in CGL. Therefore, other differential diagnoses, such as Confluent and reticulated papillomatosis (CRP) of Gougerot and Carteaud, which is a potentially treatable disease should be consider.

Keywords: Lipodystrophy; hypertriglyceridemia; dyslipidemia.

106794

BIOLOGIA CELULAR E SECREÇÃO DE INSULINA

MITOCHONDRIAL DIABETES: MULTIPLE CLINICAL COMPLICATIONS ASSOCIATED WITH THIS RARE FORM OF DIABETES EVIDENCED BY SIBLINGSDominique Costa Schmid¹, Verônica Marques Zembruski², Gabriella de Medeiros Abreu², Amanda Araujo¹, Rosane Kupfer¹, Bárbara Gehrke¹¹ Instituto Estadual de Diabetes e Endocrinologia Luiz Capriglione (IEDE).² Laboratório de Genética Humana, Instituto Oswaldo Cruz/Fiocruz

Case presentation: We report the case of two siblings with the diagnosis of diabetes mellitus associated with deafness, and multiple clinical features, such as cataract, convulsions, intellectual disability and absence of the VII e o VIII cranial nerves. The diabetes diagnosis occurred at the ages of 6 and 8 years old, with the presentation of hyperglycemia, without ketoacidosis or evidence of autoimmunity and both siblings had a normal body mass index (BMI) at the onset. The siblings evolved rapidly with the need of insulin therapy. They were also diagnosed with deafness at an early age, and one presented polydactyly at birth. Their mother shared a history of diabetes in her youth, as well as chronic renal failure, and had died from an ischemic stroke at the age of 30 years. Magnetic resonance imaging (MRI) scan showed absence of the VII and VIII cranial nerves on both sides in one sibling and only on the right side in the other. **Discussion:** Maternal inherited diabetes and deafness (MIDD) is a rare mitochondrial disease that was first described in 1992. Since then, due to the lack of publications in the literature, the clinical presentation, evolution and associated complications are still not well established. It is evaluated that MIDD corresponds to 0.5%-2.8% of all diabetes diagnosis. In 85% of cases the matrilineal transmission of the mutation m.3243A G is associated, which leads predominantly to a reduced insulin secretion by pancreatic beta cells in response to glucose stimulation. The diagnosis presents with atypical features: young age at onset, normal or low BMI, no evidence of autoimmunity, and the presence of neurosensory deafness. Diabetes is a prominent feature of several other disorders of the mitochondrial disease which might be overlooked by the endocrinologist. It is important to diagnose this form of diabetes because of its unique management issues and associated comorbidities. **Conclusions:** The cases presented show multiple clinical features associated with diabetes that can help elucidate the diagnosis of MIDD. Recognition of the mitochondrial etiology between patients with diabetes allows genetic counseling, more intensive clinical surveillance and screening of the multiple comorbidities associated with the disease. The diagnosis can also help with management decisions during treatment. Thus, it is important to describe these cases, in order to help improve knowledge of this rare form of diabetes. **Keywords:** Mitochondrial diabetes; maternal inherited diabetes and deafness; mitochondrial disease.

106799

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

MORTALITY AND COMPLICATIONS OF COVID-19 IN A POPULATION WITH TYPE 1 DIABETES MELLITUSDimitri Braga Azeredo¹, Marynara Graciani¹, Priscila Maia¹, Joana Dantas¹, Lenita Zajdenverg¹, Melanie Rodacki¹¹ Universidade Federal do Rio de Janeiro (UFRJ)

Introduction: The coronavirus pandemic (SARS-CoV-2) is a major concern for the general population and especially for patients with chronic diseases, including type 1 diabetes (DM1), as the increase in complications of the disease has resulted in an increase in hospitalization and death rates, the greater the number of pre-existing underlying diseases. **Objective:** To assess whether the presence of DM1 was a risk factor for hospitalization and severe acute respiratory syndrome due to COVID and also whether the presence of DM1 complications was also a risk factor for hospitalization or death. The presence of diabetic ketoacidosis (DKA) has also been evaluated in people who developed COVID infection. **Methods:** An interview was carried out by telephone with DM1 patients or their relatives who are being monitored at the Hospital Universitário Clementino Fraga Filho in November 2021. **Results:** 115 patients were evaluated, 55 were female and 60 were male, with a mean age of 34 years, and a mean duration of DM1 of 22.2 years. DM complications were reported in 13.4% of cases. There was a diagnosis of COVID-19 in 36 patients (31.3%) over the months of March/2020 to October/2021. Of the 36 cases, 32 had a confirmatory test (serology and/or RT-PCR). Two patients required hospitalization (1,7%). One patient died, totaling 2.7% of patients who were infected and 0.9% of the total sample. There was no DKA during COVID-19 infection in the affected people interviewed. The patient who died was 43 years old, had complications from DM (diabetic foot) and had more than 39 years of disease duration. The other case of hospitalization was a 32-year-old patient with no recent clinical follow-up, who had maintained HbA1C between 10 and 13% in the years in which it was measured. **Conclusion:** A significant portion of young adult patients with DM1 had COVID-19. In most cases, there was mild infection, with no need for hospitalization and no progression to CAD. In the only case that evolved to death, there was a long duration of the disease, age > 40 years and chronic complications of the disease. **Keywords:** Type 1 diabetes mellitus (DM1); coronavirus, COVID; COVID complications.

106701

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

MULTIDISCIPLINARY DIABETES CARE LINE THROUGH TELEHEALTH STRATEGIESClarisse Mourão Melo Ponte¹, Laura da Silva Girão Lopes¹, Maria Helane da Costa Gurgel Castelo¹, Ludmilla Alline Guimarães Moreira Farias¹, Emanuel de Araújo Pinheiro¹, Anne Caroline Bezerra Perdigão¹, Marcos Kubrusly¹¹ Centro Universitário Christus (Unichristus)

Introduction: Several studies have shown a positive impact of Digital Health and Telemedicine strategies in the care of chronic diseases, including diabetes mellitus (DM) and cardiovascular diseases. **Objective:** The objective of this study was to describe the implementation of a Telehealth-based strategy for the multidisciplinary care of patients with diabetes in a teaching clinic in the city of Fortaleza, from May 2020 to September 2021. **Methods:** A telehealth center composed of endocrinologists, nurses and nursing technicians was structured. Later, a cardiologist and a psychiatrist were added to the team. Five office rooms were structured with access to the internet and electronic medical records. Of these, two rooms were located in a central neighborhood, two rooms were located in suburbs and one room located in a city in the interior of the state. From March 2021, with the worsening of the pandemic, teleconsultations were started with patients in their homes. User satisfaction was assessed through a specific questionnaire applied after the appointments, with the inclusion of an item based on the Net Promoter Score (NPS). Figure 1 demonstrates the journey of the patient accompanied in the service. **Results:** 914 consultations were carried out, including first consultations (298) and returns (616). Attended patients reported a positive experience (n = 31). The perception of good empathic communication by the patient stands out: 96.6% reported that their complaints or doubts were answered and 96.6% considered that the professional listened to them carefully. All evaluated patients expressed a desire to continue monitoring through Telehealth, believing that this modality can improve their treatment (100%). Patients positioned themselves as promoters of the service (NPS = 100). **Conclusions:** The activities allowed people with DM to have access to multidisciplinary care at a time when elective face-to-face care was partially suspended. The main difficulties were related to technology, such as the instability of the internet network. Even with preliminary data, the user survey showed very satisfactory results with excellent NPS. Although the impact of actions has not yet been measured in this specific population, it is clear that patients showed improvement in treatment adherence and glycemic control. Diabetes education actions were applied, including telemonitoring, strengthening the line of care, with the patient at the center of care. **Keywords:** Telemedicine; diabetes mellitus; health care.

105868

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

NEONATAL DIABETES MELLITUS ASSOCIATED WITH KCNJ11 GENE MUTATION – CASE REPORT WITH 6-YEAR EVOLUTION OF GLIBENCLAMIDE TREATMENTLucas Meni Alves de Sousa¹, Marcio Weissheimer Lauria¹¹ Hospital Felício Rocho

Case presentation: Female child diagnosed with neonatal diabetes mellitus due to diabetic ketoacidosis. Glycated hemoglobin of 9% and C-peptide of 0.4 ng/mL at the occasion. Subcutaneous insulin was started after clinical stability. Achieved good glycemic control with basal and prandial insulins. Obtained glycated hemoglobin of 7.5%. Genetic testing identified p.R201H (c. 602 Q>A) mutation in heterozygosity (KIK6.2 subunit). Demonstrated good tolerance by replacing insulin therapy for oral glibenclamide. Maintained adequate disease control, with serial tests showing normoglycemia and glycated hemoglobin of 5.5% in 2016. Currently, at 6 years of age, she continues to use glibenclamide, 0.5 mg/mL, at a dose of 2.25 mL/day, remaining with adequate glycemic control, satisfactory growth and weight gain, with no reports of hypoglycemia. **Discussion:** Neonatal diabetes characterizes monogenic forms of the disease, which typically presents in the first 12 months of life. Its clinical manifestations, prognosis and treatment are dependent of the affected gene. The suspicion is based on insulin-dependent hyperglycemia, persistent beyond three days of life, after excluding alternative causes. The diagnosis must be confirmed through genetic testing. Mutations on KCNJ11 and ABCC8 are the most common. Initial management includes correction of electrolyte abnormalities and reduction of hyperglycemia with intravenous insulin. After stability is achieved, subcutaneous insulin can be started. Oral sulphonylurea is able to effectively treat hyperglycemia and reduce or eliminate the need for insulin in 80% to 90% of cases secondary to the main mutations. **Closing remarks:** About 20% of neonatal diabetes cases present a transient disorder, evolving with resolution throughout childhood. The child in question had an early marker that pointed to the occurrence of permanent illness, characterized by diabetic ketoacidosis as the initial presentation. Other markers of progression to definitive diabetes, such as neurological deficits, were not presented. Finally, adequate glycemic control was evidenced through the use of small doses of oral glibenclamide, since the patient, although not showing remission, is stabilized on the use of 0.05 mg/kg/day of the drug, contrasting what has been described in literature, regarding the need for high doses of sulphonylurea to obtain blood glucose within the goal in neonatal diabetes. **Keywords:** Neonatal; diabetes; youth.

106843

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

NEONATAL DIABETES: IN A 15-DAYS-OLD GIRL: CASE REPORTMarcia Puñales¹, Sabligny Carreiro¹, Marina Bressiani¹, Balduino Tschidel¹, Marcia Puñales¹¹ Instituto da Criança com Diabetes, Serviço de Residência de Endocrinologia Pediátrica, Hospital Criança Conceição, Grupo Hospitalar Conceição – Ministério da Saúde, Porto Alegre, RS, Brasil

Case report: Neonate, female, at term, uneventful pregnancy, cesarean delivery by maternal choice, adequate for gestational age, first child of a non-consanguineous and healthy couple. At 15-days of life, the infant was hospitalized due to hypoactivity, weight loss (1,200 g since birth), associated with severe dehydration and hyperglycemia (424 mg/dL), at physical examination, the girl was emaciated and did not present any dysmorphism. The first exams demonstrated hyperglycemia, hypertriglyceridemia and no ketoacidosis. The metabolic neonatal screening evidenced altered immunoreactive trypsin (IRT) in two samples, but later, the sweat testing for cystic fibrosis was negative and Del F508 mutation search was performed. The infant started insulin treatment with glargine 0.5 IU/day in the hospital of origin, being replaced by glibenclamide 0.7 mg/kg/day for 8/8h, under suspicion of neonatal diabetes mellitus (NDM). Genetic panel for DMN did not find mutations for KCNJ11 and INS genes and ABCC8 gene sequencing is ongoing. During follow-up at our service, the girl evolved with some episodes of grade 1 hypoglycemia and glibenclamide was replaced by glimepiride, with a gradual dose reduction to 0.08 mg/kg/day for 12/12h. Currently, the girl is 4 months old and euglycemic, in weight recovery, normal triglycerides and medication withdrawal plan. **Discussion:** DMN affects 1:100,000 newborns, being sporadic most of the time and without sex predilection. It can be transient (DMNT) with remission up to the 18th month or permanent (DMNP) and may or may not be associated with genetic syndromes (10%). Activator mutations in KCNJ11, INS and ABCC8 genes represent 75% of DMNP cases. Treatment consists of starting insulin administration, which is later replaced by sulphonylureas, with a good response, especially in patients with activating mutations. **Final comments:** The child presented good evolution, currently requiring very low doses of medication to maintain normoglycemia, suggesting a case of DMNT. However, due to the possibility of association with extra-hepatic alterations, even in non-syndromic cases, clinical follow-up must be carried out frequently and regularly until complete resolution of the condition. **Keywords:** Neonatal diabetes; mutation; genetic.

100857

BIOLOGIA CELULAR E SECREÇÃO DE INSULINA

NON-ALCOHOLIC FATTY PANCREATIC DISEASE A MECHANISM OF BETA-CELLS DEDIFFERENTIATION TO TRIGGER TYPE 2 DIABETES MELLITUS – SIGNALING PATHWAY DIAGRAM DESIGN PROPOSAL

Luís Jesuino de Oliveira Andrade¹, Alcina Maria Vinhaes Bittencourt², Luís Matos de Oliveira³, Gustavo Magno Baptista⁴, Gabriela Correia Matos de Oliveira⁵

¹ Departamento de Saúde, Universidade Estadual de Santa Cruz (UESC), Ilhéus, BA, Brasil. ² Faculdade de Medicina, Universidade Federal da Bahia, Salvador, BA, Brasil. ³ Faculdade de Medicina, BA, Brasil. ⁴ Programa de Pós-graduação em Ciências da Saúde (PPGCS), UESC, Ilhéus, BA, Brasil. ⁵ Faculdade de Medicina UniFTC, Salvador, BA, Brasil

Pancreatic steatosis is a condition where there is a fat accumulation in acinar cells of the pancreas or in the pancreatic islets. It is presumed that non-alcoholic fatty pancreatic disease (NAFPD) induce beta-cell dedifferentiation, affecting the insulin secretion and glucose metabolism. **Objective:** Evaluate the interaction between NAFPD and insulin resistance (IR) as a mechanism of beta-cell dedifferentiation in development of type 2 diabetes mellitus (DM2) through the signaling pathway design, based in research articles. **Methods:** Descriptive study with the elaboration of signaling pathway design. The Kyoto Encyclopedia of Genes and Genomes server was used to analyze protein-protein interaction and perform signaling pathway mapping. The signaling pathway diagram design was done with PathVisio software. **Results:** Based on research articles, we selected well-documented pathways and obtained specific expression profiles of these pathways. The transcription contigs extracted from the Kyoto Encyclopedia of Genes and Genomes database delineated the signaling pathway of the key biomolecules that triggered to the loss of function of the beta-cell. The interaction between NAFPD and IR release inflammatory factors that contribute to the possible development mechanism of beta-cell dedifferentiation (Figure 1). **Conclusion:** The interaction between NAFPD and IR prove to be two important indices to the possible mechanism of beta-cell dedifferentiation in development of DM2 as demonstrated through of signaling pathway. **Keywords:** Non-alcoholic fatty pancreatic disease; beta-cells dedifferentiation; type 2 diabetes mellitus.

106708

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

NURSING EDUCATIONAL ASSISTANCE FOR SAFE INHALABLE INSULIN ADMINISTRATION

Tatiana Rebouças Moreira¹, Amanda Caboclo Flor¹, Lana Lívia Peixoto Linard¹, Luana Kelly Bessa Reis¹, Alana Régia Matias Couto¹, Samila Torquato Araújo¹, Francisca Diana da Silva Negreiros¹

¹ Hospital Universitário Walter Cantídio, Universidade Federal do Ceará

Introduction: Nursing care is based on an action that permeates the continuity of health care. In this context, given the significant growth of chronic diseases, with emphasis on the increase in the prevalence of diabetes on a global level, in addition to the evolution and emergence of new technologies, the development and implementation of tools for diabetes care encourage assistance focused on training the health team and non-empowerment of the user, a key point for the encouragement of effective self-management. Therefore, from a holistic and individualized care as a component of the health team, nurses seek ways to educate in addition to adherence to treatment, in the drug and non-pharmacological context. **Objective:** To reference the experience of educational assistance carried out by nurses, preceptors and residents with emphasis on diabetes to patients using inhalable ultra-rapid insulin (Afrezza). **Results:** The drug was recently approved for sale in the Brazilian market, providing greater therapeutic flexibility and quality of life for people with diabetes. The activity was held in May 2021, in the Endocrinology and Metabolism Unit of the Hospital Complex of the Federal University of Ceará, taking place in an integrated manner, with the participation of the multidisciplinary health staff at a time of diabetes education, with a view to the safe medication administration. Data were organized through reports and analysis by the researchers. The results obtained with the experience allowed a moment of learning about the mechanisms of action of inhaled insulin, its contraindications and the importance of care in its administration. During the moment, the patients answered their doubts and performed the simulation of the administration through expository materials. Furthermore, we highlight the presence of the multidisciplinary team in the integration of knowledge between the different areas of knowledge that converge to an integrative care. **Conclusions:** The importance of diabetes education by nurses was highlighted in the context of innovations in care in the face of new technologies, as nursing care, in the context of diabetes, is directly related to education for empowerment and self-care, in search for metabolic control, as well as greater autonomy and quality of life for people assisted. **Keywords:** Insulin; nursing care; education.

106842

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

NUTRITIONAL MANAGEMENT IN AN ADOLESCENT WITH TYPE 2 CONGENITAL GENERALIZED LIPODYSTROPHY WITH EARLY DIABETES AND SEVERE HYPERTRIGLYCERIDEMIA: A CASE REPORT

Natasha Vasconcelos Albuquerque¹, Fábila Karine de Moura Lopes¹, Grayce Ellen da Cruz Paiva Lima¹, Annelise Barreto de Carvalho², Ana Paula Dias Rangel Montenegro², Virgínia Oliveira Fernandes², Renan Magalhães Montenegro Júnior²

¹ Universidade Federal do Ceará. ² Hospital Universitário Walter Cantídio, Universidade Federal do Ceará

Case: LCS, 14 years and 9 months old, male, born in the state of Ceará, with type 2 congenital generalized lipodystrophy (diagnosed at 8 months of age) and Langerhans cell histiocytosis, has difficult-to-control diabetes since age 4 and ravenous appetite. Referred on 09/17/18 for admission to a private hospital due to severe hypertriglyceridemia. Anthropometric assessment, weight: 58.5 kg, height: 163 cm, BMI: 22 kg/m² (0.97 Z-score), with the height-for-age indices of Z-score of 0.17 and BMI for age of 1.13 Z-score. Biochemical parameters, triglycerides: 8,290 mg/dL (VR < 90 mg/dL), TGO: 216, TGP: 320, GGT: 3,242. **Discussion:** With the main objective of controlling hypertriglyceridemia, a hypocaloric liquid diet with low lipid content was introduced, fractionated every 1 hour between meals. After 3 days, triglyceride levels reduced to 1,376 mg/dL, evolving to a pasty normoglycemic, normoprotein and normolipidic diet, with fractionation every 1 hour and 30 minutes in the morning and every 2 hours in the afternoon and night, remaining with this type of diet for four days. Upon hospital discharge, a general diet was prescribed, with 2,260 calories, 56% carbohydrates, 24% protein, 20% lipids (20 mL of MCT) and 20 g of fiber, with maintenance of the fractionation interval between the meals of the previous conduct. Even with the evolution of the diet, serum triglyceride levels continued to reduce to 407 mg/dL after one month of hospitalization. congenital generalized lipodystrophy has severe comorbidities, such as severe hypertriglyceridemia. However, studies addressing nutritional interventions in this population are scarce. In this sense, this report can contribute to deepen discussions on the nutritional management of metabolic disorders in this clinical condition. **Final considerations:** There was a significant reduction in serum triglyceride levels with the introduction of a low-calorie and low-fat diet, with gradual evolution of type of diet. In addition, the way meals were divided throughout the day seemed to contribute to better adherence to dietary prescription, revealing that this nutritional approach can be effective in the treatment of severe hypertriglyceridemia in patients with congenital generalized lipodystrophy. **Keywords:** Nutritional therapy; hypertriglyceridemia; congenital generalized lipodystrophy.

106770

FISIOLOGIA INTEGRADA E OBESIDADE

OBESITY MORTALITY PROFILE IN BRAZIL OVER A DECADE 2009 TO 2019

Matheus da Silveira Maia¹, Layra Luzia Gambôa Lima¹, Bianca Rodrigues do Nascimento¹, Lucas Aguiar de Sousa¹, Alana Carla Sousa Carvalho¹, Marco Antônio Pinto Coutinho¹, Ana Emília Gomes Macêdo¹

¹ Universidade do Estado do Pará

Introduction: The prevalence of obesity reaches high proportions in Brazil. Studies show that it results from a sedentary lifestyle and, above all, from inadequate nutrition, increasing the risk of cardiovascular disease, chronic diseases, and cancer. **Objective:** To analyze the profile of obesity mortality in Brazil between 2009 and 2019. **Methods:** This is a cross-sectional, descriptive, and quantitative study. The analyzed data were made available by the “*Sistema de Informações Hospitalares (SIH)*”, developed by the “*Departamento de Informática do SUS (Datasus)*”, considering the variables: year, region, sex, age, and race, which were transferred to the Microsoft Office Excel 2016 program for preparing tables with a percentage value. **Results:** During the analyzed period, 242 obesity-related deaths were registered in the country, with the highest incidence in 2016 and 2019, representing more than 27% of cases. However, with lower records in 2009 and 2015, with only 6.2% of total deaths. Between 2009 and 2019, the death rate from obesity in women represents 68% of the total number. According to the data obtained, the Southeast and South regions of the country are those that registered the highest numbers of deaths, with 43.8% and 42.56% of cases respectively. However, the regions with the lowest number of records were the North (2%) and Northeast (4.5%), which not only means fewer deaths from obesity in these places, but also the absence of information about patients present in the forms of notifications. Regarding the age of patients, there is an increase in deaths in the age groups from 40 to 49 years (28%) and from 50 to 59 years (30.1%). As for race, it is noted that about 51% of obesity victims were white. Furthermore, it is observed that 38 notifications did not inform race, which exemplifies the difficulties of conducting epidemiological research, since much information is left out. **Conclusion:** Thus, obesity-related deaths are more frequent in women, white people, and those aged between 50 and 60 years. However, it is also noted the prevalent negligence in the North region is reflected in the failure of data collection, which reflects a smaller number of cases, which can be confused with good control of the incidence of obesity. Ultimately, based on the study, it is possible to better understand the reality so that new studies are carried out and public policies are developed with the aim of solving the problem. **Keywords:** Obesity; mortality; epidemiology.

106751

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

PASSIFLORA EDULIS AS AN ANTIDIABETIC AND PROTECTIVE ADJUVANT THERAPY FOR DIABETIC KIDNEY DISEASE: MEGALIN AND PROXIMAL TUBULAR EVALUATIONOny Araujo Galdino¹, Karla Simone Costa de Souza¹, Iago de Souza Gomes¹, Camylla Fernandes Barreto¹, Bárbara Cabral¹, Silvana Maria Zucolotto Langassner¹, Adriana Augusto de Rezende¹¹ Universidade Federal do Rio Grande do Norte (UFRN)

Introduction: Diabetic kidney disease (DKD) is one of the most common complications of type 1 diabetes (DM1), causing alterations in the proximal tubular epithelium due to the loss of proteins, such as megalin, an important protein that acts on the tubular reabsorption of albumin. Considering that adequate glycemic control (GC) in T1D prevents DKD and that insulin associated with adjuvant therapies favors good GC, *Passiflora edulis* (*P. edulis*) fruit peel extracts should represent a potential hypoglycemic agent that can prevent and/or reduce tubular damage associated with DKD. **Objective:** To evaluate the adjuvant hypoglycemic effect of *P. edulis* in the T1D model in preventing proximal tubular damage and megalin loss. **Methods:** Male Wistar rats were used as a streptozotocin-induced T1D model to evaluate the adjuvant effect of the hydroethanolic (HE) extract of *P. edulis* (Ethics: 020.019/2017). Thirty-six rats were distributed in 4 groups according to the treatment received for 60 days: control (C); diabetic (D); insulin-treated diabetic (DI); diabetic treated with insulin plus HE 400 mg/kg (DI+HE). Megalin was measured by Western blot (WB) from urinary extracellular vesicles. For kidney tissue, were evaluated Lrp2 (megalin) mRNA and megalin expressions by qPCR and WB, respectively. Blood was used to assess serum glucose. **Results:** It was observed that DI+HE animals had a significant reduction in serum glucose compared to DI and D ($p = 0.001$), showing that good GC is provided by *P. edulis* in association with insulin. This GC reflected in protection against tubular damage since megalin expression in renal tissue was significantly higher in DI+HE when compared to D ($p < 0.001$), demonstrating that *P. edulis* combined therapy influences tubular conservation. This finding is supported by a significant reduction of urinary megalin in DI+HE when compared to D ($p < 0.001$), suggesting once again the *P. edulis* adjuvant effect in preventing tubular damage. On the other hand, diabetic animals without treatments (group D) showed significant loss of megalin from renal tissue and, consequently, a significant increase in Lrp2 mRNA expression, when compared to DI+HE and C ($p < 0.001$), suggesting a possible transcriptional compensatory mechanism due to megalin loss. **Conclusions:** This study is part of pioneering research showing the potential of adjuvant hypoglycemic effect of *P. edulis* in reducing proximal tubular damage and consequently preserving megalin mRNA and protein expression. **Keywords:** Diabetic kidney disease; *Passiflora edulis*; megalin.

106801

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

PEDIATRIC PERSISTENT HYPERGLYCEMIA IN TYPE 2 DIABETES MELLITUSNaiara Patrícia Fagundes Bonardi¹, Sérgio Garzon Batista Nani¹, Anna Karolyna Rodrigues Cunha¹, Amanda Hayeck de Almeida¹, Iago Ferreira Pinto Almeida¹, Clarissa Chalfein Almeida Gontijo¹¹ Universidade Federal de São João del-Rei, campus Centro-Oeste

Case presentation: 16-year-old, male, initiated endocrinologist attendance at 11 years old. At the time, he had an BMI of 36,8 kg/m², signals of insulin resistance (abdominal obesity and acanthosis nigricans) but no glycemic level alterations, fasting glucose 93 mg/dL and HbA1C 5,2%. Family history of diabetes mellitus type 2: mother and maternal grandmother. In the following year, the patient presented fasting glucose of 154 mg/dL and HbA1C of 6,7%. A further laboratory investigation showed a peptide-C of 4,94 ng/mL and an anti-GAD of 5 U/mL, discarding diabetes mellitus type 1. A dexamethasone suppression test was performed, which discarded Cushing syndrome. Therefore, the diagnosis of diabetes mellitus type 2 and exogenous obesity were confirmed. Metformin 2 g/daily and lifestyle intervention was prescribed. However, as can be seen in Table 1, the patient was refractory to clinical treatment (both behavioral and pharmacological). As a result, the patient needed continued therapeutic adjustments, such as the introduction of NPH and aspart insulins. In the past few 30 days, he started using liraglutide 3 mg/day, associated with the regimen he was already using: metformin 2 g/day and NPH insulin 26U+10U+10U. Using liraglutide, his body weight was reduced by approximately 6%, from 140.5 kg to 132.3 kg, in addition to reducing the daily dose of NPH insulin to 24U+8U+8U and achieving improved glycemic control. **Discussion:** Type 2 diabetes mellitus rarely affects children and adolescents. Therefore, other causes of diabetes should be ruled out, such as type 1 diabetes mellitus, by determination of C-peptide and autoantibodies against β -cells serum levels, and endogenous Cushing syndrome. At puberty, it's known that insulin resistance is higher and the deterioration of pancreatic β -cell function is progressive. Thereby, the first therapeutic choice, in addition to diabetes education and lifestyle guidance, is metformin. However, its ineffectiveness in long-term monotherapy is common, requiring association with other drugs. In pediatric patients, only the use of insulin and, recently, the use of liraglutide are recommended. **Final comments:** The development of type 2 diabetes mellitus before adulthood is rare, can be difficult to control, and entails an increase in lifetime disease's complications. **Keywords:** Type 2 diabetes mellitus; pediatrics; glycemic control.

106832

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

PERSISTENT HYPOGLYCEMIA IN A PATIENT WITH SYSTEMIC SCLEROSIS: A CASE REPORTTaíse Rosa de Carvalho¹, Amanda Cunha Ritter², Antonella Brun de Carvalho², Bárbara Dewes Silva², Giovanna Barcellos Gemelli², Maria Lúcia Steiernagel Hristonof², Luciana Roesch Schreiner¹¹ Hospital São Lucas da Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS). ² Escola de Medicina da PUCRS

Case presentation: A 52-year-old-male patient diagnosed with scleroderma 9 years before, was admitted for investigation of anemia and lymphopenia. On admission he presented stable vital signs and a hemoglycotest (HGT) of 95 mg/dL. He had telangiectasias on the face and trunk, palmar macules, sclerodactyly and resorption of the distal phalanges, in addition to pitting scars and skin tone changes in the hands due to smoking. During hospitalization, pantoprazole, sulfamethoxazole-trimethoprim, acyclovir, prednisone, amlodipine, and nicotine patch were administered. On the third day of hospitalization, the first asymptomatic glycemic alteration (HGT of 58 mg/dL) was registered while fasting. On the fourth day, with usual dietary intake, he presented two new glycemic alterations without clinical repercussions: 66 mg/dL and 55 mg/dL. On the fifth day, there was a new event, with capillary blood glucose of 31 mg/dL. Upon review of the prescription, there was no previous record of the use of insulin or oral hypoglycemic agents. Due to multiple alterations in the fingertips (Figure 1A), with severe Raynaud's phenomenon, the measurement of capillary blood glucose in the ear lobe was requested for follow-up, and with this, capillary blood glucose values lower than 70 mg/dL were no longer recorded. At this time, a FreeStyle Libre sensor was also fitted for glycemic monitoring during hospitalization, which did not identify hypoglycemic events (Figure 1B). **Discussion:** Artefactual hypoglycemia in patients with scleroderma is believed to be caused by low capillary blood glucose levels due to reduced capillary flow, leading to deceleration of glucose transit and subsequent increased glucose uptake by local tissues. Patients with systemic sclerosis have vascular damage affecting small vessels and arterioles, which may distort the integrity of the endothelial lining and result in the progressive thinning of capillaries and loss of blood vessels. This condition leads to low capillary blood flow, decreasing the supply of glucose in the affected extremities, which may simulate asymptomatic hypoglycemia in the patient. **Final considerations:** The measurement of capillary blood glucose, as demonstrated in this case, may be flawed in patients with microcirculatory disorders, such as those in Raynaud's phenomenon. In these cases, we must suspect pseudo-hypoglycemia, and other diagnostic tests must be performed to confirm the hypoglycemia. **Keywords:** Glycemic control; diffuse scleroderma; glucose.

106763

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

PODOCIN AS A POSSIBLE MARKER OF GLOMERULAR DAMAGE IN DIABETIC KIDNEY DISEASE: PRELIMINARY STUDY IN ESTREPTOZOTOCIN-INDUCED TYPE 1 DIABETESIago de Souza Gomes¹, Ony Araujo Galdino¹, Karla Simone Costa de Souza¹, Ana Clara Almeida Santiago¹, Maria Imaculada Conceição Ferreira de Carvalho¹, Marcela Abbott Galvão Ururahy¹, Adriana Augusto de Rezende¹¹ Universidade Federal do Rio Grande do Norte (UFRN)

Introduction: Diabetic kidney disease (DKD), one of the complications of diabetes mellitus, is associated to increased albuminuria, a recognized nonspecific marker of glomerular damage. Since podocytes alterations are the first signs of glomerular damage in the DKD, changes in the expression of podocyte-related proteins, such as podocin, that is involved in the stabilization of the glomerular slit diaphragm, may represent a potential marker of glomerular damage in DKD. **Objective:** To investigate the potential role of podocin as a sensitive and specific marker of glomerular damage and DKD in an experimental model of type 1 diabetes (T1D). **Methods:** Seventeen male Wistar rats (Ethics: 207.072/2019) were distributed in 2 groups followed for 60 days: control (C) and diabetic streptozotocin-induced (D). Biochemical parameters [serum glucose, creatinine, urea, and urinary albumin-creatinine ratio (ACR)] were evaluated. For kidney tissue, Nphs2 (podocin) mRNA and podocin protein expression were evaluated by qPCR and western blot, respectively. Also, podocin was measured from urinary extracellular vesicles by western blot. **Results:** Increased serum glucose, creatinine and urea, as well increased ACR, were observed in D when compared to C ($p < 0.001$), indicating that hyperglycemia negatively influenced the maintenance of kidney function and favored the DKD development. A reduction in podocin expression in the kidney tissue observed in D animals compared to C ($p = 0.019$), besides an increased Nphs2 mRNA expression in kidney tissue ($p < 0.001$), suggests that diabetes would be leading to glomerular damage. Regarding urinary results, the increased podocin expression in extracellular vesicles in D compared to C ($p < 0.001$), indicated that urinary podocin loss could be a signal that stimulate the gene transcription mechanism increasing the Nphs2 mRNA expression in kidney tissue trying to maintain glomerular integrity. These results revealed that podocin could represents an early sign of glomerular damage since is a podocyte-related protein involved in glomerular slit diaphragm. **Conclusion:** The present study demonstrated that podocin represents a potential sensitive and specific marker of glomerular damage in DKD. **Keywords:** Diabetic kidney disease; podocin; type 1 diabetes.

105528

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

POLYGLANDULAR AUTOIMMUNE SYNDROME TYPE 3A: A RARE CASE REPORTJuliana Machado Saraiva¹, João Paulo Silva Andrade², Karina Yara Martins¹, Alberto Aloysio Larcher de Almeida³¹ Hospital e Maternidade Terezinha de Jesus. ² Santa Casa de Misericórdia de Juiz de Fora. ³ Faculdade de Ciências Médicas e da Saúde de Juiz de Fora

Case presentation: Patient, female, 32 years old, height 1.65 m, weight 54.0 kg and BMI: 19.8 kg/m². Previously untreated hyperthyroidism for 5 years. Two months ago she started to lose weight that reached 14 kg. She had polyuria and polydipsia and capillary blood glucose reached 540 mg/dL. Metformin and glimepiride were prescribed. The patient attends the appointment, at the service, maintaining fasting plasma glucose (FPG) and postprandial blood glucose levels above 300 mg/dL and no symptoms or signs of hyperthyroidism. She brought the following tests: FPG: 298 mg/dL; TSH < 0.01, free T4: 2.57 ng/dL, anti-TPO: 483 UI. Oral antidiabetics were discontinued and basal-bolus insulin therapy was started with NPH and Regular insulin. New tests showed TSH < 0.01; free T4: 2.3; Total T3: 1.54; TRAb: 30.4; HbA1c: 10.5% and ANTI-GAD: 1,852, showing a diagnosis of latent autoimmune diabetes in adults (LADA) and Graves' disease (GD), which are components of the polyglandular autoimmune syndrome type 3a. Insulin therapy was continued and methimazole was started. There was good compensation of the diseases. **Discussion:** Polyglandular autoimmune syndromes (PAS) are disorders characterized by functional impairment of multiple endocrine and non-endocrine glands due to loss of immunological tolerance. They were classified into four types by Neufeld and Blizzard, with type 3a being composed of autoimmune thyroid disease associated with autoimmune diabetes mellitus. The susceptible human leukocyte antigens (HLA) haplotypes DRB1 * 0405-DQB1 * 0401 and DRB1 * 0901-DQB1 * 0303 are the most frequent. PAS type 3a is more frequent in females, aged 37.9 ± 13.8 years for the onset of diabetes, while GD appears first and means intervals of 8.8 ± 9.0 years between the onset of diabetes and GD. These epidemiological data are similar to the case reported. **Final comments:** This represents a case of PAS type 3a, which is a rare syndrome and by 2020, only 61 cases of PAS type 3 had been reported (including subtypes a, b and c). Thus, if suspected, patients with autoimmune endocrine diseases should be alert and evaluated about others endocrine deficiencies. **Keywords:** Polyglandular autoimmune syndrome; latent autoimmune diabetes in adults; Graves' disease.

106520

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

PRACTICE OF PHYSICAL ACTIVITY AND PERCEPTION OF MENTAL HEALTH IN INDIVIDUALS WITH TYPE 1 DIABETES MELLITUS DURING SOCIAL DISTANCING IN BRAZILGabriela Correia Uliana¹, Anna Beatriz Conceição de Souza¹, Fernanda Ribeiro Rocha¹, Beatriz Cibele Brabo Mauro¹, Aline Leão Reis², Carla Cristina Paiva Paracampo¹, Daniela Lopes Gomes¹¹ Universidade Federal do Pará. ² Universidade da Amazônia

Introduction: The social isolation in the COVID-19 pandemic affected the practice of physical activity, as well as negatively influencing people's mental health. Physical activity, in addition to being an important pillar in the treatment of type 1 diabetes mellitus, helps in the prevention of psychiatric illnesses, and may be even more beneficial for people with type 1 diabetes mellitus during this period. **Objective:** To test the association between the perception of mental health and the practice of physical activity in people with type 1 Diabetes Mellitus during social isolation in the COVID-19 pandemic in Brazil. **Methods:** Cross-sectional, descriptive, and analytical study, with data collection carried out in July 2020 (period of social distancing in Brazil) after approval by the Research Ethics Committee (n° 4.147.663). For data collection, an online form built on the Google® Forms platform was used, which was divided into three axes: sociodemographic; mental health and physical activity. The study included 472 people diagnosed with type 1 Diabetes Mellitus of both genders, aged between 18 and 59 years, with simple random sampling. The chi-square test of independence was applied with adjusted residual analysis (level of statistical significance $p < 0.05$). **Results:** Most participants were aged between 25 and 44 years ($n = 269$; 57.0%), were female ($n = 406$; 86.0%) and lived in the Southeast region of Brazil ($n = 222$; 47.0%); 51.3% of participants remained sedentary or stopped exercising during social isolation, while 48.7% exercised during this period. There was an association between exercising and being interested in performing daily activities ($p = 0.003$), not feeling depressed ($p = 0.001$), feeling very slightly irritated ($p = 0.006$) and having mild problems with sleep ($p = 0.012$). However, not exercising was associated with having a severe disinterest in performing daily activities ($p = 0.003$), feeling severely depressed ($p = 0.001$), irritated ($p = 0.006$) and panicking ($p = 0.033$), having severe sleep problems ($p = 0.012$) and taking moderate medication ($p = 0.028$). **Conclusion:** There is a direct relationship between the practice of physical exercise and better aspects of mental health, for this reason, the practice of physical exercise during social isolation should be encouraged for patients with type 1 diabetes mellitus, in order to improve the mental health of this public. **Keywords:** Diabetes mellitus; exercise; mental health.

106692

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

PREDICTORS OF PREGNANCY OUTCOMES IN A COHORT OF WOMEN WITH TYPE 2 DIABETESMaria Lúcia Rocha Oppermann¹, Maria Amélia Campos², Vânia Naomi Hirakata³, Vanessa Krebs Genro³, Angela Jacob Reichelt³¹ Faculdade de Medicina da Universidade Federal do Rio Grande do Sul (UFRGS); Hospital de Clínicas de Porto Alegre, Porto Alegre, RS, Brasil. ² Hospital Nossa Senhora da Conceição, Porto Alegre, RS, Brasil. ³ Hospital de Clínicas de Porto Alegre, Porto Alegre, RS, Brasil

Introduction: Type 2 diabetes affects 5.7% of women with 18 to 45 years, in Brazil; worse pregnancy outcomes could be expected. **Objective:** To describe predictors of pregnancy outcomes in women with pregestational diabetes (PGDM) or diabetes in pregnancy (DIP) attended in prenatal care facilities of two public hospitals in Porto Alegre, Brazil. **Methods:** Women were enrolled between May, 2005 and June, 2021. Risk factors were center of enrollment, maternal age, diabetes duration, pregestational body mass index (BMI), gestational weight gain (GWG), use of insulin, maternal hospitalization, initial and final glycated hemoglobin (HbA1c) and neonate birth weight adequacy. Outcomes were insulin use, hospitalization, pre-eclampsia, cesarean section, macrosomia and neonatal admission to intensive care unit (ICU). Statistics: chi-square test, Student t test, ANOVA for univariable analyses; Poisson regression with robust estimates for multivariable analyses. Results are presented as relative risk and 95% confidence interval. **Results:** We enrolled 433 women with PGDM (288 (44.6%) with diabetes diagnosis between 1 and 5 years, and 145 (22.5%) with diagnosis ≥ 6 years); and 212 (32.9%) with DIP. Women with DIP were younger, with less diabetes complications and arrived later to specialized prenatal care. Women with diagnosis ≥ 6 years required insulin (82.6% x 81.6% x 92.9%, $p = 0.007$) and were hospitalized (56.8% x 51.8% x 74.4%, $p < 0.001$) more frequently compared to the other groups; they also gained more weight (7.0 [3.0-13.0] x 7.4 [2.6-11.6] x 10.0 [6.3-13.8], $p = 0.002$). There were no differences regarding other maternal or neonatal outcomes. Predictors of pregnancy outcomes are shown in the Table. Maternal outcomes were associated with center of enrollment, pregestational BMI, gestational weight gain, insulin use, maternal hospitalization and initial HbA1c, while maternal age and duration of type 2 diabetes were not risk factors. Cesarean section was not associated to any risk factor. Macrosomia was associated with pregestational BMI, excessive GWG and the last HbA1c, while neonate admission to the ICU was related to birth weight adequacy and to the maternal metabolic control at the end of pregnancy. **Conclusion:** Modifiable risk factors related to maternal body composition and metabolic control were associated with adverse maternal and neonatal outcomes in women with type 2 diabetes, while non modifiable risk factors like maternal age and diabetes duration were not. **Keywords:** Type 2 diabetes in pregnancy; predictors; pregnancy outcomes.

106809

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

PROFILE OF MORBIDITIES AND CARDIOVASCULAR RISK FACTORS IN DIABETES EDUCATIONAL CAMPAIGN PARTICIPANTSNatália Cavaleiro Braz Fernandes¹, Júlia Novaes Matias¹, Lucas Vaz Alves¹, Flávia Cristina Castilho Caraccio¹, Claudia Rucco Penteado Detregiachi¹, Eduardo Federighi Baisi Chagas¹, Jesselina Francisco dos Santos Haber¹¹ Universidade de Marília (Unimar)

Introduction: Type 2 diabetes mellitus (DM2) represents an important risk factor for cardiovascular disease. Persistent hyperglycemia is associated with chronic micro and macrovascular complications, reduced quality of life and increased mortality rate. Therefore, educational and screening actions for prevention of DM2 are needed. **Objective:** To describe the profile of morbidity and cardiovascular risk factors in participants of an educational campaign about diabetes, in Marília-SP, 2019. **Methods:** Non-probabilistic convenience sample with 204 subjects of both genders, over 18 years old. Besides diagnosis orientations, anthropometric data on body mass, height, body mass index (BMI), nutritional status, waist circumference (WC) and neck circumference (NC) were obtained. Data on the level of physical activity, reported morbidity, glycemia (considering the time of fasting), age, sex and weekly fruit consumption were also gathered. Comparison of averages was performed using Student's t-test and Anova-one-way. Correlation was made using the Pearson test. The significance level adopted was 5%. The project was approved by the Ethics and Research Committee of the Universidade de Marília (CAAE: 25689419.6.0000.5496-2019). **Results:** Regarding the cardiovascular risk factors in the sample, 25.7% are sedentary, 14.9% are obese, 32.8% have increased WC, 11.4% have DM, 22.9% are hypertensive, 5.7% dyslipidemic and 5.7% smokers. For glycemia measurement, 83% had been fasting for more than 2 hours; 34.2% had blood glucose between 100 to 125 mg/dL, 5.3% between 126 to 199 mg/dL and 5.3% above 200 mg/dL. When comparing sex, lower fruit consumption and higher WC and NC were observed in men. Although not significant, the active individuals had a higher mean consumption of fruits and lower values of WC, NC, capillary glycemia and BMI when compared to less active and sedentary subjects. Correlation analysis indicated that the increase in WC and BMI are related to the increase in blood glucose. **Conclusion:** Although the largest proportion of the sample (48.6%) is young adults (18 to 39 y), a high rate of overweight, obesity, DM and hypertension was observed. Considering that 83% of the sample had been fasting for more than 2 hours, 44.7% of the sample had blood glucose levels above 100 mg/dL, suggesting that the sample may have people with undiagnosed DM. Obesity and abdominal fat accumulation are the main factors related to blood glucose elevation. **Keywords:** Diabetes; risk factors; cardiovascular diseases.

106737

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

PURCHASE OF BLOOD GLUCOSE MANAGEMENT SUPPLIES AND RECEIVING EMERGENCY AID BY ADULTS WITH TYPE 1 DIABETES DURING SOCIAL DISTANCING BY THE PANDEMIC OF COVID-19 IN BRAZIL

Aline Leão Reis¹, Aline Fernanda Oliveira Ramos², Talita Nogueira Berino², Anna Beatriz Conceição de Souza², Maria Eduarda Veloso Lima², Daniela Lopes Gomes²

¹ Universidade da Amazônia, ² Universidade Federal do Pará

Introduction: The health crisis caused by the COVID-19 pandemic affected the economy, worsening access to healthcare for those who need specific supplies, such as type 1 diabetes mellitus. **Objective:** To analyze the association between the use of emergency aid and the purchase of blood glucose management supplies by adults with type 1 diabetes during restrictive measures by COVID-19 in Brazil. **Methods:** A transversal, descriptive, analytical study with non-probabilistic convenience sampling approved by the ethics and research committee (number 4.147.663). Data collection occurred in July 2020, using a form on the Google® Forms platform after signing the Informed Consent Form. 472 people with Type 1 Diabetes, both of sexes and older than 18 years old voluntarily participated. The quiz was separated into two axes: receiving emergency aid and the form of purchase (through Unified Health System – UHS; own money; donation; did not need; could not; other; does not use) of supplies for blood glucose management (insulin, reagent strips or material for Flash Glucose Monitoring System – SFMG). The descriptive results were expressed as absolute frequency and proportion; the chi-square test of independence was applied with adjusted residual analysis statistics ($p < 0.05$). **Results:** Of all participants, 39.19% received the aid, 54% reported not needing it and 6.77% did not receive it despite requesting it. The individuals used the aid to buy test strips and lancets (24.2%), other supplies (22.7%), insulin or hypoglycemic agents (22%) and syringes or needles (17.7%). Receiving the aid was associated with receiving lancets through UHS ($p = 0.031$) and not using SFMG ($p < 0.000$). Buying insulin with your own money was associated with using the aid to buy test strips and lancets ($p = 0.004$), syringes or needles ($p < 0.000$) and also insulin ($p < 0.000$). Purchasing ribbons with own money or donation was associated with using the aid to buy test strips and lancets ($p < 0.000$) and insulin ($p = 0.004$). Buying lancets with your own resources was associated with using the aid to buy test strips and lancets ($p < 0.000$), syringes or needles ($p = 0.004$) and insulin ($p = 0.001$). **Conclusion:** People who received supplies for blood glucose management through UHS used emergency aid for other purposes, but those who received supplies through donations or bought with their own money used the aid to purchase supplies. It reinforces the importance of public policies and to combat social inequalities in health care. **Keywords:** Chronic non-communicable disease; blood glucose; insulin.

106743

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

QUALITATIVE EVALUATION OF THE USE OF TECHNOLOGIES TO CONTROL SECONDARY DIABETES IN AGED PERSON

Maria Luiza Nogueira de Barreiros Gavazza¹, Jonas Gordilho Souza¹, Marina Cedro Platon Bezerra², Olívia Carla Bomfim Boaventura²

¹ Faculdade de Medicina, Universidade Federal da Bahia, ² Hospital São Rafael, Rede D'Or

Case presentation: Male, 78 years old, 15 years of education and retired, from Salvador, BA. Diagnosed with diabetes in 2019, exacerbated after prolonged use of corticosteroids for the treatment of autoimmune diseases. Medical history: rheumatoid arthritis, essential tremor, multiple mononeuritis, ischemic stroke, essential tremor and cerebellar dysplasia. For DM treatment daily use glargine insulin and lixentide association 10 UI and metformin 2,000 mg. Cognitive association with Minimental 28; partial dependence for activities of daily living due to motor limitations. On physical examination, 67 kg, BMI 23.5 kg/m². Normal segmental examination, except for hand deformity and gait instability. 7g monofilament test changed by > 1 point. Due to tremors and deformities in her hands, he had been having difficulties in measuring capillary blood glucose levels without assistance. It was then proposed to use a device for glycemic control by the Flash method of Monitoring Glucose Control – CGM. The 30-day follow-up use of the technology provided reliable data to assess response insulin therapy to guide dietary and routine changes. Presented Time in Range (TIR) 60%, Time Above Range (TAR) (30% up to 249 and 9% > 300 mg/dL), Time Below Range (TBR) 1% with Coefficient of Variation (CV) 34%. The measurement of A1C was from 11.9% to 7.4% and in interview he mentions an improvement in treatment with the CGM method (Table 1). **Discussion:** Currently, already has evidence for its use of CGM with the objective of reducing HbA1C in patients with DM in all age groups. It also reduces hypoglycemic events in DM1. Compared with the measurement of A1C, the CGM provides an ambulatory glucose profile allowing assessment of glycemic variability. In addition, brings less discomfort with daily punctures, compared to methods of self-monitoring by capillary blood glucose. Despite the possible advantages of using CGM, it has not been robustly demonstrated that its use reduces episodes of hypoglycemia in older adults with DM2 or with secondary DM in the literature. Since the studies available to date have included few patients at risk for hypoglycemia, the CGM method seems to reduce risks individually. A limitation is the cost, which can be a barrier to accessibility. **Final comments:** In aged people with DM and multiple comorbidities, CGM seems to be a useful tool, with benefits that include: less dependence on others, less discomfort, better perception of safety and monitoring. **Keywords:** Diabetes in aged person; continuous glucose monitoring.

105918

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

REDUCTION IN THE NUMBER OF BARIATRIC SURGERIES PERFORMED IN BRAZIL DURING THE COVID-19 PANDEMICTulio Loyola Correa¹, Mariana Sandoval Terra Campos Guelli²¹ Universidade Federal de Pelotas. ² Centro Universitário de Volta Redonda

Introduction: Considering the high transmissibility of COVID-19, health systems can become overwhelmed and the lack of resources is a major concern in low- and middle-income countries including Brazil. Bariatric surgery is a very effective procedure for individuals with type 2 diabetes and obesity; however, it may be impacted by the health system oversaturation due to COVID-19. **Objective:** The aim of this study was to evaluate the number of bariatric surgeries performed in Brazil during the COVID-19 pandemic. **Methods:** Observational study which compared the number of bariatric surgeries performed in the Brazilian National Health System in the years 2019 and 2020. The number of bariatric surgeries was evaluated using the national database (Datusus – Department of Informatics of the Unified Health System). Pearson's chi-squared test was performed and $p < 0.05$ was considered statistically significant. **Results:** During this time period, there was a total of 16,074 bariatric surgeries performed in the Brazilian National Health System. Regarding the Brazilian demographic region in which the surgery was performed, most of them occurred in the Northeast region (7,217; 44.9%), 6,129 (38.1%) in the Southeast region, 1,851 (11.5%) in the South region, 642 (4%) in the Central-West region, and 235 (1.5%) in the North region. There were 9,122 (56.8%) bariatric surgeries performed in 2019 and 6,952 (43.2%) in 2020. From 2019 to 2020, there was a reduction of approximately 23.8% in the number of bariatric surgeries performed in Brazil ($p < 0.001$). **Conclusions:** There was a significant reduction in the number of bariatric surgeries performed in the Brazilian National Health System from 2019 to 2020. This finding might be related to the health system oversaturation by the COVID-19 pandemic. **Keywords:** Bariatric surgery; COVID-19; pandemic.

106693

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

REDUCTION IN THE RATE OF EGFR DECLINE WITH SEMAGLUTIDE VS. PLACEBO: A POST HOC POOLED ANALYSIS OF SUSTAIN 6 AND PIONEER 6Debora Batista Araujo de Pina Cabral¹, Katherine R. Tuttle², David Cherney³, Samy Adjudi⁴, Soren Rasmussen¹, Benjamin Wolthers¹, Stephen C. Bain⁵¹ Novo Nordisk. ² Kidney Research Institute. ³ University of Toronto. ⁴ University of Nantes. ⁵ Hebrew University of Jerusalem

Introduction and objective: The SUSTAIN 6 cardiovascular outcomes trial (CVOT) indicated that once-weekly (OW) subcutaneous (s.c.) semaglutide may have beneficial effects on kidney function in subjects with type 2 diabetes (T2D) at high CV risk. SUSTAIN 6 and the PIONEER 6 CVOT (once-daily [OD], oral semaglutide) had similar designs and populations, and both evaluated the effects of semaglutide *vs.* placebo (PBO) on macro- and microvascular outcomes. This post hoc analysis of pooled data from the two trials evaluated the effects of semaglutide *vs.* PBO on kidney function decline. **Methods:** Data for 6,480 subjects with T2D from SUSTAIN 6 (OW s.c. semaglutide 0.5 and 1.0 mg or placebo, $n = 3,297$; median follow-up 2.1 years) and PIONEER 6 (OD oral semaglutide once-daily 14 mg or placebo, $n = 3,183$; median follow-up 1.3 years) were pooled into two groups: semaglutide and PBO. Annual change in estimated glomerular filtration rate (eGFR) was compared (semaglutide *vs.* PBO) in the overall population and subgroups by baseline (BL) eGFR ($\geq 30 - < 60$ or ≥ 60 mL/min/1.73 m²). Changes in eGFR from BL during trial were analyzed using a linear random regression model with individual intercept and time slope. The estimated treatment difference (ETD) at 1 year between annual rates of eGFR slope from BL was calculated; an interaction p -value < 0.05 indicated difference between subgroups. **Results:** In the overall population, the annual rate of eGFR change was 0.60 mL/min/1.73 m² ($p < 0.0001$) lower with semaglutide *vs.* PBO. In the eGFR $\geq 30 - < 60$ mL/min/1.73 m² and ≥ 60 subgroups, the ETDs for semaglutide *vs.* PBO were, respectively, 1.07 and 0.48 mL/min/1.73 m²/year, with a non-significant interaction p -value. **Conclusions:** Semaglutide was associated with a significantly smaller decline in kidney function than PBO in subjects with T2D at high CV risk across tested BL eGFR categories; the data suggest the main benefit might be observed in those with kidney disease. **Keywords:** Type 2 diabetes; kidney function; semaglutide.

106729

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

RELATIONSHIP BETWEEN APPENDICULAR SKELETAL MUSCLE MASS AND METABOLIC DISORDERS IN ELDERLY

Andreza F. Begnami¹, Lenira C. Stella¹¹ Universidade Anhembi Morumbi, Piracicaba, SP, Brasil

Introduction: Sarcopenia is characterized by progressive and generalized loss of skeletal muscle mass and strength. Beyond bone fractures, sarcopenia increases the risk to metabolic diseases as diabetes mellitus, independently of total fat mass. The aging process decreases lean mass and increases body total fat mass with fat infiltration in liver and muscles, inducing a pro-inflammatory status enlarged by sarcopenia condition. Appendicular skeletal muscle mass (ASMM) value is useful for diagnosing sarcopenia and can be assessed by bioelectrical impedance analysis (BIA). Sum of muscle mass of limbs, ASMM is related to body size and adjusted for the squared height (ASMM/h²). This transversal study investigated ASMM/h² related to cardiovascular risk. **Methods:** The ESALQ/USP Elderly Program participants were invited to diabetes education activities. We assessed information about gender, age, medical history, weight, height, waist circumference (WC), fingerstick capillary glycemia and BIA. EWGSOP2 cut-off values to ASMM/h² were applied. Data analysis were performed on SigmaStat 4.0 (Multiple linear regression and Fisher's exact test). **Results:** Seventy-seven over sixties individuals (55 female) were included, with median age of 74 years. From total sample, 38 people related arterial hypertension and 27 related pre or diabetes, 2 of them on insulin therapy. Cardiovascular disease (CVD) (myocardial infarction or stroke) was more frequently referred by male (n = 7) than female (n = 2). Six people presented capillary glucose higher than 140 mg/dL without fasting. BMI mean was 26,7 kg/m² and 22 people had BMI ≤ 24,9 kg/m², and using IDF criteria, 19 men and 53 women had high WC measurements. Women and men ASMM/h² median were 6,6 kg/m² and 7,7 kg/m², respectively; showing 6 (11%) women and 2 (9%) men below the EWGSOP cut off. ASMM/h² was positively correlated with male gender, BMI and inversely correlated with age, but no correlation was found with diabetes, hypertension, CVD and WC. **Discussion:** Although no correlation was found between ASMM/h² and cardiovascular risk factors, age was inversely correlated exposing lost lean mass with aging. Dysglycemia prevalence and men cardiovascular disease overbalance are agreement at medical literature. In this sample, 20% of elderly had lean mass decrease, similar to Viana et al results (19,8%). This study should be a wake-up call to sarcopenia diagnosis in elderly population and claim the need for standardization of tools and parameters. **Keywords:** Sarcopenia; diabetes; appendicular skeletal muscle mass.

106690

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

RELATIONSHIP BETWEEN SOCIAL DISTANCING, GLYCEMIC INDEXES AND PERCEPTION OF FEELINGS IN ADULTS WITH TYPE 1 DIABETES MELLITUS DURING THE COVID-19 PANDEMIC

Alana dos Anjos Moreira¹, Carliane Cardoso dos Reis², Beatriz Cibebe Brabo Mauro², Kamille Teixeira da Silva³, Daniela Lopes Gomes²Centro Universitário Metropolitano da Amazônia (Unifamaz)/Programa de Pós-graduação em Teoria e Pesquisa do Comportamento da Universidade Federal do Pará (UFPA). ² UFPA. ³ Unifamaz

Introduction: The social distancing caused by COVID-19 resulted in changes in the population's routine that impacted individuals' emotional aspects. People with type 1 diabetes mellitus may have noticed that emotional changes impacted blood glucose, making glycemic control difficult during this period. **Objective:** Evaluate the association between glycemic control in different emotional perceptions and adherence to social distancing by the COVID-19 pandemic in Brazil. **Methods:** This is a cross-sectional study, conducted online with a non-probabilistic saturation sample of 472 adults with type 1 diabetes mellitus. Data collection occurred through a questionnaire built for this study containing the following axes: 1) Glycemic monitoring according to the individuals' emotions at the time of measurement (happy, motivated or hopeful; stressed or anxious; sad, distressed or with depressive symptoms); and 2) Social distancing measures adopted. The research was approved by the Ethics and Research Committee (number 4.147.663). All participants signed the Informed Consent Form. Pearson's Chi-Square test was applied with adjusted residual analysis (p < 0.05). **Results:** Most participants (64.7%) reported that they were partially following the measures of social distancing, leaving home only to get food and medicine; 94.3% considered that social distancing was effective in reducing the number of victims of COVID-19; 38.9% reported that the greatest impact of social distancing was social interaction; 69.9% said they were willing to stay socially distant for as long as necessary; 50.4% said that social distancing was causing some stress in their home environment. An association was found between a shorter time of tolerance to social distancing and hyperglycemia when feeling happy (p = 0.002), as well as an association between a lot of stress at home and having hyperglycemia when feeling stressed (p < 0.000), in addition, a lot of stress in the family environment was associated with hypoglycemia and hyperglycemia when feeling sad (p = 0.002). **Conclusion:** An association was found between perceiving a very stressful family environment and having hyperglycemia when stressed, as well as having hypoglycemia and hyperglycemia when feeling sad. Therefore, the external environment seems to be associated with blood glucose levels and the perception of the participants' feelings. **Keywords:** Type 1 diabetes mellitus; glycemic indexes; perception of feelings.

106808

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

RELATIONSHIP BETWEEN TIME OF TYPE 2 DIABETES DIAGNOSIS AND THE PREVALENCE OF MICROANGIOPATHIC COMPLICATIONS

Eduarda Simon¹, Vinícius de Sousa Morais¹, Marise Vilas Boas Pescador¹¹ Centro Universitário Assis Gurgacz

Introduction: Type 2 diabetes mellitus (DM2) is a metabolic disease characterized by a state of hyperglycemia due to insulin resistance and a partial deficiency in the secretion of this hormone by pancreatic beta cells, in addition to changes in incretin secretion. With a prevalence of 10.2% in the Brazilian population, the disease is associated with microvascular complications, such as nephropathy, retinopathy and peripheral neuropathies. Furthermore, it represents an important risk factor for several other pathologies with lethal outcomes, making the disease a challenge to global health. **Methods:** This is a cross-sectional study, conducted by a application of questionnaires, from February to May 2021, taking into account the time since diagnosis of the disease and the presence of microvascular complications in 50 patients seen at an endocrinology clinic, covering 25 municipalities in the western region of Paraná. **Objectives:** Analyze the association between the time since diagnosis and the occurrence of microvascular complications in patients with DM2. **Results:** From all the 50 patients (35 male x 15 female), 62% had some microvascular complication associated with the disease. Of these, 32% were diagnosed less than 5 years; 18%, between 5-10 years, 30% between 10-20 years and 20% have discovered it more than 20 years. In the group of those diagnosed less than 5 years ago, among the complications found, 50% had diabetic retinopathy (DR) and 31.3% had diabetic foot (DF). A total of 55.6% of the patients diagnosed 5-10 years ago had associated complications, among these, 55.6% had DR. As for patients aged 10-20 years with the disease, a prevalence of 66.7% could be observed, among which 46.7% of the cases had DR, 1 case of diabetic nephropathy (DN) and 33.3% with DF. Among those who knew about the disease for more than 20y, the frequency of complications were 60%, of which 50% had DR, 20% DN and 20% diabetic foot. **Conclusion:** Therefore, a high prevalence of microvascular complications associated with DM2 was found, reaching 62% of the total. An elevated rate of complications in patients with a recent diagnosis (<5 years) raised the hypothesis of late diagnosis. As expected, there was a compatible presence of complicated cases in > 20 years of diagnosis, standing out only in relation to DN cases. Thus, this study reinforces that diagnosis and an early follow-up can be correlated with a lower rate of long-term complications. **Keywords:** Microvascular complications; diabetes; diagnosis.

106789

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

RESULTS OF MONITORING THE INSULIN ANALOGUE DISTRIBUTION PROGRAM OF A STATE DEPARTMENT OF HEALTH IN BRAZIL

Eliziane Brandão Leite¹, Melorie Kern Capovilla Sarubo Baptista¹, Eduarda Teixeira de Godoy¹, Danyelle Lorrane Carneiro Veloso², Isabela Lemos Ferrer¹¹ Escola Superior de Ciências da Saúde. ² Secretaria de Saúde do Distrito Federal

Introduction: Diabetes mellitus has an increasing incidence in all countries and without proper treatment it can lead to vascular and other complications. The maintenance of intensive care, with a reduction in glycated hemoglobin (HbA1c) values, proved to be effective in reducing these occurrences. After the discovery of insulin, there was a great evolution and from the 2000s onwards, fast-acting, and long-lasting insulin analogues became available as a technological evolution with high cost. A study that evaluated patients with type 1 (DM1) and type 2 (DM2) diabetes using insulin analogues distributed by a State Department of Health (SES) program showed that less than a quarter of patients reached the target of HbA1c lower than 7%, established as a criterion for the program maintenance. **Objective:** To evaluate the results achieved by patients with type 1 and type 2 diabetes in an Insulin Analogue Program at SES, after the improvement in the criteria for access effective in 2014. **Methods:** This is a longitudinal, prospective, and analytical study, with active users of 2018 and 2019. **Results:** Of 334 selected patients, most were patients with DM1, male and aged between 19 and 65 years. In these, the average value of HbA1c was < 8%, and good control was achieved by 31.8% (2018) and 30.7% (2019). While for DM2, the average HbA1c was 7.6% and the achievement of goals occurred in 55.9% (2018) and 47.4% (2019). The total insulin dose averaged was 0.8 IU/kg/day for both types. Patients used a basal-bolus scheme, with the proportion for basal being 49% (2018) and 46% (2019) in DM1, and 55% (2018) and 52% (2019) in DM2. In the association analysis, for DM1 there was significance ($p < 0.001$), with the age group < 18 years old being more likely to have altered hemoglobin than people > 65 years old. **Conclusion:** The study was able to assess the results of HbA1c achieved by patients in the program. The glycemic goals were reached by approximately one third in DM1 and by half in DM2. An association was found between HbA1c and age group, in DM1, with individuals under 18 years of age being the most likely to have HbA1c off the target of good control. These research signals the need of reflection about the quality of the assistance given to the public under 18 years old, so that other measures can be established with the objective of improving glycemic control in this population. **Keywords:** Diabetes; insulin analog; glycated hemoglobin.

100856

BIOLOGIA CELULAR E SECREÇÃO DE INSULINA

SARS-COV-2/COVID AND TYPE 1 DIABETES MELLITUS - AN IMMUNOINFORMATICS APPROACH

Luís Jesuino de Oliveira Andrade¹, Alcina Maria Vinhaes Bittencourt², Luís Matos de Oliveira³,
Luisa Correia Matos de Oliveira⁴, Gabriela Correia Matos de Oliveira⁵

¹ Departamento de Saúde, Universidade Estadual de Santa Cruz (UESC), Ilhéus, BA, Brasil. ² Faculdade de Medicina, Universidade Federal da Bahia, Salvador, BA, Brasil. ³ Faculdade de Medicina, BA, Brasil. ⁴ Centro Universitário Senai Cimatec, Salvador, BA, Brasil.

⁵ Faculdade de Medicina UniFTEC, Salvador, BA, Brasil

Introduction: Contact with viruses which have an amino acid (AA) sequence similar to that of the auto-antigens can lead to autoimmune diseases in genetically susceptible individuals. SARS-CoV-2 has been implied as a possible causer of new-onset type 1 diabetes mellitus (DM1), however, no consistent evidence yet that SARS-CoV-2 take to DM1 on your own initiative. **Objective:** Evaluate the possible similarity between the AA sequences of human insulin and human glutamic acid decarboxylase-65 (GAD65) with SARS-CoV-2/COVID proteins, to explain the possible trigger of DM1. **Methods:** AA sequences of the human insulin (4F0N), GAD65 (2OKK), and SARS-CoV-2 (SARS-Cov2 S protein at open state (7DDN), SARS-Cov2 S protein at close state (7DDD), SARS CoV-2 Spike protein (6ZB5), Crystal structure of SARS-CoV-2 nucleocapsid protein N-terminal RNA binding domain (6M3M), Crystal structure of SARS-CoV-2 nucleocapsid protein C-terminal RNA binding domain (7DE1), Crystal Structure of NSP1 from SARS-CoV-2 (7K3N), and SARS-CoV-2 S trimer (7DK3)) available in the Protein Data Bank were compared using the Pairwise Structure Alignment. **Results:** Sequence identity percentage (SI%) and sequence similarity percentage (SS%) were found among the 4F0N, 2OKK and SARS-CoV-2. The SI% between the 4F0N and SARS-CoV-2 ranged from 4.76% to 14.29% and SS% ranged from 5.00% to 45.45%, distributed like this: 4F0N and 7DDN = SI% 4.76 and SS% 28.57; 4F0N and 7DDD = SI% 14.39 and SS% 23.81; 4F0N and 6ZB5 = SI% 4.76 and SS% 28.57; 4F0N and 6M3M = SI% 5.00 and SS% 5.00; 4F0N and 7DE1 = SI% 4.76 and SS% 9.21; 4F0N and 7K3N = SI% 9.09 and SS% 45.45; 4F0N and 7DK3 = SI% 4.76 and SS% 28.57. The SI% between the between the 2OKK and SARS-CoV-2 ranged from 3.19% to 6.70% and SS% ranged from 10.45 % to 22.22%, distributed like this: 2OKK and 7DDN = SI% 6.70 and SS% 15.64; 2OKK and 7DDD = SI% 7.53 and SS% 18.84; 2OKK and 6ZB5 = SI% 6.68 and SS% 17.38; 2OKK and 6M3M = SI% 4.48 and SS% 10.45; 2OKK and 7DE1 = SI% 6.67 and SS% 22.22; 2OKK and 7K3N = SI% 3.19 and SS% 15.97; 2OKK and 7DK3 = SI% 3.95 and 17.98 (Figure 1). **Conclusion:** Immunoinformatics data suggest a potential pathogenic link between DM1 and SARS-CoV-2/COVID. Thus, by means of molecular mimicking we check that sequences similarity among SARS-CoV-2/COVID and human insulin and human glutamic acid decarboxylase-65 may lead to production of an immune cross-response to self-antigens, with breakage of self-tolerance that can trigger DM1. **Keywords:** SARS-CoV-2; type 1 diabetes; immunoinformatics.

106756

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

SCREENING OF SARCOPENIA IN PEOPLE WITH TYPE 2 DIABETES AFTER A PHYSICAL EXERCISE PROGRAM CARRIED OUT REMOTELY DURING THE COVID-19 PANDEMIC

Laura Lis dos Santos Souza¹, Marcus Guilherme Albuquerque Gomes¹, Pedro Edgar Xavier da Silva¹,
Rafaela de Melo Silva Rosado¹, Vitória Ludmilla Brito de Araujo¹, Ana Beatriz de Carvalho Paes de Andrade¹,
Denise Maria Martins Vancea¹

¹ Universidade de Pernambuco

Introduction: The reduction in muscle mass and strength resulting from aging is defined as sarcopenia, a very common complication in sedentary people with type 2 diabetes, and has been widely associated with functional decline, leading to a greater risk of falls, fractures, hospitalizations and deaths. The practice of physical exercise can delay the loss of muscle mass and can impact the quality of life of people with type 2 diabetes. **Objective:** Screening for sarcopenia in people with type 2 diabetes participating in a remotely supervised exercise program during the COVID-19 pandemic. **Methods:** This study was characterized as cross-sectional and was approved by the Ethics Committee (No. CAAE 46588821.9.0000.51920). Twelve people with type 2 diabetes of both genders participated in the study, mean age 66.3 ± 7.4 years and mean time since diagnosis 16.3 ± 10.4 years. Doce Vida – Supervised Physical Exercise Program for Diabetics has been adapted for the remote form. The intervention lasted three months, with remote classes held twice a week. Video calls were made to check the environment and carry out a screening. The training was divided into three methods: joint mobility, strength training (upper and lower limbs) and stretching exercises. According to clinical and physical conditions, the protocol was divided into light, moderate and intense, with 1-3 sets of 8-15 repetitions. The SARC-F questionnaire was applied, at the beginning and at the end of the intervention, by video calls. **Results:** After three months of intervention, the 12 people with type 2 diabetes scored from 0 to 5 on the SARC-F questionnaire. **Conclusion:** People with type 2 diabetes who participated in the remotely supervised physical exercise program during the COVID-19 pandemic didn't show signs of sarcopenia. **Keywords:** Physical exercise; diabetes; sarcopenia.

105495

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

SELF-CARE AND QUALITY OF LIFE RELATED TO ORAL HEALTH OF PATIENTS WITH TYPE 1 DIABETES

Dilson Rocha do Amaral¹¹ Instituto de Ensino e Pesquisa (IEP) Santa Casa

People with diabetes are more susceptible to periodontal disease compared to non-diabetics, which can make more difficult the glycemic control. Inadequate glycemic control causes an increased risk of gingivitis, which in addition to being able to trigger tooth loss, can increase the risk of cardiovascular disease. The affected oral health thus impacts the state of health as a whole and the quality of life. **Objective:** To evaluate self-care and quality of life related to oral health of people with type 1 diabetes. **Methods:** Quantitative, descriptive, cross-sectional study conducted with people with type 1 diabetes mellitus followed in a secondary care service. In the evaluation of self-care with oral health, part of the research applied in the National Health Survey (PNS), which is a national household-based survey conducted in partnership with the Brazilian Institute of Geography and Statistics (IBGE), which contains a specific questionnaire on oral health, with 15 questions with closed answers. In the evaluation of oral health-related quality of life, the Oral Health Assessment Index (OHIP-14) was used, which seeks to indicate whether the person had, in the last 12 months, any social incident related to problems with his teeth, mouth or prostheses. The instrument adapted to the cultural context of Brazil and the Brazilian language was Portuguese. The data were processed in the statistical program Predictive Analytics Software (PASW 18). Univariate and bivariate statistical analyses were performed, considering the significance level of 5%. **Results:** The study included 154 people with a mean age of 32.5 ± 15.8 years. Oral problems were reported mainly to worsening taste (36%), mouth or tooth pain (23.3%) and difficulties to eat due to mouth problems (23.3%). The majority (68.4%) reported having visited the dentist in the last 12 months. Only 38.8% flossed, Oral health was considered good by 53.2%. **Conclusion:** Participants considered quality of life related to oral health good, although there are oral problems. Self-care for oral health is flawed. Health professionals need to reinforce the importance of oral health care in people with diabetes in favor of glycemic control, general health status and well-being. **Keywords:** Diabetes mellitus; oral health; quality of life.

106826

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

SELF-CARE MANAGEMENT OF WOMEN WITH GESTATIONAL DIABETES MELLITUS DIAGNOSIS

Hellen Cristina Marques Teixeira¹, Âgatha Cristina Moraes Campos¹, Beatriz de Sousa Campos¹,
Victoria Ellenn Bomfim Golbi¹, Ana Paula Franco Pacheco¹¹ Centro Universitário Euro-Americano

Introduction: In gestational diabetes mellitus (GDM) there is an increase in circulating glucose, caused by hyperglycemic hormones in the placenta, accompanied by an insufficient amount of insulin secreted by the pancreas, which leads to insulin resistance due to antagonistic effects. In Brazil, the incidence is 7% to 10% of cases. After diagnosis, health professionals should make pregnant women and their families aware of treatment, healthy eating, physical exercise and glycemic control. Thus, it is necessary for the multidisciplinary team to promote the management of self-care for pregnant women as a way to promote autonomy along with the comprehensiveness of professional care, since there are many precautions to obtain adequate control. **Objective:** to analyze factors that interfere in the self-care management of women with GDM, such as: knowledge about the disease and the pregnant woman's bond with the multidisciplinary team. **Methods:** descriptive and exploratory study, carried out in 2021, through Google Forms. Sample: women who were or had previous pregnancies diagnosed with GDM and had no previous diagnosis of diabetes mellitus (DM). **Results:** 113 responses were obtained, 38 (33.6%) were excluded, as they had a previous diagnosis of DM. The sample number was 75 (66.4%). 44% could not recognize the signs and symptoms. 32% were unable to inform if they had any restrictions on breastfeeding. 68% had difficulty in self-care for good control. 62.6% rated eating control as the greatest difficulty. 56% reported socioeconomic interference for good control. 37% considered a score between 7 and 10 in the self-assessment of knowledge about GDM. Only 10.6% scored information about the 4 essential multidisciplinary care (food, physical activity, medication and glycemic control). Only 51% had an appointment with a nutritionist. 53% considered the guidelines of the multidisciplinary team to be effective. **Conclusion:** There is a deficit of knowledge among pregnant women that interferes with their self-care management. Misinformation forms a gap between the need to have good disease control and proper care. The findings showed low performance of the multidisciplinary team in terms of information, which makes it difficult for the pregnant woman to bond with the team. Therefore, it is suggested to practice health education more effectively. **Keywords:** Gestational diabetes; multidisciplinary team; self-care management.

106698

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

SEMAGLUTIDE-INDUCED WEIGHT LOSS IS ASSOCIATED WITH IMPROVED HEALTH-RELATED QUALITY OF LIFE AND TREATMENT SATISFACTIONMariana Gomes Adas Okuma¹, Kari T. Uusinarious², Helena W. Rodbard³, Luc van Gaal⁴, Anna Sandberg⁵, Sayeh Tadayon⁵, Melanie J. Davies⁶¹ Novo Nordisk. ² DaVita Medical Group, Colorado Springs, CO, USA. ³ Endocrine and Metabolic Consultants, Rockville, MD, USA.⁴ Antwerp University Hospital, Antwerp, Belgium. ⁵ Novo Nordisk A/S, Søborg, Denmark. ⁶ Diabetes Research Centre/Department of Health Sciences, University of Leicester, Leicester, UK

Introduction: Semaglutide, a glucagon-like peptide-1 analog for the once-weekly treatment of type 2 diabetes, provided superior glycemic control and weight loss (WL) vs. comparators in the SUSTAIN clinical trial program. **Methods:** This post hoc analysis assessed if WL was associated with patient-reported health-related quality of life (HRQoL) and treatment satisfaction improvements in SUSTAIN 2-5 and 7. Data for both semaglutide doses (0.5 and 1.0 mg) were pooled across trials (N = 2,808). Change in HRQoL (Short Form-36 Health Survey version 2 [SF-36v2] Physical Component Summary [PCS] and Mental Component Summary) and treatment satisfaction (Diabetes Treatment Satisfaction Questionnaire status version) scores were evaluated in subjects who achieved $\geq 5\%$ and $\geq 10\%$ WL vs. those who did not at end of treatment (30, 40 or 56 weeks). **Results:** Overall, 51.0% and 17.4% of subjects achieved $\geq 5\%$ and $\geq 10\%$ WL with semaglutide. Significantly greater improvements in the overall PCS score and most of its components were reported in subjects achieving $\geq 5\%$ and $\geq 10\%$ WL vs. those not achieving these responses (Table). WL responses also correlated with overall treatment satisfaction and perception of hyperglycemia (Table). In conclusion, semaglutide-induced WL was associated with improvements in PCS domains of the SF-36v2, overall treatment satisfaction and perception of hyperglycemia across the SUSTAIN 2-5 and 7 trials. **Keywords:** Semaglutide; weight; quality of life (HRQoL).

106714

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

SHOULD WE COUNT MORE THAN CARBOHYDRATES FOR OPTIMAL BLOOD SUGAR CONTROL OF TYPE 1 DIABETIC PATIENTS?Luiz Felipe Proost de Souza Filho¹, Juliana Almada Colucci Barros¹¹ Centro Universitário São Camilo – São Paulo

Introduction: Type 1 diabetes is a chronic auto immune disease that requires a careful glycemic treatment throughout lifespan. The use of exogenous insulin associated with carbohydrate counting method is a well established pillar for the current therapy in type 1 diabetes. However, since the popularization of new treatment technologies such as continuous glucose monitoring systems, new perspectives about the impact of dietary fat and proteins in the glycemic treatment of these patients have emerged, evidencing possible limitations of the method that focuses only in carbohydrate content of meals. **Objective:** This review focused on the most recent literature about the impact of dietary fats and proteins in glycemia of type 1 diabetes patients and explored data of the mechanisms involved. **Methods:** An integrative review using relevant biomedical portal and databases, including PUBMED, LILACS and MEDLINE was conducted. Articles in English, Spanish and Portuguese in the period of 2010 to 2021 were included. The Boolean operators AND, OR and NOT were used. After selection based 14 studies were analyzed: 10 original articles and 4 reviews. **Results:** Nine of ten studies demonstrate the hyperglycemic effect of protein and/or fat consumption in isolation or in combination with carbohydrates. Proteins consumed alone in quantities of 75-100 g seem to elevate glycemia in type 1 diabetes patients in similar manner as 20 g of carbohydrate. The consumption of protein and fat together have an additive effect on glycemia. Dietary fat seems to slow the gastric emptying and to delay the effect of carbohydrate in glycemia, while dietary protein seems to have similar effect, in addition to a rise in glycemia due to late stimulation of gluconeogenesis. Dual wave bolus appears to be an efficient method to treat the late hyperglycemic effect (between 3 to 12 hours) in glycemia of type 1 diabetes patients, and the extra insulin requirement ranges from 17% to 125% showing great interindividual variability. **Conclusion:** Meals rich in fat and/or protein can cause late and extended hyperglycemia after their consumption in type 1 diabetic patients. Dual wave bolus shows to be a viable method to treat the impact of these macronutrients in glycemia of type 1 diabetes patients, however the risk for hypoglycemia exists, as great interindividual variability for the insulin extra doses. More studies need to be done to determinate guidelines for insulin doses based on these macronutrients. **Keywords:** Type 1 diabetes; nutrients; dietary fats.

106478

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

SMART SOCKS WITH PRESSURE SENSORS FOR OFFLOADING MONITORING OF DIABETIC FOOT ULCER: A WEARABLE SYSTEM PROTOTYPELigia de Loiola Cisneros¹, Marcelo Augusto Sanches², Thomas Machado Lacerda¹, Bruna Barbosa Barreto¹, Juliana Viana de Moraes¹, Renan Fernandes Kozan¹, Aparecido Augusto de Carvalho²¹ Universidade Federal de Minas Gerais (UFMG). ² Universidade Estadual Paulista "Júlio de Mesquita Filho"

Introduction: Diabetes mellitus is a worldwide epidemic, representing a great challenge for health systems around the world. Patients with diabetic neuropathy are unable to perceive vertical stress or repetitive shear stress in a specific area of the feet, favoring the occurrence of injuries. Thus, considering the importance of reducing plantar pressures to promote ulcer healing, a prototype system with an instrumented sock was developed to monitor the weight distribution in the plantar region, in real time and for long periods of time, of patients in their homes. **Objective:** This study presents the development and test of precision and accuracy of an intelligent sock system to acquire and monitor plantar pressure overload. **Methods:** A system was developed consisting of four pressure sensors, Force Sensing Resistor type, embedded in a sock, a control unit, composed by a microcontroller and low-energy Bluetooth, an application (APP) for smartphone and a website. Two sensors are placed on the forefoot, one on the mid-foot and one on the rearfoot, to monitor the three main plantar regions. The APP has two important functions, one of them is to send the received data (force and GPS location) to a website so that the health professional can follow the patient's movement and distribution of force throughout the day, and the other is to notify the user, in a sound and vibration way, if an overload is being exerted on the ulcer region, so that it relieves the pressure and does not compromise its clinical condition. The system was calibrated and tested with an automatic force applicator, which allowed the transfer function of each sensor to be raised. Afterwards, several tests were carried out to determine the precision and accuracy of the system, performing applications of known forces, through a reference system, and then verifying the response. **Results:** Forces were measured in the range of 6.3 N to 124.6 N. In the calibration process the average error was 1.1%, and the accuracy was greater than 98.2% for all measured forces. For the force of 104.6 N the precision was 99.1% (Table 1). **Conclusion:** The obtained results showed satisfactory and interesting performances of this simple and low-cost wearable device, capable of accurately sampling forces to remotely monitor plantar pressures of foot ulcers in patients during offloading interventions. **Keywords:** Wearable electronic devices; telemonitoring; diabetic foot.

106736

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

SOFRIMENTO EMOCIONAL DE IDOSOS COM DIABETES MELLITUS TIPO 2 DA ESTRATÉGIA SAÚDE DA FAMÍLIA DE RIBEIRÃO PRETO, SÃO PAULOLívia Maria Ferrante Vizzotto Consoli¹, Laercio Joel Franco¹, Rinaldo Eduardo Machado de Oliveira¹¹ Faculdade de Medicina de Ribeirão Preto da Universidade de São Paulo (FMRP-USP)

Objective: This study aimed to analyze the emotional suffering of elderly people with type 2 diabetes mellitus from the Family Health Strategy of Ribeirão Preto, São Paulo. **Methods:** This is a descriptive, cross-sectional, population-based household survey study. The Brazilian version of the Problems Areas in Diabetes questionnaire was used to verify the degree of emotional distress. A total of 338 people aged 60 years or over participated in the study, 66.3% were women, 51.5% were aged between 60 and 69 years, had low income and education. **Results:** The average score of emotional distress was 20.2 (SD = 16.6) and ranged from 0 to 74. The high degree of emotional distress was associated with: self-perceived health, age at diagnosis, number of diseases associated with DM2, use of insulin alone or associated with oral antidiabetics, self-efficacy and renal dysfunction ($p < 0.05$). The most serious problem reported by the elderly was worrying about the future and the possibility of serious complications (35.2%). It was possible to identify the dimensions associated with the emotional suffering of elderly people with diabetes. **Conclusion:** This analysis will provide subsidies for the strategic planning of actions aimed at the geriatric population in Primary Health Care aimed at ensuring aging with quality of life. **Keywords:** Primary health care; diabetes mellitus; old man.

106765

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

TELEHEALTH AS A TOOL FOR THE PREVENTION OF AMPUTATION IN PATIENTS WITH DIABETIC FOOT: CASE REPORTLudmilla Aline Guimaraes Moreira Farias¹, Emanuel Araújo Pinheiro¹, Laura da Silva Girão Lopes¹, Maria Helane Costa Gurgel Castelo¹, Clarisse Mourão Melo Ponte¹¹ Centro Universitário Christus (Unichristus)

Case presentation: Male patient, 45 years old, coming from the countryside of Ceará, with type 2 diabetes mellitus (DM2) for 15 years, with neuropathy, retinopathy and diabetic nephropathy, undergoing follow-up in primary health care of his city, without evaluation with an endocrinologist. He started care in a diabetes care line at a Telehealth center in Fortaleza, using only oral antidiabetics. He had hyperglycemia (A1c: 10% and postprandial capillary glycemia on the day of the consultation of 330 mg/dL) and an ulcerative lesion in the heel region, difficult to heal, for two months, with a report of previous surgical debridement, without improvement. Oral antidiabetic treatment was adjusted, and basal bedtime insulin was started. The patient was instructed about the importance of self-care with the feet and about the proper use of shoes (the use of sandals was advised to avoid heel loads). He started a follow-up by a multidisciplinary team (nursing, nutrition and endocrinology) of the Telehealth service, with frequent returns, remote monitoring of blood glucose and adjustments in insulin therapy. Six months after, he presented excellent glycemic control, with an A1c measurement of 5.8% and almost complete resolution of the ulcer in the calcaneus (Figure 1). Insulin therapy was suspended, and only oral medications were maintained. **Discussion:** Diabetic foot is a frequent complication in patients with DM. The emergence and progression of micro and macrovascular complications, such as diabetic neuropathy, are intrinsically related to inadequate glycemic control. The lack of access to specialists in distant locations, as well as the difficulty of access due to the covid-19 pandemic, can make glycemic control difficult. Thus, Telehealth strategies, such as teleconsultation and telemonitoring, have become a useful tool for the follow-up of these patients, as in the case reported here. The patient was followed up more regularly, received diabetes education interventions, obtained adequate therapeutic adjustment and better glycemic control, which contributed to a better evolution of the lesion in the calcaneus, thus avoiding a possible amputation. **Final comments:** The use of Telehealth adds considerable benefit to patients with chronic diseases, such as DM, especially in those with difficult access to the specialist, which may favor a better evolution and outcome of the condition and thus provide a better quality of life for the DM patients. **Keywords:** Diabetic foot; neuropathy; telehealth.

106821

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

TELEHEALTH INTERVENTION DURING THE COVID-19 PANDEMIC IN PATIENTS WITH DIABETES MELLITUSDebora Wilke Franco¹, Janine Alessi², Taíse Rosa de Carvalho¹, Gabriel Luiz Kobe¹, Giovana Berger Oliveira¹, Beatriz D'Agord Schaan², Gabriela Heiden Telo¹¹ Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS). ² Hospital de Clínicas de Porto Alegre, Universidade Federal do Rio Grande do Sul

Introduction: The COVID-19 pandemic caused a failure in the provision of medical services that compromised the follow-up and possibly the adherence to the treatment of diabetes mellitus. Telemedicine entered this scenario attempting to reduce the damage caused to these individuals. **Objective:** To evaluate the impact of a telehealth intervention on metabolic outcomes of patients with diabetes during the COVID-19 pandemic. **Methods:** This is a non-blind randomized controlled clinical trial to assess a telehealth intervention during the COVID-19 pandemic. We included adults with previous diabetes mellitus types 1 and 2 that regularly attended their specialist physicians in a tertiary health center. The intervention included weekly phone calls (total of 16) and lasted 10 minutes. The purpose of each phone call was to provide strategies for maintenance of healthy lifestyle. After the intervention, we evaluated and compared glycemic and metabolic profile between intervention and control group (people with diabetes from the same health center who did not receive our telehealth intervention). For statistical analysis Chi-square and T tests were performed. The initial analysis was a comparison with intention-to-treat of the primary outcome between intervention and control groups. **Results:** 150 individuals (58 patients with type 1 diabetes and 92 with type 2 diabetes) participated in the study; type 1 diabetes's group had 94.8% white participants and 50% were female; type 2 diabetes's group had 73.9% white participants and 65.2% were female. The mean age for type 1 diabetes group was 43.8 ± 13.5 and for type 2 diabetes group was 61.3 ± 9.0 years old. HbA1c values did not differ between intervention and control groups for neither type 1 (8.1% vs. 8.6%; $p = 0.11$) nor type 2 diabetes (8.6% vs. 9.0%; $p = 0.09$) respectively. From the rest of metabolic profile, triglycerides levels from type 1 diabetes group were the only variable that demonstrated improvement with telehealth intervention (66.5% intervention group vs. 86.5% control group; $p = 0.05$). **Conclusions:** Although previous studies have found the potential of enhancing treatment adherence with telehealth interventions, our findings were not able to identify significant improvements in glycemic control with a telehealth intervention. This highlights the need of other health care strategies to improve diabetes care during the social distancing period. **Keywords:** Diabetes mellitus; COVID-19; telehealth intervention.

106691

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

TEMPORAL ANALYSIS OF HOSPITAL ADMISSIONS DUE TO TYPE 2 DIABETES MELLITUS COMPLICATIONS IN SANTA CATARINA

Isabella Garcia Nandi¹, Flávio Ricardo Liberali Magajewski¹, Renata Fortunato da Silva¹¹ Universidade do Sul de Santa Catarina (Unisul)

Introduction: Type 2 diabetes mellitus is a public health problem that affects approximately 8.5% of the world population and shows a significant growth trend in recent decades. **Objective:** Given the high prevalence of complications resulting from the disease, the high costs of the health system with treatment and hospitalizations and the scarcity of current studies on the epidemiology of this phenomenon in the south of Brazil, the aim of this study was to analyze the temporal evolution of hospital admissions due to type 2 diabetes mellitus complications in the state of Santa Catarina, between 2011 and 2020. **Methods:** Observational study with time series analysis using the Hospital Information System (SIH-SUS) as data source, and focusing on hospital admissions for non-insulin-dependent Diabetes Mellitus (E11.0-E.11.8) in Santa Catarina, from 2011 to 2020. **Results:** In the evaluated period, 5,203 hospitalizations were recorded due to DM2 complications, with a predominance of females (55.5%) and patients over 70 years old (52%). There was a trend towards stability in the rates of hospitalization in females and an increase in males, in addition to stability in all age groups, with the exception of those aged between 20 and 39 years, which showed a growth trend. Among the macro-regions of Santa Catarina, the highest average rates of hospitalization were observed in the South, Midwest and Serra Catarinense regions. Among the complications studied, peripheral circulatory causes (27.7%) were the most prevalent, with a tendency towards stability, as well as renal, ophthalmic and neurological causes. However, hospitalizations for diabetic coma and multiple complications tended to decrease, while hospitalizations for ketoacidosis had a tendency to increase in the period. The need to use ICU beds during hospitalization was 3.57%, and hospital lethality was 3.86% during the study period. The average unit price of admissions was R\$ 715.00. **Conclusions:** Hospitalizations for DM2 complications showed a general trend of stability in the period, with a discrepancy between the sexes. There was a temporal trend of growth of the risk rates for hospitalization in the age group of 20-39 years and stability for the other groups, with an increase in the average rates with advancing age. The highest mean hospitalization rate was found in the South region. The main cause of hospitalization was peripheral circulatory complications. **Keywords:** Diabetes mellitus, type 2; diabetes complications; hospitalization.

106361

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

TEMPORAL TRENDS IN THE PROFILE OF PREGNANT WOMEN WITH TYPE 2 DIABETES

Angela J. Reichelt¹, Maria Amélia Campos², Vânia Naomi Hirakata¹, Vanessa Krebs Genro¹, Maria Lúcia Rocha Oppermann³¹ Hospital de Clínicas de Porto Alegre (HCPA), Porto Alegre, RS, Brasil. ² Hospital Nossa Senhora da Conceição, Porto Alegre, RS, Brasil. ³ Faculdade de Medicina da Universidade Federal do Rio Grande do Sul (UFRGS); HCPA, Porto Alegre, RS, Brasil

Introduction: Excessive body weight and type 2 diabetes are growing rapidly in women of childbearing age in Brazil, potentially complicating pregnancies. The COVID-19 pandemic may have affected some maternal characteristics in pregnancy. **Objective:** To describe aspects of the metabolic profile of pregnant women with type 2 diabetes attended in specialized prenatal care facilities of two public hospitals in Porto Alegre. **Methods:** women with type 2 diabetes, pregestational (PGDM) or diagnosed in pregnancy (DIP), were enrolled between May, 2005 and June, 2021. Age, number of pregnancies, body mass index (BMI), rates of obesity and overweight, weight gain in pregnancy, first and final HbA1c and follow-up were evaluated across time: 2005-2009, n = 45; 2010-2014, n = 232; 2015-2019, n = 303; and ≥ 2020, n = 66; and before and after 2020. Statistics: chi-square test, Student t test, ANOVA with Tukey's test. Results are presented as mean ± SD or n (%). **Results:** We enrolled 434 women (67%) with PGDM, 212 (33%) with DIP. Maternal characteristics were: age, 33 ± 5.9 years; gravidity, 3.0 ± 1.7 pregnancies; mean pregestational BMI 34.4 ± 7.7 kg/m²; mean BMI at delivery, 37.5 ± 7.2 kg/m²; 124 (19.9%) presented with overweight and 442 (70.9%) with obesity; mean weight gain at booking was 3.5 ± 6.4 kg, at delivery, 8.1 ± 7.6 kg; HbA1c at booking was 7.3 ± 1.6%, final HbA1c, 6.3 ± 1.0%. There were no relevant differences between the four time-groups regarding rates of diabetes in pregnancy, obesity and main pregnancy characteristics, except for the initial HbA1c (ANOVA, p = 0.049), with differences between 2005-2009 (7.8 ± 1.6%) and ≥ 2020 group (7.0 ± 1.5%); and the final HbA1c (ANOVA, p = 0.007): ≥ 2020 (6.0 ± 0.8%) compared to 2005-2009 (6.6 ± 1.0%) and to 2010-2014 (6.4 ± 1.1%). Pre-eclampsia was less frequent in 2015-2019 compared to 2010-2014 (27% x 38%, p = 0.039). There was a progressive decline in hospitalization due to glycemic decompensation, from 68.3% in 2005-2009 to 38.1% in ≥ 2020, p < 0.001. When we stratified groups by 2020, the final HbA1c was lower in group ≥ 2020, compared to the groups up to 2019 (6.3 ± 1.0% vs. 6.0 ± 0.8%, p = 0.024), as well as hospitalization for metabolic control (38.1% x 60.7%, p = 0.001) and for other causes (45.2% x 66.3%, p = 0.002). **Conclusion:** There were few changes in the profile of pregnant women with type 2 diabetes across time. However, slight improvement was found in some metabolic indicators in more recent years, mainly from 2020 onwards. **Keywords:** Type 2 diabetes in pregnancy; diabetes in pregnancy; obesity in pregnancy.

106362

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

TERAPIA NUTRICIONAL NA SÍNDROME CARDIORRENAL EM UMA UNIDADE DE TERAPIA INTENSIVA: RELATO DE CASOTayane Vieira Vasconcelos¹, Katharyna Khauane Brandão Ripardo¹, Anael Queirós Silva Barros¹, Maria Leilah Monte Coelho Lourenço¹¹ Centro Universitário INTA (UNINTA)

Introdução: A síndrome cardiorrenal (SCR) é complexa e tem base no fato de que pacientes com algum grau de lesão cardíaca primária podem evoluir com uma lesão renal secundária, e vice-versa. A SCR tipo 2 é definida como uma IRC secundária a ICC. **Objetivos:** Relatar um caso de um paciente internado em uma UTI com diagnóstico de IRC secundária a ICC descompensada, com ênfase na TN. **Métodos:** Trata-se de um estudo descritivo do tipo relato de caso com análise de prontuário e acompanhamento nutricional. **Resultados e discussão:** I.U.D., sexo masculino, 58 anos, hipertenso. Medidas antropométricas estimadas, com peso = 54,5 kg, altura = 1,58 m e IMC = 16,83 kg/m², classificado segundo a OMS com Desnutrição. Adequação da CB% = 83,85% (desnutrição leve). Paciente com NRS 2002 > 3 (risco nutricional). Iniciou quadro de dispnéia de forte intensidade ao fazer pequenos esforços, com progressão para edema em membros inferiores, náusea e oligúria. Evoluiu com IRC e Rebaixamento do Nível de Consciência, sendo internado na UTI, onde permaneceu por 7 dias sob ventilação mecânica e uso de drogas vasoativas. Os exames laboratoriais mostraram os eletrólitos, sódio e potássio abaixo dos valores normais, 132 mmol/L e 3,4 mmol/L, respectivamente. A ureia e creatinina estavam elevadas, 64,6 mg/dL e 2,18 mg/dL, e a TFG = 28,51 mL/min/1,73 m², o que confirma a patologia renal. Quanto ao hemograma, as hemácias e hemoglobina se mostraram abaixo, 3,72 milh/mL e 12,5 g/dL, respectivamente, indicando um quadro de anemia. Após estabilidade hemodinâmica, a TN foi por via alternativa, conforme indicação médica. As recomendações nutricionais para pacientes nessas condições é a seguinte: hipercalórica (30 a 35 kcal por kg de peso), hiperproteica (1,0 a 1,5 g por kg de peso), normoglicídica (50% a 60% do VET) e normolipídica (25% a 35% do VET). Foi realizado o cálculo das necessidades nutricionais para energia: 1.910,65 kcal/kg e proteínas: 327,52 kcal/kg. Sendo proposta Dieta Enteral, Sistema Fechado, Peptamen 1.5, administrada por bomba de infusão com um volume de 53 mL em 24 h. A meta calórica foi atingida, a proteica ficou em 1,58 g por kg de peso e o percentual de carboidratos em 50,59% e lipídico em 33,55% do VET. **Conclusão:** A terapia nutricional se mostrou essencial no manejo do paciente com SCR-2, visto que com a progressão da doença o paciente apresentava uma perda de peso acentuada. Assim, a proposta foi adequada e proporcionou uma melhora do seu quadro clínico e, consequentemente, da recuperação do estado nutricional. **Palavras-chave:** Síndrome cardiorrenal; unidade de terapia intensiva; terapia nutricional.

106270

FISIOLOGIA INTEGRADA E OBESIDADE

THE ASSOCIATION BETWEEN MENIERE'S DISEASE AND DIABETES MELLITUSMariana Sandoval Terra Campos Guelli¹, Tulio Loyola Correa², Daniela Bastos de Almeida Zampier¹, Lorena Silva Araújo Dias¹, Chrysser Ferreira Alves¹ Centro Universitário de Volta Redonda (UniFOA). ² Universidade Federal de Pelotas (UFPel)

Introduction: Meniere's disease (MD) is a disorder of the inner ear and its symptoms consist of acute hearing loss, which is associated with disease duration, roaring tinnitus, sensation of fullness in the ear, and intense vertigo with motion illusion. The etiology of MD is still unclear, but studies have shown that the majority of MD patients are prone to obesity and metabolic syndrome. **Objective:** The aim of this study was to evaluate the association between MD and diabetes mellitus. **Methods:** A systematic literature review was conducted following the PRISMA guidelines. Papers were selected searching PubMed/Medline, SciELO and LILACS databases in August 2021 using the terms [Meniere's disease] AND [Diabetes]. The inclusion criterion was limited to observational studies that evaluated the association between MD and diabetes. There were no language or publication date restrictions. Among the 67 studies initially found, 9 were included in this systematic review. **Results:** Although 6 studies reported a significant association between MD and diabetes, other 3 described a nonsignificant association. In addition, 2 studies reported that treating the metabolic disorder helped in the clinical management of MD. Glucose metabolism can influence the physiology of the inner ear, which is very active metabolically. As the inner ear is particularly sensitive to altered blood glucose and insulin levels, changes in carbohydrate metabolism may be one of the most important possible etiologies of MD. **Conclusion:** Hyperinsulinism may play a role in the development of MD. However, prospective large-scale studies are still necessary to better understand this association. **Keywords:** Meniere's disease; diabetes mellitus.

106695

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

THE HABIT OF COOKING WAS ASSOCIATED WITH ADEQUATE CONSUMPTION OF FRESH FOOD BY PEOPLE WITH TYPE 1 DIABETES MELLITUS DURING THE COVID-19 PANDEMIC IN BRAZIL

Jeanne Lorena Lima Dias¹, Manuela Maria de Lima Carvalhal¹, Aline Fernanda Oliveira Ramos¹, Flávia Aline Lages Fernandes¹, Maria Eduarda Veloso Lima¹, Fernanda Ribeiro Rocha¹, Daniela Lopes Gomes¹

¹ Universidade Federal do Pará

Introduction: During the social distancing measures due to COVID-19, the cooking habits and frequency of fruits and vegetables intake may be affected and influence the diet quality of people with diabetes. Comprehending this dynamic is important to widen the perspective of health professionals and public policy to encourage the development of culinary skills and fresh food intake to promote health for that population. **Objective:** To verify the association between the cooking habits and consumption of fresh food of individuals with type 1 diabetes mellitus during the pandemic by COVID-19 in Brazil. **Methods:** A cross-sectional study conducted by an online survey form with 472 individuals, both sexes, with type 1 diabetes mellitus, during July 2020, period in which ruled the social distancing measures due to COVID-19 in Brazil. The following information was collected: daily fruit intake (considered adequate for two or three portions and inadequate if less or more than that), daily vegetable intake (considered adequate if equal to or greater than two portions and inadequate if less than two), social distancing (type and time one thought it was feasible to remain in social distancing). For analytical statistics, the variable cooking habit was divided into two categories “yes”, or “no”, if they were cooking more, regardless of the reason. The chi-square test of independence was applied with adjusted residual analysis, considering a statistical significance level of $p < 0.05$. The research was approved by the Ethics and Research Committee (number 4.147.663). All participants signed the Informed Consent Form. **Results:** In social distancing, 50.85% ($n = 240$) of the total participants were cooking more than before. Not accomplish social distancing because of the job necessities ($n = 67$; 14.19%) was associated ($p = 0.006$) with not cooking more ($n = 232$; 49.15%). Cooking more was associated ($p = 0.028$) with having an appropriate consumption of fruit ($p = 0.028$) and vegetables ($p = 0.045$). **Conclusion:** The cooking habit affects the consumption of fresh food in people with type 1 diabetes, associated with an adequate fruits and vegetables intake, what highlights the importance of the encouragement to develop cooking skills as a measure of health and quality of life, even more in situations of social restrictions. **Keywords:** Cooking skills; healthy eating; fruit intake.

106824

AÇÃO DE INSULINA E METABOLISMO MOLECULAR E CELULAR

THE IMPACT OF DIET ON TRIGLYCERIDE LEVELS IN A PATIENT WITH TYPE 2 CONGENITAL GENERALIZED LIPODYSTROPHY

Mayara Chiavelli Vilbert¹, Cynthia Valerio¹, Marise Ribeiro de Sousa Berriel¹, Amelio F. de Godoy Matos¹

¹ Instituto Estadual de Diabetes e Endocrinologia Luiz Capriglione (IEDE)

A 1-year-eleven-days-old girl, product of a nonconsanguineous marriage presented to us with loss of fat all over the body since 3 months of age, difficulty in sucking breast milk and hypertrichosis. There is no family history of congenital generalized lipodystrophy (CGL). The maternal grandfather was born in Paraíba. On examination, the patient had triangular face, generalized loss of subcutaneous fat, prominent musculature, increased lanugo hair, acanthosis nigricans of the neck, armpit, and groin. Blood tests revealed increase transaminases, alkaline phosphatase, gamma glutamyl transferase, and serum triglycerides (TG) – 365 mg/dL. Ultrasound liver elastography demonstrated the absence of fibrosis and hepatic steatosis. Echocardiogram was normal. The genetic test was positive for homozygous mutation of BSCL2 and type 2 CGL was confirmed. After 1 month on a fiber-rich diet restricted in refined sugars, TG levels normalized – TG 82 mg/dL. At the age of 1 year and 10 months, she had increased appetite and irritability with moderate hypertriglyceridemia (546 mg/dL). After readjusting the diet, replacing total fat by polyunsaturated fat (specifically omega 3), TG reached baseline levels again (77 mg/dL). CGL or Berardinelli-Seip syndrome is an autosomal recessive disorder usually recognized at birth or shortly thereafter. The prevalence is estimated to be 1 in 10 million. The main clinical features of this rare disorder are generalized muscular hypertrophy, severe insulin resistance and hypertriglyceridemia. CGL has been linked with variants in four genes, causing four different phenotypes with some overlapping clinical manifestations. Type 2 CGL is the result of variants in BSCL2. This gene encodes a protein called “Seipin”, an essential regulator of adipogenesis, and plays an important role in lipid droplet formation and adipocyte differentiation. These patients have an almost total lack of body fat, an increased prevalence of cardiomyopathy and mild mental retardation when compared to other types of CGL. In this case report, the dietary adhesion was decisive to control the hypertriglyceridemia and prevented, until now, one of the most feared and life-threatening complications on CGL: acute pancreatitis. **Keywords:** Congenital generalized lipodystrophy; hypertriglyceridemia; dietary adhesion.

105695

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

THE INTERFACE BETWEEN NEUROPSYCHOLOGY, EXECUTIVE FUNCTIONS AND THE TREATMENT OF TYPE 1 DIABETES MELLITUS IN ADOLESCENCE

Natalia Melo de Almeida¹¹ Secretaria de Saúde do Distrito Federal

Objective: This literature review work aims to present the most recent studies on the relationship between executive functions and aspects involving the treatment of type 1 diabetes mellitus in adolescence. **Methods:** For literature review, publications in the area of neuropsychology, guidelines for the treatment of diabetes mellitus and articles in the PubMed electronic database were selected. Executive functions are part of a set of cognitive functions that control thoughts, behaviors directed to objectives, guide fundamental behaviors to learning situations and daily functioning; they allow monitoring and regulation of these behaviors and involve domains such as cognitive flexibility, inhibition control and operational memory. **Results:** The results indicated that executive functions are associated with the individual's ability to manage treatment and lifestyle changes, skills that are part of living with a chronic disease such as diabetes. The studies indicated an association of executive functions in adolescents with diabetes as well as to the neurocognitive and school aspects; treatment adhering and glycemic control; glycemic monitoring and use of technology; neurodevelopmental disorders; eating disorders; empowerment and responsibility for self-management of treatment. In addition to these findings, they suggest evaluation of neurocognitive and executive functioning and bring the current perspectives and contributions of neuropsychology in the treatment of type 1 diabetes mellitus. **Conclusion:** It was concluded that investigating in clinical practice aspects of executive functions can lead to improvement in self-care of adolescents with type 1 diabetes mellitus, so that efficient self-management such as the ability to monitor behavior and emotional aspects would be necessary to maintain a satisfactory quality of life and good glycemic control. **Keywords:** Executive functions; adolescents; diabetes mellitus type 1.

106257

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

THE POTENTIAL ROLE OF INTERMITTENT CONTINUOUS GLUCOSE MONITORING IN A SUCCESSFUL OUTPATIENT TRANSITION FROM INSULIN TO GLIBENCLAMIDE IN A PATIENT WITH TRANSIENT NEONATAL DIABETES IN THE CONTEXT OF THE COVID-19 PANDEMIC

Arthur Lyra¹, Fernanda Ferreira Rodrigues¹, Regina Célia Santiago Moisés², Renata Maria de Noronha¹, Luis Eduardo Calliari¹¹ Santa Casa de São Paulo. ² Universidade Federal de São Paulo

Introduction: Neonatal diabetes mellitus (NDM) is a monogenic form of diabetes occurring mainly in the first 6 months of life. Approximately 30% of transient NDM (TNDM) cases will have an activating mutation in the KATP channel genes ABCC8 and KCNJ11. The majority of the patients with KCNJ11 mutations who are receiving insulin treatment can be transferred to treatment with sulfonylurea (SU), with an improvement in metabolic control and quality of life. Intermittent continuous glucose monitoring (iCGM) is used to assess the current and retrospective interstitial glucose, providing information such as hypo/hyperglycemia tendency and time on target. **Case presentation:** The patient is a 6.8-year-old boy, that at five months of age, presented glycated hemoglobin (HbA1c) of 8.4%, undetectable C-peptide, and negative antibodies. The diagnosis of NDM was suspected and a missense heterozygous mutation p.Glu227Lys (c.679G>A) was found. During follow-up, his insulin requirements gradually decreased, and insulin therapy ceased at age of 1 year. At 6 years of age, laboratory tests showed HbA1c: 8.5%, fasting blood glucose: 177 mg/dL and C-peptide: 1.1 ng/mL, indicating a relapse of diabetes. He was re-started on insulin, degludec 0.04 IU/kg/day and lispro 0.5 IU before meals. The patient developed needle phobia and refused capillary blood glucose sampling. In this scenario, the use of iCGM (FreeStyle Libre®) was proposed. During insulin therapy, the analysis revealed a glucose management index (GMI) of 7.2%, 72% of the time in range, 28% above target, and 0% hypoglycemia (Figure 1). After glucose stabilization, it was decided to switch therapy from insulin to glibenclamide. Sensor data-guided changes in glibenclamide dose, which was reduced to a dose of 1.25 mg once daily. After four months of SU treatment, HbA1C was 6.1% and iCGM showed that the patient had low glycemic variability, GMI 6.2%, 93% of the time in the target range, 3% of the time in hyperglycemia, 4% in hypoglycemia (Figure 1). **Discussion/Conclusion:** This is the first description of the use of iCGM in a patient with NDM during the transition phase. The remote monitoring and online management allowed the patient to safely stay at home during transition from insulin to SU, especially important in the context of the COVID-19 pandemic. We conclude that iCGM is a useful tool in cases of NDM and should be used to increase safety and speed up dose adjustments in outpatient transition from insulin to glibenclamide. **Keywords:** Neonatal diabetes mellitus; sulfonylurea; blood glucose self-monitoring.

106258

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

THE POTENTIAL ROLE OF INTERMITTENT CONTINUOUS GLUCOSE MONITORING IN A SUCCESSFUL OUTPATIENT TRANSITION FROM INSULIN TO GLIBENCLAMIDE IN A PATIENT WITH TRANSIENT NEONATAL DIABETES IN THE CONTEXT OF THE COVID-19 PANDEMIC

Arthur Lyra¹, Fernanda Ferreira Rodrigues¹, Regina Célia Santiago Moisés², Renata Maria de Noronha¹, Luis Eduardo Calliari¹

¹ Santa Casa de São Paulo. ² Universidade Federal de São Paulo

Introduction: Neonatal diabetes mellitus (NDM) is a monogenic form of diabetes occurring mainly in the first 6 months of life. Approximately 30% of transient NDM (TNDM) cases will have an activating mutation in the KATP channel genes ABCC8 and KCNJ11. The majority of the patients with KCNJ11 mutations who are receiving insulin treatment can be transferred to treatment with sulfonylurea (SU), with an improvement in metabolic control and quality of life. Intermittent continuous glucose monitoring (iCGM) is used to assess the current and retrospective interstitial glucose, providing information such as hypo/hyperglycemia tendency and time on target. **Case presentation:** The patient is a 6.8-year-old boy, that at five months of age, presented glycated hemoglobin (HbA1c) of 8.4%, undetectable C-peptide, and negative antibodies. The diagnosis of NDM was suspected and a missense heterozygous mutation p.Glu227Lys (c.679G>A) was found. During follow-up, his insulin requirements gradually decreased, and insulin therapy ceased at age of 1 year. At 6 years of age, laboratory tests showed HbA1c:8.5%, fasting blood glucose: 177 mg/dL and C-peptide: 1.1 ng/mL, indicating a relapse of diabetes. He was re-started on insulin, degludec 0.04 IU/kg/day and lispro 0.5 IU before meals. The patient developed needle phobia and refused capillary blood glucose sampling. In this scenario, the use of iCGM (FreeStyle Libre®) was proposed. During insulin therapy, the analysis revealed a glucose management index (GMI) of 7.2%, 72% of the time in range, 28% above target, and 0% hypoglycemia (Figure 1). After glucose stabilization, it was decided to switch therapy from insulin to glibenclamide. Sensor data-guided changes in glibenclamide dose, which was reduced to a dose of 1.25 mg once daily. After four months of SU treatment, HbA1c was 6.1% and iCGM showed that the patient had low glycemic variability, GMI 6.2%, 93% of the time in the target range, 3% of the time in hyperglycemia, 4% in hypoglycemia (Figure 1). **Discussion/Conclusion:** This is the first description of the use of iCGM in a patient with NDM during the transition phase. The remote monitoring and online management allowed the patient to safely stay at home during transition from insulin to SU, especially important in the context of the COVID-19 pandemic. We conclude that iCGM is a useful tool in cases of NDM and should be used to increase safety and speed up dose adjustments in outpatient transition from insulin to glibenclamide. **Keywords:** Neonatal diabetes mellitus; sulfonylurea; blood glucose self-monitoring.

101551

AÇÃO DE INSULINA E METABOLISMO MOLECULAR E CELULAR

THE RELATIONSHIP BETWEEN FRUCTOSAMINE AND PLASMA GLUCOSE: ESTIMATED MEAN GLUCOSE VALUES BASED ON FRUCTOSAMINE VALUES

Luís Jesuino de Oliveira Andrade¹, Alcina Maria Vinhaes Bittencourt², Elio Costa Dias³, Camila Tonini³, Luis Matos de Oliveira⁴, Luiz Felipe Moreno Brito⁵, Gabriela Correia Matos de Oliveira⁶

¹ Departamento de Saúde, Universidade Estadual de Santa Cruz (UESC), Ilhéus, BA, Brasil. ² Faculdade de Medicina, Universidade Federal da Bahia, Salvador, BA, Brasil. ³ Colegiado de Medicina, UESC, Ilhéus, BA, Brasil. ⁴ Faculdade de Medicina, BA, Brasil. ⁵ Laboratório de Análises e Pesquisas, Itabuna, BA, Brasil. ⁶ Faculdade de Medicina UniFIC, Salvador, BA, Brasil

Introduction: The fructosamine is originated of the glycation of plasmatic proteins, especially albumin, in addition to immunoglobulins and proteins diverse. It constitutes an alternative biomarker of glycemic control when glycated hemoglobin is not indicated for this purpose. **Objective:** To define the mathematical relationship between fructosamine values and mean glucose values. **Methods:** The study comprised a total of 450 diabetic subjects (type 1 and type 2). Fructosamine levels obtained at the end of three weeks and measured were compared with the mean glucose levels of the three previous weeks. The average glucose levels were determined by the weighted mean of the daily fasting capillary glucose results, performed during the study period. **Results:** A total of 9,450 glucoses were performed. Linear regression analysis between the fructosamine and mean glucose levels (Table 1) showed that each increase of 1.0 µmol/L in fructosamine increase 0.5 mg/dL in the mean glucose levels as evidenced in the equation forward: Mean glucose levels = 0.5157 x Fructosamine – 20. According to the coefficient of determination ($r^2 = 0.353492$, $P < 0.006881$) (Table 2), making it possible to calculate the estimated average glucose according to the fructosamine values (Table 3). **Conclusion:** Fructosamine levels can be expressed as mean glucose levels for assessing the metabolic control of diabetic patients. **Keywords:** Fructosamine; glucose values; diabetes mellitus control.

106780

FISIOLOGIA INTEGRADA E OBESIDADE

THE RELATIONSHIP OF OBESITY IN THE DEVELOPMENT OF CANCER

Glauciane Lacerda Miranda¹, Gimena Beatriz Feola Zipitria¹, Ana Carla de Oliveira Lopes², Camila Faria Lima²¹ Universidade Federal do Rio de Janeiro (UFRJ). ² Universidade do Estado do Rio de Janeiro

Introduction: Obesity leads to increased insulin resistance, chronic inflammation, metabolic and immune system changes which favor the development of cancer cells. The most recurrent types of cancer associated with cancer in women are colon, endometrium, esophagus, gallbladder, leukemia, pancreas, breast (postmenopause) and kidneys. While in men, colon, gallbladder, malignant melanoma, pancreas and kidneys. In Brazil, 13% of cancer cases have obesity linked to excess body fat as the main cause, where postmenopausal gallbladder and breast cancer is observed in women with increased BMI. In view of the importance of obesity as a global epidemic in which the necessary awareness regarding the damage to the physical, emotional and psychological health of individuals has not yet been achieved. The relevance of the professional nutritionist in both prevention and treatment of the disease. **Objective:** The aim of this study was to prepare a literature review of the latest studies carried out in cancer patients and their association with obesity, and demonstrate the beneficial potential of nutritional treatment in obesity, and prevention of cancer development. **Methods:** A narrative review was carried out on the association of obesity with cancer development. The bibliographic search was carried out in the MedLine/PubMed/SciELO database. **Results and final considerations:** The studies revealed that the diet therapy treatment reduces the patient's morbidity and mortality and should be started promptly, individually and adapted to their clinical situation and nutritional needs. Some fruits and vegetables have bioactive compounds such as curcumin (turmeric), polyphenols (green tea), resveratrol (grapes), vitamin C (citrus fruits), among others. These compounds have protective functions, and are involved in anticancer processes, mainly in antioxidative potential, and this association seems to be restricted to some types of cancers. **Keywords:** Obesity; cancer; bioactive compounds.

106720

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

THE RISK FOR OBSTRUCTIVE SLEEP APNEA EVALUATION IN PREGNANCY WITH GESTATIONAL DIABETES

Carolina Chaves Bittencourt de Albuquerque¹, Maria Letícia Cavalcante Magalhães¹, Ana Beatriz Menezes Teixeira¹, Cristina F. Sampaio Façanha², Veralice Sales de Bruin³, Pedro Felipe Carvalho de Bruin³¹ Centro Universitário Christus (Unichristus). ² Centro Integrado de Diabetes e Hipertensão. ³ Universidade Federal do Ceará

Introduction: Obstructive sleep apnea (OSA), characterized by the repetitive partial or total collapse of the upper airway during sleep, and the need to arouse to resume normal ventilation, is a threatening situation. Studies have shown a higher risk of OSA among patients with diabetes, and it can compromise glycemic control. Pregnancy has been associated with a higher risk of sleep disorders, and OSA in pregnancy is associated with the development of gestational diabetes mellitus (GDM). **Objective:** This study aims to evaluate the risk of OSA in a group of pregnant women with GDM and the influence on pregnancy outcomes. **Methods:** This was a prospective cohort study, developed to assess sleep-related factors in a population of 311 pregnant women diagnosed with GDM, treated as outpatient basis at a public referral center for the treatment of diabetes. The sleep quality was accessed by Pittsburgh Sleep Quality Index (PSQI) and the daytime sleepiness by Epworth Sleepiness Scale (ESS). The risk of OSA was assessed by the four variables Facco *et al.* risk score calculated for each subject (OSA risk score = age + pre pregnancy BMI + 15 (if frequent snoring) + 15 (if chronic hypertension). A score ≥ 75 was considered as a right risk for OSA in pregnancy. **Results:** Overall, 311 2nd to 3rd trimester GDM patients, mean age of 33.1 (20-46 years), with mean gestational age of 29.2 weeks and mean pre-pregnancy BMI: 29.5 were evaluated. The mean PSQI score was 7.4 and poor sleep quality (PSQI > 5) was observed in 64.4%. Daytime sleepiness (ESS > 10) affected 42.3% (mean ESS score of 8.9). A correlation was found among OSA risk score and ESS (r: 0.118; P < 0.04) and PSQI (r: 0.11; p < 0.04). High risk of OSA was found in 29.1% of pregnant GDM, and it was more frequently found among multiparous (p < 0.05), age over 35 years (p < 0.05), with hypertension (P < 0.001) or obese pre-pregnant women (p < 0.001). An interesting finding was that the patients with higher risk of OSA had higher 2-hour blood glucose at OGTT (p < 0.037) and more frequently needed pharmacological treatment to control blood glucose (p < 0.003). Also, metformin treated patients had worst OSA scores when compared to other GDM patients (41.3% versus 22%; p < 0.001). **Conclusion:** OSA is a common pregnancy disruptor in GDM, and has been linked to increased need for pharmacological treatment. The association of OSA and metformin treatment should be further clarified. **Keywords:** Diabetes; Obstructive sleep apnea; pregnancy.

106297

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

THE SOCIETY FOR VASCULAR SURGERY WOUND, ISCHEMIA, AND FOOT INFECTION (WIFI) CLASSIFICATION SYSTEM IN PATIENTS WITH A DIABETIC FOOT INFECTION

Natália Anício Cardoso¹, Lígia de Lóiola Cisneros¹, Carla Jorge Machado¹, Helena Duani¹, Ricardo Jayme Procópio², Túlio Pinho Navarro¹

¹ Universidade Federal de Minas Gerais (UFMG). ² Hospital Risoleta Tolentino Neves

Diabetic foot is a chronic complication of diabetes mellitus and can lead to prolonged hospitalizations, sequelae, major amputations and death. The SVS-Wound, Ischemia and foot Infection (SVS-WIFI) Classification stratify grades of infection, ischemia and ulcer and predicts the risk of amputation and the benefit of revascularization. The objective of this study is to grade ulcer, ischemia and infection and staging the risk of amputation according to the SVS-WIFI Classification system and reporting the rates of major amputation and death in a one-year of follow-up in patients hospitalized with a diabetic foot infection (DFI) in a prospective cohort study at a university Brazilian Hospital. Patients were graded for ulcer, ischemia and infection as: grade 0 (none), grade 1 (mild), grade 2 (moderate) and grade 3 (severe) and thereafter classified into stages of amputation risk: very low (stage 1), low (stage 2), moderate (stage 3) and high (stage 4). Patients were followed up for one year. It was used statistical analysis the Stata/SE program for Mac (StataCorp LP) version 12.0, in which absolute quantitative and proportions for categorical variables were presented. A total of 141 lower limbs with infected ulcers in 138 patients from 2017 to 2019 were studied, with a mean age of 60.5 years (± 11.8), mostly men (68.1%). According to the SVS-WIFI Classification system, from the 141 evaluated limbs, 46.8%, 31.9% and 21.3% had grades of ulcer 1, 2 and 3, respectively; 63.8%, 15.6%, 12.1%, 8.5% had grades of ischemia 0, 1, 2 and 3, respectively; and 33.3%, 62.4%, 4.3% presented grades of infection 1, 2 and 3, respectively. The percentage of patients at stages of amputation risk were 13.5% very low, 23.4% low, 27.7% moderate and 35.4% high. At one year of follow-up, 60 participants (46.5%) were readmitted, 37 (26.8%) were submitted to major amputation and 18 (13.0%) died. In patients with a DFI, the majority had deep ulcers, with little ischemia, but with severe infections. Most of the analyzed limbs were in the highest amputation risk stages of the SVS-WIFI classification system. However, the rates of major amputation and death within one year were low compared to the real world and the literature. **Keywords:** Diabetic foot; amputation; mortality.

105520

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

THE SURPRISING JOURNEY OF GESTATIONAL DIABETES

Juliana Machado Saraiva¹, João Paulo Silva Andrade², Heloína Lamha Machado Bonfante³, Karina Yara Martins¹, Fabiana Aláide Ferraz¹

¹ Hospital e Maternidade Terezinha de Jesus. ² Santa Casa de Misericórdia de Juiz de Fora. ³ Faculdade de Ciências Médicas e da Saúde de Juiz de Fora

Case report: A primigravid woman, 25 years old, healthy, was referred to the Endocrinology outpatient clinic at 21 weeks of gestational age due to subclinical gestational hypothyroidism (anti-TPO: 1,300). At gestational age of 24 weeks, she was diagnosed with gestational diabetes mellitus (oral tolerance test after 75 g dextrosol: 0 h 81; 60' 173; 120' 178 mg/dL), controlled with dietary modifications. Due to obstetric indication, she was put on corticosteroid therapy for fetal lung maturation at 31 weeks GA. She visited the emergency department after the last dose of betamethasone, conscious, dehydrated, tachypneic, with fetal death and metabolic acidosis (pH: 6.92 and HCO₃: 3.3 mEq/L) with anion gap 23, serum glucose 506 mg/dL and ketonuria. She was admitted to the intensive care unit with severe diabetic ketoacidosis. Evolving with resolution of glycemic decompensation, the patient underwent uterine curettage. At hospital discharge, only regular insulin on demand was instructed, maintaining normal blood glucose levels. She was evaluated as an outpatient afterwards and no insulin was needed, with 10.5% glycated hemoglobin and positive test for anti-GAD, receiving a diagnosis of type 1 stage 2 diabetes mellitus. **Discussion:** Autoimmunity during pregnancy is highly predictive of subsequent type 1 diabetes mellitus, even in non-diabetic pregnant women. presymptomatic type 1 diabetes mellitus may present with a lower degree of hyperglycemia and require insulin for metabolic control. Diabetic ketoacidosis is a rare complication in gestational diabetes mellitus (incidence 0.5%-3%) and from the 2nd half of pregnancy onwards, there is a greater propensity for a more severe and rapid manifestation. Diabetics using corticosteroids for fetal lung maturation, as in this case, are at increased risk for diabetic ketoacidosis, and should have close monitoring of blood glucose levels and insulin therapy should be initiated if necessary. **Final comments:** Although rare, diabetic ketoacidosis in pregnancy represents a serious threat to maternal-fetal health. Therefore, the great challenge is to recognize the precipitating factors and consider such diagnosis, as early treatment of this complication can avoid unfavorable outcomes. **Keywords:** Gestational diabetes; diabetes mellitus; diabetic ketoacidosis.

106688

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

TIME IN RANGE (TIR) AND TIME BELOW RANGE (TBR) IN INSULIN-TREATED OLDER ADULTS WITH TYPE 2 DIABETESSilmara A. O. Leite¹, Michael P. Silva², Murilo Bastos¹, Ana C. R. Lavalle³, Maria C. V. Bertogy³, Manoela L. Silva¹, Guillermo Umpierrez⁴¹ Cline Research Center. ² Universidade Federal do Rio Grande. ³ Universidade Positivo. ⁴ Emory University

Introduction: One-third of individuals with diabetes are older than 65 years. Hypoglycaemia is the key limiting step for optimizing glycemic control in older adults. Continuous glucose monitoring (CGM) has not been well-evaluated in patients with type 2 diabetes mellitus (T2DM) over the age of 65 years receiving insulin. **Objective:** We propose to use the FreeStyle Libre Flash CGM, a commercially available and factory-calibrated sensor system, to objectively assess glycemic outcomes in insulin treated elderly patients (>65 years) with T2DM. **Methods:** It is an ongoing prospective cohort study with T2DM patients aged ≥ 65 y/o on insulin treatment with or without oral antihyperglycemic drugs; BMI ≥ 18.5 and ≤ 35 kg/m²; HbA1c $\geq 7.0\%$ and $\leq 9.0\%$. Participants are being selected randomly from the database of general medicine and diabetes clinics (n = 462), in a public hospital and a private clinic. At first visit (V1) patients are evaluated for comorbidities, diabetes complication, diagnosis of sarcopenia and laboratory tests are performed. At visit 2 patients have the CGM sensor inserted to evaluate glycemic variability (GV), time below range (TBR, <70 mg/dL), time in range (TIR, 70-180 mg/dL), and time over range (TAR >180 mg/dL) in minutes per day (min/day). After 14 days they return to the research center to download the data at visit 3 (V3) receive feedback on their results by the study coordinator who inserted a new sensor (V4, V5). For the analysis, we used CGM data from baseline (visit 3) and follow-up 28 days later (visit 5). We tested differences between baseline and follow-up using the Wilcoxon Signed-rank test with p-value < 0,05. **Results:** 100 patients have attended the V1 so far, and 49 were eligible to participate in the study after lab results. Forty-four participants had valid data in both time points [women = 54,5%; age = 72.8 (SD: 5.0), BMI = 28.0 (SD: 3.7), eGFR = 62.4 (SD: 16.6), A1c = 8.0% (SD: 1.57), GV = 34,9% (SD: 7.5), GMI = 7.1% (SD: 0.8)]. Figure 1 shows the changes in TBR, TIR and TAR between baseline and follow-up. The TBR decreased significantly after 28 days of CGM (Baseline median = 43.0 (IQR = 72.0) min/day vs. Follow-up median = 29.0 (IQR = 58.0) min/day (p = 0.02). TIR and TAR did not change over 28 days of CGM (p > 0,05). **Conclusions:** An individualized approach may be possible using FreeStyle Libre Flash CGM to avoid overtreatment and undertreatment of older individuals with T2DM. This may help to treat elderly patients with insulin safety. **Keywords:** Type 2 diabetes; older adults; CGM.

106820

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

TRATAMENTO FARMACOLÓGICO, NÃO FARMACOLÓGICO E CONTROLE DO DIABETES MELLITUS EM IDOSOS DE UMA CAPITAL BRASILEIRABrenda Godoi Mota¹, Erika Aparecida Silveira², Valéria Pagotto¹¹ Faculdade de Enfermagem da Universidade Federal de Goiás (UFG). ² Faculdade de Medicina da Universidade Federal de Goiás (UFG)

Introdução: A prevalência de *diabetes mellitus* (DM) nos idosos é elevada comparada à de outros grupos etários; por causa das especificidades desse grupo, o tratamento e o controle são de difícil alcance, impondo a necessidade de avaliar os fatores que contribuem para aumentar a vigilância. **Objetivo:** O objetivo foi analisar o perfil farmacoterapêutico de idosos com DM, a adesão ao tratamento, a prática de medidas não farmacológicas e a taxa de controle. **Métodos:** Estudo transversal, com amostra de 221 idosos residentes no município de Goiânia/GO, região central do Brasil. O DM foi definido por autorrelato, uso de antidiabéticos, glicemia de jejum ≥ 126 mg/dL e/ou HbA1c $\geq 6,5\%$. A avaliação de hábitos de vida e o perfil farmacológico foram identificados por meio de instrumentos validados. O controle foi definido por HbA1c $\geq 7,5\%$. Os dados foram analisados no Stata 12.0. **Resultados:** A prevalência global de DM foi de 39,4%. Foram associados ao DM a presença de multimorbidades, polifarmácia, sobrepeso/obesidade, está seguindo dieta e consumo de leite desnatado (p < 0,05). Entre os idosos com DM, 42% não realizavam a atividade física recomendada, 47% eram tabagistas e 40,4% faziam uso de bebida alcoólica. Em relação à alimentação, 33% não tinham consumo diário de frutas e 40% de hortaliças. Ainda, 41,2% tinham consumo irregular de refrigerante. Entre os idosos com DM, a taxa de tratamento foi de 71,3%, dos quais 66,3% utilizavam algum hipoglicemiante oral, 20,5%, insulina e 12,0% consumiam ambos. Os medicamentos mais utilizados foram, nesta ordem: metformina, gliclazida, glibenclamida, glimepirida e insulina NPH. A média de consumo desses fármacos variou de 1 a 4. A taxa de controle foi de 76,9%; 23,0% não estavam com controle glicêmico adequado e 16,7% não estavam em tratamento medicamentoso. A adesão ao tratamento medicamentoso foi associada à polifarmácia (p < 0,05). **Conclusão:** No Brasil, observa-se elevada taxa de tratamento e controle para o diabetes, que pode ser devida à implementação de políticas públicas como a Estratégia Saúde da Família (ESF) e a Política Nacional de Assistência Farmacêutica (PNAF). No entanto, a prática de medidas não farmacológicas ainda é baixa pela população idosa, havendo a necessidade de haver mais esforços para motivar melhores hábitos de vida, dentro do planejamento e execução de políticas públicas concentradas no idoso. **Keywords:** Idosos; controle; tratamento.

105431

FISIOLOGIA INTEGRADA E OBESIDADE

TREATING DIABETES MELLITUS IN PATIENTS WITH OBESITY: HOW IMPARTIAL CAN WE BE?

Giovana Berger de Oliveira¹, Janine Alessi², Julia Belato Teixeira¹, Isadora Nunes Erthal¹, Gabriela Di Lorenzo Garcia Scherer¹, Beatriz D. Schaan³, Gabriela Heiden Teló¹

¹ Pontifícia Universidade Católica do Rio Grande do Sul. ² Universidade Federal do Rio Grande do Sul. ³ Hospital de Clínicas de Porto Alegre

Introduction: Weight-based stereotypes may interfere in therapeutic decisions when treating patients with obesity. Studies show that almost 40% of adults with obesity are discriminated against due to their weight. In patients with diabetes, the stigma of obesity could prevent many professionals from providing quality care. **Objectives:** To evaluate the prevalence of pharmacological intensification of type 2 diabetes mellitus based on weight status. **Methods:** This is a cohort study evaluating patients with type 2 diabetes who received outpatient care in Southern Brazil. Patients aged ≥ 18 , who had at least two HbA1c measurements for at least one year of regular follow-up, and whose medical record described the therapeutic decision were included in this analysis. Participants were stratified in two groups according to their body mass index (BMI): $< 30 \text{ kg/m}^2$ were considered without obesity and $\geq 30 \text{ kg/m}^2$, with obesity. For participants aged < 65 without major comorbidities, the HbA1c target of $< 7.0\%$ - 7.5% was used. For those aged ≥ 65 with major comorbidities, the age range and Deyo-Charlson comorbidity index score (CCIS) was used: young and healthy (age 65-79, CCIS 1); slightly ill (age 65-79, CCIS 2-3); old and sick (age < 80 , CCIS ≥ 4 , or age > 80 , CCIS ≥ 1). Treatment intensification was considered appropriate when the participant's HbA1c level was above the ideal target. The primary outcome was the difference in pharmacological intensification between participants with and without obesity. The groups were compared using the χ^2 test and a logistic regression model was designed to control for possible confounders. **Results:** Overall, 402 participants were included (198 without obesity vs. 204 with obesity). Their mean age was 66.9 ± 9.1 , 56% were female and 86.8%, white. A total of 181 participants (45%) presented HbA1c above the target (43.4% without obesity vs. 46.6% with obesity, $P = 0.53$). Participants without obesity more often received treatment intensification in comparison to those with obesity (68.3% vs. 53.7%, respectively, $P = 0.04$). This difference persisted even when corrected for possible confounding factors (OR 1.87, 95% CI 1.02-3.45). The presence of quality indicators for diabetes care did not differ between groups (See table 1). **Conclusion:** Patients with obesity are more vulnerable to therapeutic inertia in diabetes care when compared to those without obesity, which reflects the need to carefully revisit therapeutic decisions in these patients. **Keywords:** Type 2 diabetes; overweight; therapeutic inertia.

106752

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

TREATMENT OF WOUNDS WITH PHOTODYNAMIC THERAPY – PRELIMINARY RESULTS

Drayna Versone de Sousa¹, Fernanda Oliveira Magalhães¹, Raianny Cunha Duarte¹, Tertuliano da Silva Martins Júnior¹, Davi de Lima Silva¹, Ana Cláudia Pelegrinelli¹, Patrícia Ibler Bernardo Ceron¹

¹ Universidade de Uberaba (Uniube)

Introduction: The use of photodynamic therapy (PDT) in the treatment of diabetic wounds is based on the use of a photosensitizing (methylene blue) with electromagnetic radiation that, in contact with tissue oxygen, produces reactive oxygen species, generating high local cytotoxic effect, causing the death of the cell or microorganism without causing bacterial resistance. **Objective:** The objective of this study is to evaluate photodynamic therapy in diabetic wounds, and to evaluate the amputation rate with the procedure. **Methods:** Eight patients were selected to diabetic wound orthosters, up to 10 cm in the largest extent, classified as grade I or II, stage B or D (Texas classification), over 18 years of age and who were available to go to the outpatient clinic twice a week. Cultures were collected at the beginning and end of treatment to determine the pathogens responsible for the infection. Glycated hemoglobin was also measured from all patients to identify glycemic control and doppler of the limb with the wound was performed to evaluate possible vasculopathies. The PDT sessions were performed twice a week and the feet were photographed at each visit for a visual record of wound progress, with planimetry through rulers. An LED matrix was used – High power red LED light source (Lince, MMoptics, Brazil), with a maximum emission of 630 nm providing 50 to 150 mW/cm² of total energy density. This source was positioned above the infected tissue (without touching it) and used to irradiate the entire tissue for 10 min, reaching a fluency of 30 J/cm². The results are expressed on average \pm EPM. **Findings:** The mean age was 59.00 ± 6.85 years, 50% female, with initial injury area of $20.81 \pm 35.86 \text{ cm}^2$, and final area of $7.75 \pm 12.53 \text{ cm}^2$. There was a reduction of $56.12 \pm 38.10\%$ of the lesion area, with an average of 13.75 ± 5.41 sessions. There was no amputation in the evaluated cases. **Conclusion:** It is concluded that photodynamic therapy is effective in reducing the dimensions of lesions, controlling possible infectious processes, reducing treatment time, reducing the risk of amputations, making the overall cost of treatment lower and, mainly, providing better quality of life to diabetic patients with wound. **Keywords:** Photodynamics; oxidative stress; diabetic wounds.

106727

IMUNOLOGIA E TRANSPLANTE

URINARY NEPHRIN AS AN EARLY MARKER OF KIDNEY INJURY IN NEW-ONSET DIABETES AFTER KIDNEY TRANSPLANTATION

Karla Simone Costa de Souza¹, Ony Araújo Galdino¹, César Endrigo Silva de Andrade², Maurício Galvão Pereira², José Bruno de Almeida², Marcela Abbott Galvão Ururahy¹, Adriana Augusto de Rezende¹

¹ Department of Clinical and Toxicological Analyses, Federal University of Rio Grande do Norte (UFRN), Natal, RN, Brasil. ² Department of Integrated Medicine, UFRN, Natal, RN, Brasil

Introduction: New-onset diabetes after kidney transplantation (NODAT) is a serious metabolic complication leading to lower survival renal allograft. However, so far, there is no early marker to assess kidney injury in NODAT. Knowing that podocytes are the primary targets of kidney injury, proteins of these cells are potential early markers in kidney dysfunction in the NODAT. Among the podocyte proteins, nephrin is an important molecule that maintains the integrity of the glomerular filtration barrier, which is negatively regulated in case of kidney injury. Thus, the urinary nephrin approach becomes a non-invasive way to assess early kidney damage in NODAT.

Objective: To evaluate the potential role of urinary nephrin as a non-invasive marker of kidney injury in the NODAT. **Methods:** Thirty-eight kidney transplant (KTx) patients, who were in 6-months post-KTx, aged above 19 years were evaluated (Ethics Number: 1.144.405). Patients with a previous history of segmental and focal glomerulosclerosis or Diabetes mellitus were excluded. Patients were divided into 2 groups according to the diagnosis of NODAT [non-NODAT (n = 20) and NODAT (n = 18) groups]. Clinical data, fasting blood glucose, glycated hemoglobin, serum creatinine, urinary albumin/creatinine ratio (ACR), and estimated glomerular filtration rate (eGFR) were determined. Nephrin was measured by western blot from urinary extracellular vesicles, previously isolated by ultracentrifugation. Nephrin bands density was normalized by urinary creatinine. **Results:** Increased urinary nephrin was found in the NODAT group when compared to the non-NODAT (p < 0.001). Regarding ACR values, no statistically significant differences were observed. NODAT patients that had a higher urinary nephrin presented a reduced eGFR (<40 mL/min/1.73 m²). In the ROC analysis, high AUROC (area under the ROC) values for prediction of low eGFR (<60 mL/min/1.73 m²) were associated with urinary nephrin (AUROC = 0.811; p = 0.036). **Conclusions:** This study is the pioneer to show an increase in urinary nephrin in NODAT patients. These results associated with the ones obtained in the ROC analysis and for the eGFR suggest that urinary nephrin can become a potential marker in the early detection of kidney injury in the NODAT. **Financial support:** CNPq. **Keywords:** Kidney transplantation; new-onset diabetes; nephrin.

105343

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

USE OF FINNISH DIABETES RISK SCORE (FINDRISC) AS A TOLL FOR IDENTIFICATION, PREVENTION AND AWARENESS OF DIABETES MELLITUS IN ADULTS IN THE CITY OF SANTOS

Matheus Budahazi Jardine¹, Ricardo Baer Filho¹, Lívia Nôrcia Zenerato¹, Lucas Ribeiro dos Santos¹

¹ Centro Universitário Lusíada

Introduction: Type 2 diabetes mellitus is a highly prevalent disease in Brazil and responsible for a high long-term morbidity due to its chronic nature, thus, effective prevention measures should be encouraged as the main method to prevent the onset and progression of the disease. Among the risk factors (RF) for the development of diabetes mellitus 2, the following stand out: overweight, consumption of diets with excess calories, family history, sedentary lifestyle, sociocultural changes introduced by industrialization, sedentary lifestyle and increased time for population life. **Objectives:** To evaluate the functionality of Finnish Diabetes Risk Score (FINDRISC) tool in the identification, prevention and awareness of type 2 diabetes mellitus (T2DM) in the city of Santos. **Methods:** This is a cross sectional study, analytical and descriptive. 96 people were evaluated, and participants were interviewed, blood pressure was measured (BP), anthropometrical measurements, fasting capillary blood glucose (CBG) and analyzed the results obtained in FINDRISC. For statistics, the analyses of variance and the chi-square test were applied. The prevalence of T2DM was 17%. **Results:** Among the modifiable risk factors, the highest prevalence was: altered abdominal circumference (86%), IMC > 25 kg/m² (75%), altered BP (57%), CBG > 100 mg/dL (48%). The largest association for the occurrence of T2DM was “family history” with a 3.3-fold increased risk (P < 0,002). Of the respondents who said they had no diagnosis of T2DM, 40% had a CBG value above 100 mg/dL and 7,5% of the sample with values above 126 mg/dL, of which 85% were high risk of developing T2DM by FINDRISC score. **Conclusion:** The results demonstrate the effectiveness of the FINDRISC tool in identifying DM2 and the need to carry out preventive campaigns for screening and counseling high-risk people focusing mainly on lifestyle change. **Keywords:** Diabetes mellitus tipo 2; fatores de risco; prevenção primária.

106711

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

USE OF FOUR OR MORE ORAL ANTIDIABETICS IN THE TREATMENT OF TYPE 2 DIABETES MELLITUS: IN ADDITION TO GUIDELINES

Flavio Fontes Pirozzi¹, Nicole Minuzzi Arnuti¹, Gabriel Nascimento Machado¹, Isadora Delloiagono de Paula¹¹ União das Faculdades dos Grandes Lagos (Unilago)

Introduction: Treatment with oral antidiabetics has made great strides in recent decades. Currently, Brazil has seven drug classes available for the treatment of type 2 diabetes mellitus. However, most guidelines for the treatment of the disease place insulin as the next step after the failure of three oral and/or injectable agents. **Objective:** To improve glycemic control in patients who are already using three oral antidiabetics by adding one or more oral drug classes for the treatment of type 2 diabetes mellitus, and this excludes the use of GLP1 analogues. **Methods:** Forty-five patients with type 2 diabetes mellitus who had worsening glycemic control using three different classes of oral antidiabetics and who had a mean age of 60.0 ± 10.6 years were selected, and one or more classes were added to the current treatment regimen during a mean follow-up of 18.4 ± 13.4 months, with 95.5% using metformin, 62.2% pioglitazone, 80% sulfonylurea, 100% DPP4 inhibitors and 86.7% used SGLT2 inhibitors; 75.6% used four and 24.4% used five different drug classes. Medication doses were adjusted according to the glomerular filtration rate. **Results:** In a general evaluation, there was a significant reduction in glycated hemoglobin ($9.5 \pm 1.5\%$ to $7.7 \pm 1.3\%$) and also a significant reduction in glycated hemoglobin, analyzing by different parameters as gender patients male ($n = 27$; $9.7 \pm 1.5\%$ to $7.4 \pm 1.0\%$), female ($n = 18$; $9.4 \pm 1.4\%$ to $8.2 \pm 1.8\%$), age > 60 years ($n = 26$; $9.2 \pm 1.4\%$ for $7.5 \pm 1.2\%$), age ≤ 60 years ($n = 19$; $10.0 \pm 1.4\%$ for $8.1 \pm 1.5\%$), initial glycated > 9.0% ($n = 25$; $10.6 \pm 1.2\%$ to $8.3 \pm 1.5\%$), initial glycated $\leq 9.0\%$ ($n = 20$; $8.3 \pm 0.4\%$ to $7.0 \pm 0.8\%$) and glomerular filtration rate > 80 ($n = 30$; $9.6 \pm 1.4\%$ to $7.8 \pm 1.3\%$) and filtration rate glomerular filtration ≤ 80 ($n = 15$; $9.5 \pm 1.7\%$ to $7.6 \pm 1.6\%$). All analyzes had $p < 0.001$. **Conclusion:** Despite the sample size, this study shows that the use of four or more oral antidiabetics is a valid alternative for better glycemic control, regardless of gender, age, initial glycated hemoglobin value and renal function. New associations from different classes improve adherence and prevent the use of injectable products, whether a GLP1 analogue or insulin, in the treatment of type 2 diabetes mellitus. **Keywords:** Type 2 diabetes mellitus; oral antidiabetics; glycated hemoglobin.

106734

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

USE OF TELEMEDICINE IN DIABETES MANAGEMENT DURING THE PANDEMIC OF COVID-19 IN BRAZIL: RESULTS FROM DIABETESVID

Bárbara Aparecida Binhardi¹, Carla Regina de Souza Teixeira¹, Bianca de Almeida-Pititto², Francisco Barbosa-Junior³, Laércio Joel Franco³, Karla Fabiana Santana de Melo⁴, Rinaldo Eduardo Machado de Oliveira³¹ Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo (USP). ² Faculdade Paulista de Medicina, Departamento de Medicina Preventiva, USP. ³ Faculdade de Medicina de Ribeirão Preto, USP. ⁴ Sociedade Brasileira de Diabetes

Introduction: The international guidelines on social distancing measures for prevention of COVID-19 have changed the daily habits of most of the population. In this scenario, telemedicine has emerged as an important strategy in diabetes control, which may result in the detection of clinical and psychological needs, offering support to patients and significant improvements in glucose control. **Objective:** To evaluate the practice of telemedicine for diabetes management in the context of the 2020 pandemic of COVID-19 in Brazil. **Methods:** Data were extracted from a survey study, "DIABETESvid", which used a 43-item structured questionnaire conducted on the REDCap platform to measure demographic and clinical characteristics. The web survey was advertised on major social media and data were collected from September 1 to October 19, 2020. **Results:** Of the 1,633 study participants, 534 (32.7%) reported having participated in consultation via telephone, internet or electronic apps (telemedicine) for diabetes care. The percentage of people who sought these resources was highest among people who were male (32.7%), aged 18 to 34 years (38.7%), living in the northeast region of the country (39.6%), with higher education (35.4%), having more than 21 years of diabetes diagnosis (43.1%), with type 1 diabetes mellitus (39.8%), and private health insurance (36.7%). Among 272 people who reported having better control during the pandemic, 41.8% reported having telemedicine consultations. Among 371 people who reported adequate use of insulin (5 to 7 days a week), 38.6% made use of telemedicine. The most sought professional categories, according to the participants, were medicine (54.2%), nutrition (12.0%), and psychology (7.8%). **Conclusions:** The data obtained show the relevance of telemedicine practice among people with diabetes, and in the pandemic it was chosen as an important resource to help control it. However, it sets off reflections about access to technological resources, and needs to be increased in our country, especially among people with type 2 diabetes, lower education level, and without private health insurance. **Keywords:** Telemedicine; pandemic of COVID-19; diabetes management.

105876

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

VALIDATION OF A MANUAL ON FOOT EXAMINATION IN PEOPLE WITH DIABETES

Fernanda Maria Lage Silva¹, Tatiane Géa Horta¹, Alexandra Dias², Aleida Nazareth Soares¹, Maria Regina Calsolari¹, Suelen Rosa de Oliveira¹, Janice Sepúlveda Reis¹¹ Santa Casa de Belo Horizonte. ² Escola de Enfermagem da Universidade Federal de Minas Gerais (UFMG)

Introduction: Peripheral arterial disease is the most frequent cause of diabetic foot ulcer which can lead to lower limb amputation. Incorporating the foot assessment of people with diabetes into the routine of care and consultations is a way to ensure quality care, focusing on foot care. This activity can be performed multidisciplinary and professionals need to be qualified to effectively carry out their duties. The use of technologies such as online manuals and applications have had positive impacts for health professionals, favoring their practice and the development of safe behaviors. **Objective:** To validate the content and appearance of the foot examination manual in people with diabetes. **Methods:** Methodological study developed in five steps: Manual Update, validation by the judges committee, discussion among subject matter experts and validation of the manual by the target audience through the face-to-face test. The validation of the manual was performed by 8 judges via e-surv. The face-to-face test, by 21 primary care nurses, was used and the Content Validity Index (CVI) was used, considering the minimum value of 0.80. **Results:** The handbook obtained an average CVI of 0.98 for clarity and 0.99 for relevance to validation by the judging committee (Table 1). In the face-to-face test, the nurses considered the material useful for the proposed objectives. **Conclusion:** The manual was validated regarding the clarity and relevance of the content, being considered adequate and efficient, as it demonstrated reliability and the justification of its accomplishment was fulfilled. **Keywords:** Diabetes mellitus; diabetic foot; health education.

106704

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

VALIDATION OF THE "DIABETES BASIC KNOWLEDGE TEST" INSTRUMENT IN A BRAZILIAN CULTURE

Sheila Maria Alves Guimarães¹, Janice Sepúlveda Reis¹, Aleida Nazareth Soares¹, Tatiane Géa Horta Murta¹, Helem de Sena Ribeiro¹, Suelen Rosa de Oliveira¹¹ Faculdade Santa Casa de Belo Horizonte (FSCBH)

Introduction: Diabetes mellitus is a chronic and progressive disease characterized by persistent hyperglycemia, which can cause micro and macro vascular complications, impacting on the patient quality of life and healthcare costs. It is necessary to qualify and update health professionals to implement the care plan aiming at the autonomy of the patient, family members and caregivers. Given the scarcity of instruments validated in Portuguese that measure the knowledge of health professionals about diabetes, it was necessary to validate the instrument "Diabetes Basic Knowledge Test" (DBKT) to the Brazilian reality. The translation step was performed in a previous study. **Objective:** To perform a cultural adaptation and validation of the instrument "Diabetes Basic Knowledge Test" (DBKT), to a Brazilian culture. **Methods:** A validation study of the DBKT instrument included 41 multiple choice questions, in which a cultural adaptation was developed from a face-to-face test with 27 health professionals. The validation step was performed with 81 professionals who responded to the test and retest, during 15 days, using the e-surv platform. Data were analyzed using IBM SPSS Statistics 20. For reliability analysis, the Cronbach's alpha coefficient test (considering $\alpha \geq 0.7$ as satisfactory) was used. To test temporal stability, an interclass correlation coefficient (considering CCI > 0.7 as satisfactory) was done. The Wilcoxon test was used to verify differences between the median of test and retest scores and the weighted Kappa coefficient was used to calculate the agreement between the two responses, considering the response "substantial agreement" of $0.61 \leq K < 0.81$. **Results:** Cronbach's alpha value was 0.904 with a 95% Confidence Interval (CI) = 0.871-0.932, demonstrating that the variance associated with random errors was low. The intra-class correlation coefficient was 0.936 (95% CI: 0.903 to 0.959), indicating satisfactory reproducibility. The Wilcoxon test resulted in a median 31 correct answers ($p = 0.979$), showing the equivalence of responses between the test and the retest. The kappa mean value was $> 0.660 (\pm 0.1235)$, demonstrating that, for most questions, the respondents responded right or wrong on the same question for the test and retest. The mean percentage of agreement was $86.6\% \pm 8.4\%$. **Conclusion:** The translated version of the DBKT proved to be a valid and reliable instrument to assess the basic knowledge of diabetes among health professionals in Brazil. **Keywords:** DBKT; diabetes; instrument validation.

106818

AÇÃO DE INSULINA E METABOLISMO MOLECULAR E CELULAR

VARIANTS IN THE VDR GENE MAY INFLUENCE 25(OH)D LEVELS IN TYPE 1 DIABETES IN A BRAZILIAN POPULATION

Rafaella Sousa Ferraz¹, Caio Santos Silva¹, Natércia Neves Marques de Queiroz¹, Karem Mileo Felício¹, Marcia Costa dos Santos¹, João Soares Felício¹, Ândrea Ribeiro dos Santos¹

¹ Universidade Federal do Pará

Objective: The study aimed to evaluate the association of four variants in the VDR gene (rs7975232, rs1544410, rs731236 and rs2228570) with type 1 diabetes mellitus (T1DM) risk and vitamin D levels in a population from Northern Brazil, as well as the influence of genomic ancestry to the development of T1DM. **Materials and methods:** A total of 65 T1DM patients and 83 non-T1DM were enrolled in this study. Vitamin D assays were performed using chemiluminescent microparticle immunoassay (CMIA). VDR gene polymorphisms were assessed using Sanger sequencing analysis. Genomic ancestry was analyzed using a set of 61 ancestry-informative markers (AIM). **Results:** T1DM patients showed higher European genomic ancestry contribution and lower Native American genomic ancestry when compared to non-T1DM. T1DM group demonstrated lower 25(OH)D levels when compared to non-T1DM ($p = 5.832 \times 10^{-6}$). There was no significant difference in the genotype and allelic distribution of VDR variants between both groups. However, T1DM patients with AA genotype in rs1544410 or CC genotype in rs731236 had significantly lower 25(OH)D levels compared to the other two genotypes ($p = 0.013$ and $p = 0.02$, respectively), while T1DM with TT genotype in rs2228570 had higher 25(OH)D levels compared to CC+TC in the same polymorphism ($p = 0.011$). **Conclusion:** Our findings suggests that the association between 25(OH)D and T1DM may be modified by VDR variants, possibly influencing the development of this autoimmune disease. In addition, genomic ancestry results demonstrated that a higher European contribution may be associated with an increased risk to T1DM development. **Keywords:** Vitamin D receptor; 25(OH)D; type 1 diabetes.

106819

AÇÃO DE INSULINA E METABOLISMO MOLECULAR E CELULAR

VARIANTS IN THE VDR GENE MAY INFLUENCE 25(OH)D LEVELS IN TYPE 1 DIABETES IN A BRAZILIAN POPULATION

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106766

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

VITAMINA D3 + INIBIDOR DA DPP-4 (VIDPP4i) PODE PROLONGAR A FASE DE LUA DE MEL NA DIABETES TIPO 1

Marcelo Maia Pinheiro¹, Thiago Santos Hirose², Lucilene Telles de Souza³, Flávia Gomes Pessoa⁴, Felipe Moura Maia Pinheiro⁵, Pedro Rosário Moraes Casalenuovo¹, Geane Moron Beato⁶

¹ Centro Universitário de Várzea Grande (UNIVAG). ² Centro Universitário Estácio de Ribeirão Preto. ³ Medclin – Rondonópolis, MT, Brasil.

⁴ Suprema Clínica e Diagnóstico – Rondonópolis, MT, Brasil. ⁵ Hospital de Base de São José do Rio Preto. ⁶ Beta Cell Center – Clínica de Endocrinologia e Nutrição Ltda.

Introdução: *Diabetes mellitus* tipo 1 (DM1) é uma doença autoimune caracterizada pela destruição imunomediada de células β pancreáticas secretoras de insulina, resultando em dependência vitalícia da insulina exógena. Uma remissão parcial (RP) após DM1 clínica (“fase de lua de mel”) ocorre frequentemente e é acompanhada por uma redução acentuada nas necessidades de insulina exógena e controle glicêmico quase normal, mas uma remissão com duração de mais de um ano é incomum. Recentemente tem sido usado o IDAA1c (HbA1c ajustada à dose de insulina-(HbA1c(%)+4 x dose insulina (U/kg/24h)) ≤ 9 como critério de RP para DM1. A ocorrência de remissão parcial e sua duração estão associadas a um risco reduzido de complicações microvasculares crônicas e a manutenção de função residual das células β após um longo tempo, o que reduz o risco de hipoglicemia grave, melhora o controle metabólico e diminui as necessidades de insulina. Recentemente, nomeamos a terapia de combinação com vitamina D3 mais inibidores da DPP-4 (DPP-4i) como VIDPP4i. Essa combinação pode exercer ações anti-inflamatórias e imunomoduladoras em maior extensão do que a vitamina D3 ou DPP-4i administrados isoladamente, além da capacidade potencial de preservar/melhorar a função das células β na diabetes autoimune. **Objetivo:** Mostrar os resultados do tratamento de 23 pacientes com DM1 de início recente com VIDPP4i mais insulina e comparar com 20 DM1 de início recente tratados apenas com insulina. **Métodos:** Análise retrospectiva de dados observacionais de prontuários de 43 DM1. **Resultados:** Os participantes do estudo consistiram em 21 homens e 22 mulheres, idade média de $12,28 \pm 6,73$ anos, IMC médio de $17,44 \pm 3,6$ kg/m², HbA1c inicial de $10,66 \pm 2,86\%$. Após 12 e 24 meses, o grupo VIDPP4i apresentou melhor média de IDAA1C do que o grupo controle ($p = 0,0104$ e $0,0015$, respectivamente). O% de pacientes em RP aos 12 m ($72,3\%$ VIDPP4i x $37,5\%$ controle) foi estatisticamente significativo ($p = 0,047$). Houve diferença também aos 24 meses, 75% VIDPP4i x $17,65\%$ no grupo controle ($p = 0,0008$). Houve diferença estatística entre os grupos no tempo de RP, $30,65 \pm 29,58$ meses (IC95%: $17,86-43,44$) no grupo VIDPP4i x $7,42 \pm 8$ meses (IC 95%: $3,74-11,11$) no grupo controle ($p = < 0,0001$). Em relação à remissão completa sem insulina aos 12 e 24 meses, houve $30,43\%$ e 21% no grupo VIDPP4i x 0% no grupo controle ($p = 0,01$ e $p = 0,047$). **Conclusão:** Mostramos pela 1ª vez que VIDPP4i prolongou a “fase de lua de mel” em uma população com DM1, mesmo após 24 meses (Figure 1). **Keywords:** Diabetes tipo 1; sitagliptina; vitamina D3.

106793

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

WHAT MAKES THE POSTPARTUM RETURN OF WOMEN WITH GESTATIONAL DIABETES SO DIFFICULT TO BE ATTENDED?

Helen Follador Matana¹, Thais Cabral Gomes Lauand¹, Lara Benigno Porto Dantas¹, Ana Rachel Teixeira Batista¹, Olga de Castro Dytz¹, Hermelinda Cordeiro Pedrosa¹

¹ Hospital Regional de Taguatinga

Introduction: The gestational diabetes mellitus (GDM) affects nearly 14% of pregnant women globally and about 50% develop type 2 diabetes (T2DM) in the 10 following years after pregnancy. The guidelines emphasize the need to screen dysglycemia in the postpartum period but reported rates of follow-up have been very disappointing despite many attempts to improve early T2DM diagnosis. **Objective:** Verify the main difficulties why GDM women do not return for screening in the postpartum period. **Methods:** A retrospective and transversal study was carried out at the Endocrinology Unit (UENDO) in Taguatinga Regional Hospital Research Centre (HRT), a reference unit at the Health Secretariat of Federal District. Sample was selected through a GDM data base of women monitored at the Gestational Endocrinopathy Outpatient Clinic, with subsequent questionnaire application containing topics to check reasons for not to return after delivery. **Results:** Sample involved data from 85 women: 34.1% (29) returned for the postpartum appointment while 65.9% (56) did not attend it. All of them answered the questionnaire. Points of main concern: breastfeeding time was longer among those who returned (median of 10 ± 3.5 months) versus the ones who did not (5.5 ± 5.0 months), $p = 0.021$. Women whose income was three to four minimum wages showed higher follow-up appointment attendance than the women with higher income (> 4 minimum wages), $p = 0.022$. Women who did not work showed 3.833 more chances of returning for laboratorial exams in comparison to those who were employed (CI 95% $1.092-13.448$), $p = 0.036$. 70.4% (57/81) did not receive guidance regarding DM screening test as well as return instruction in the postpartum period. Telephone contact provided confirmation of dysglycemia in approximately 39% of the women who, initially, would not return for the postpartum appointment. **Conclusion:** Breastfeeding seemed not to be an impediment for postpartum return, but attendance limitation was clearly explained due to economical reasons so it was the employed women scarce work free time. Formal request for attendance could be implemented right after delivery to encourage GDM women to return and warning of T2DM high risk. Moreover, telephone contact, in times of Telemedicine, proved to be an important means to rescue screening results and possibly to circumvent the great communication gap among health care professionals. **Keywords:** Gestational diabetes mellitus; postpartum return; early type 2 diabetes screening.

106716

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

WHAT SHOULD WE EXPECT FROM THE MENTAL HEALTH IN PATIENTS WITH DIABETES AFTER 18 MONTHS OF THE COVID-19 PANDEMIC? RESULTS FROM A PROSPECTIVE COHORT STUDY

Eduarda Herscovitz Jaeger¹, Janine Alessi², Giovana Berger de Oliveira¹, Isadora Nunes Erthal¹, Gabriela Di Lorenzo Garcia Scherer¹, Beatriz D'Agord Schaan², Gabriela Heiden Teló¹

¹ Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS). ² Universidade Federal do Rio Grande do Sul (UFRGS)

Introduction: Changes in behavior patterns triggered by the COVID-19 pandemic are known to negatively influence mental health, especially in patients with diabetes. A previous study showed that around half of patients with diabetes had a positive screening for mental health disorders in the first 3 months of the outbreak. However, few studies have assessed how these changes interfered in patients with diabetes over time. **Objectives:** This study aimed to assess the long-term impact of the pandemic on mental health parameters in patients with diabetes. **Methods:** We performed a prospective study of a cohort of patients with diabetes during the first 18 months of the COVID-19 pandemic in Brazil. Patients with type 1 or type 2 diabetes, aged 18 years or older, with a recent HbA1c assessment, were invited to participate in the study. Patients' perceptions related to diabetes care during the pandemic were addressed through specific questions. The primary outcome was the assessment of mental health parameters [through the Self-Report Questionnaire (SRQ-20)] at the beginning and after 18 months of the COVID-19 pandemic. Differences between type 1 and type 2 diabetes groups were assessed using the chi-squared test, while within-group variations were analyzed using McNemar and Wilcoxon Signed-Rank test. **Results:** A total of 150 patients agreed to participate at enrollment (mean age of 54.6 ± 13.9 years old, 58.7% female, 85.9% white). After 18 months, 118 participants remained in the study, of which 35.6% perceived their mental health to be worse. The screening for mental health disorders in the follow up was positive in 46.7% of patients with type 2 diabetes and 41.4% of patients with type 1 diabetes. Alarming, 9.3% of participants reported thoughts about ending their own lives in the past month (13.3% in type 2 diabetes and 5.2% in type 1 diabetes). In both groups, there was no change in the total scores of mental health disorders comparing the period at the beginning and after 18 months of pandemic. **Conclusion:** Despite the high prevalence of mental health disorders found, patients with diabetes kept their mental health total scores stable throughout the pandemic. Nevertheless, our study indicates that these patients may experience a high incidence of suicidal thoughts and potentially irreversible changes in their mental health. Health professionals must be aware of the vulnerability of this group, identifying potential risks and offering assistance when necessary. **Keywords:** Anxiety; depression; diabetes mellitus.

106775

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

WHAT YOUR EYES CAN REVEAL ABOUT YOUR BRAIN: ASSOCIATION OF COGNITIVE DYSFUNCTION AND DIABETIC RETINOPATHY IN A TYPE 2 DIABETIC POPULATION

Ana Cristina Ravazzani de Almeida Faria¹, Marco Aurélio Frasson¹, Victoria Chechetto Segalla¹

¹ Pontifícia Universidade Católica do Paraná (PUCPR)

Introduction: People with DM2 have two times the risk for dementia, suggesting it is a new chronic diabetes complication. **Objective:** Evaluate the association of Diabetic Retinopathy (DR) and Cognitive performance in a DM2 population. **Methods:** This cross-sectional observational study included 300 DM2 adults, recruited randomly at the endocrinology outpatient clinic. Patients with Illiterate, visually or hearing impairment, history of neurological diseases or using medications that affect cognition were excluded. Socio-demographic, clinical and laboratory data collection, physical examination, cognitive tests [Mini Mental State Examination-MMSE, Semantic Verbal Fluency, Trail Making Test A and B, Word Memory Tests], and screening test for depression symptoms [PHQ-9] were carried out during the routine appointment. Each cognitive test score was converted into Z score and the average of all Z scores resulted in a new variable called Global Cognition Score (GCS). To evaluate the association of GCS < 0 (Z) with DR, three multivariate binary logistic regression models were built. Model 1 was adjusted for seven predictors variables (age ≥ 65 years, education ≤ 6 years, DM2 duration ≥ 10 years, depression, arterial hypertension, physical activity and cardiovascular disease). Model 2 excluded the variable education and Model 3 excluded the variables age, education, and DM 2 duration. **Results:** From the 300 patients evaluated, 49 (16,3%) were classified as at risk of dementia by MMSE and were excluded from statistic analysis. From the remainder 251, 43% were female, mean age of $61,1 \pm 9.8$ years and mean years of school education were $7,6 \pm 4,2$. DM2 duration was $12,6 \pm 8,9$ years. Multivariate Logistic Regression Model 1 showed that having DR carries an Odds Rate (OR) to GCS < 0 of 2,51 ($p = 0,017$) together with age, education, arterial hypertension, and depression. For Model 2 the OD was 2,82 ($p = 0,002$) together with age and depression and for model 3 the OD was 2,44 ($p = 0,004$) together with physical activity and arterial hypertension. **Conclusion:** In this DM2 population, having DR increased the risk for having worse cognitive performance even when adjusted for risk factors such as age, education, arterial hypertension, depression and physical activity. Further studies are needed to determine if DR may be used as a biomarker for brain function and/or predict brain cognitive dysfunction and dementia in DM2 population. **Keywords:** Type 2 diabetes; cognitive dysfunction; diabetic retinopathy.

e·DIABETES 2021

XXIII CONGRESSO DA SOCIEDADE BRASILEIRA DE DIABETES

APRESENTAÇÃO ORAL

106732

IMUNOLOGIA E TRANSPLANTE

ADIPOSE TISSUE-DERIVED STROMAL/STEM CELLS + CHOLECALCIFEROL IN RECENT-ONSET TYPE 1 DIABETES (T1D) PATIENTS: TWELVE MONTHS FOLLOW UPJoana R. Dantas¹, Débora Batista Araújo¹, Karina Ribeiro Silva², Carmen Lúcia Kuniyoshi Rebelatto³, Leandra S. Baptista², Lenita Zajdenverg¹, Melanie Rodacki¹¹ Nutrology and Diabetes Department, Federal University of Rio de Janeiro. ² Imetro. ³ Core Cell Technology, Pontifical Catholic University of Paraná

Objective: To evaluate long term safety and potential therapeutic effect of allogenic adipose tissue-derived stromal/stem cells (ASCs) + cholecalciferol in patients with recent-onset T1D. **Methods:** Prospective, phase II, open trial, pilot study in which patients with recent onset T1D received ASCs (1x10⁶ cells/kg) and cholecalciferol 2,000 UI/day for 12 months (group 1) and were compared to controls with standard insulin therapy (group 2). Adverse events, C-peptide area under the curve (CP AUC), insulin dose and HbA1c were evaluated at baseline (T0), after 3 (T3), 6 (T6) and 12 months (T12). **Results:** 11 patients completed the 12 months follow up (7: group 1; 4: group 2). Their mean age was 25,71 +/- 5,79 and 21,75 +/- 3,3 year in group 1 and 2, respectively (p = 0.23), all with less than 4 months disease duration. One patient had a recurrence of a benign teratoma that was surgically removed, not associated to the intervention. Group 1 had a lower insulin requirement at T3 (0.24 +/- 0.18 vs. 0.53 +/- 0.23 UI/kg, p = 0.04), T6 (0.24 +/- 0.15 vs. 0.66 +/- 0.33 UI/kg, p = 0.04) and T12 (0.39 +/- 0.15 vs. 0.74 +/- 0.29 UI/kg, p = 0.04). HbA1c was lower at T6 (6.7 +/- 0.79 vs. 8.75 +/- 0.95%, p = 0.01) but without a significant difference at T12 (7.3 +/- 1.11% in group 1 vs. 8.90 +/- 1.33 in group 2, p = 0.16). Six patients (85,7%) in the intervention group were in clinical remission (HbA1c < 7,5% + insulin dose < 0.5 Ui/kg) at T6 vs. none in the control group, p = 0.01, 4 remained in remission until 12 months. CP AUC was similar at T0 (p = 0.07), but higher at T3 (p = 0.04) and T6 (p = 0.006) in group 1. After 12 months there was no difference in CP AUC between groups, p = 0.23. CP AUC variations did not differ between groups (-26.88 +/- 32.83% vs. -24.92 +/- 54.74%; p = 1.0). **Conclusions:** Allogenic ASCs + cholecalciferol without immunosuppression was safe and associated lower insulin requirements, a better glycemic control and a transient better pancreatic function after 6 months in recent onset T1D. **Keywords:** Adipose tissue-derived stromal/stem cells; cholecalciferol; type 1 diabetes.

106782

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

DIABETIC RETINOPATHY AND EDUCATION-RELATED FACTORS IN DIABETES: EXPERIENCE OF A SECONDARY CARE CENTERLaura da Silva Girão Lopes¹, Amanda Lima Pimentel¹, Kenya Vitória D.A. Queiroz¹, Márcia Benevides Damasceno¹, Cristina Figueiredo Sampaio Façanha¹¹ Centro Universitário Christus (Unichristus)

Introduction: Patient education in diabetes, health literacy (HL), self-care (SC), and knowledge in diabetes (KD) are being studied as cornerstones in management of this clinical condition. **Objective:** The aims of this study were to evaluate the relationship between the prevalence of diabetic retinopathy, and the health literacy, self-care and KD in patients submitted to ophthalmological evaluation in a secondary care center in northeast of Brazil. **Methods:** This was a cross-sectional study with 76 patients. Data were obtained from medical records, and/or surveys. The diagnosis of diabetic retinopathy was made by the same ophthalmologist, and the patients were classified in two groups: with diabetic retinopathy (group DR), and without diabetic retinopathy (group WDR). The short test of Functional Health Literacy (S-TOFHLA) was used to evaluate HL, the Summary of Diabetes Self-Care Activities Questionnaire (SDSCA) to evaluate SC, and the DKN-A (Diabetes Knowledge Scale Questionnaire) to evaluate KD. **Results:** Were enrolled 76 patients, including 65 with type 2 diabetes and 11 with type 1 diabetes. Most patients were women (64%), 51,2% had 8 years or less of formal education, and 42% were patients with a low income (from US\$ 170 to 510/month). The ophthalmologic evaluation included 34 (44,7%) patients in group DR, and 42 (55,3%) patients in group WDR. Of the total of 76 patients, 15 patients (19,7%) of group DR, and 5 patients (6,5%) were submitted to the first ophthalmologic evaluation in that time (p < 0,05). The main characteristics of the groups were similar: Group DR – age 58,4 ± 9,3 years, diabetes duration of 19,6 ± 11 years; group WDR: 52,3 ± 15,5 years and diabetes duration of 14,3 ± 9,4 years. Mean HbA1c was 8,9 ± 1,9 in group DR, and 9,1 ± 2,1% in group WDR (p = 0,2). Not all the patients had visual acuity considered adequate to perform the tests: 36 (47%) patients answered S-TOFHLA, 61 (80%) answered SDSCA and 41 (54%) answered DKN-A. The overall score of S-TOFHLA score was a median of 53,4 ± 29 (group DR) and 57,9 ± 29,5 (group WDR) (p = 0,541). Regarding self-care activities, individuals were most likely to adhere to diet, physical activity and blood glucose monitoring, but the groups were similar. Only 23 patients had satisfactory KD according DKN-A questionnaire, without differences between the groups. **Conclusion:** The subjects included in this study were patients with low health literacy, failures in self-care related to the disease and unsatisfactory KD. **Keywords:** diabetes; Diabetic retinopathy; education.

106786

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

DIFFERENT ACTION OF THE METFORMIN ON INSULIN SENSITIVITY (KIT AND EGDR) IN OBESE AND NONOBESE YOUNG ADULTS WITH TYPE 1 DIABETESLuana Aparecida de Lima Ramaltes de Oliveira¹, Sarah Simaan dos Santos¹, Celia S Bittencourt¹, Patricia Medici Dualib¹, Monica Andrade Lima Gabbay¹, João Roberto de Sá¹, Sergio Atala Dib¹¹ Universidade Federal de São Paulo – Escola Paulista de Medicina

Introduction: The prevalence of obesity in individuals with type 1 diabetes (T1D) are increased in the last decades, and thereafter insulin resistance (IR). However, the IR and its treatment are not so well characterized, in T1D. **Objective:** To assess if the effect of metformin on insulin resistance of young adult T1D differs in according to insulin sensitivity index evaluated and weight phenotype. **Design and Participants:** Prospective study of 35 T1D, 25.2 (4.44) y.o (51%), HbA1c 8.2% (0.54), BMI 27.4 kg/m² (4.15), total daily insulin 0.81 (0.2) U/kg/day plus metformin (2 g/day) during 26 weeks. BMI, visceral adipose tissue, HbA1c, lipid profile, serum uric acid, ferritin, PCR, Kitt, eGDR and SEARCH Is score were the outcomes and measures. They were divided in normal weight (NW, n = 10), overweight (OW, n = 12) and obese (OB, n = 23). **Results:** At the end of follow-up eGDR increase in all groups (NW: 7.37 vs. 8.16, p = 0.002; OW: 7.28 vs. 8.24, p < 0.001; OB: 6.33 vs. 7.52, p < 0.001) and Kitt and SEARCH Is score improve only in OB group (2.15 vs. 3.14, p < 0.001 and 5.26 vs. 5.72, p = 0.007, respectively). HbA1c and BMI reduction was greater in OB group (-0.62%, p = <0.001; -1.12 kg/m², p = 0.031 respectively) than OW group (-0.19%, p = 0.16; -0.41, p = 0.13) and NW group (-0.24%, p = 0.20; +0.25, p = 0.37). Plasma uric acid is associated with all insulin sensitivity indexes. Triglycerides is associated with Kitt and eGDR. SEARCH Is score is also associated with ferritin, PCR and VAT while eGDR with family history of T2D and Systemic Arterial Hypertension. **Conclusion:** eGDR was better than Kitt or Search Is score to show the effect of addition metformin to insulin in young adult T1D insulin sensitivity beside normal seric IR markers. The metformin added shows better results on BMI and glycemic control in obese T1D. **Keywords:** Insulin sensitivity; metformin; type 1 diabetes.

106385

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

EDUCAÇÃO EM DIABETES NAS ESCOLAS: QUAL SUA IMPORTÂNCIA?Denise Machado Mourão¹, Bruna Martins Grassi Sedlmaier¹, Natália Mota Melgaço¹, Grasiely Faccin Borges¹, Victor Luiz Rocha Pires¹, Rodrigo Gomes Pereira¹, Nayara Benedito Martins da Silva²¹ Universidade Federal do Sul da Bahia (UFSB). ² Universidade do Extremo Sul Catarinense (Unesc)

O Brasil ocupa a quinta posição mundial em número de adultos e idosos com diabetes, e a terceira posição para crianças e adolescentes com o diabetes tipo 1 (DM1). Assim, a realização de ações educativas sobre esse tema nas escolas é de fundamental importância, uma vez que pode auxiliar na adoção precoce de bons hábitos de vida e em melhores cuidados com alunos nessa condição. Objetivou-se neste trabalho avaliar a efetividade de uma intervenção de educação em diabetes para alunos e equipe escolar. Trata-se de um estudo de intervenção, transversal e comparativo, em que foram realizadas entrevistas antes e após intervenção lúdica com uso de teatro e jogos para a comunidade escolar, contando de forma leve e engraçada os desafios de um aluno com DM1 iniciando em uma escola nova. Houve também uma capacitação específica para a equipe escolar. Este estudo foi realizado em uma escola pública municipal do extremo sul da Bahia, com 238 alunos e 21 funcionários. Utilizou-se o teste McNemar a 0,05% para verificar mudanças nas respostas dos entrevistados. Finalizaram as duas entrevistas, antes e após as intervenções, 89 participantes, sendo 73 alunos entre 7 e 12 anos e 16 membros da equipe escolar, entre professores, cantineiras, auxiliar de limpeza, porteiro, entre outros. As maiores alterações de resposta na pós-intervenção foram relacionadas à possibilidade de consumir algo com açúcar por quem tem diabetes (p = 0,001); entender que o colega com diabetes pode precisar tomar insulina (p = 0,001) e mediar a glicemia na escola (p = 0,001); reconhecimento dos sinais e sintomas da hiper e hipoglicemia, como a poliúria (p = 0,001) e a perda de consciência (p = 0,031), respectivamente; e particularmente sobre o manejo da hipoglicemia para a equipe escolar (p = 0,002). Ademais, enfatiza-se que ações como essas dentro das escolas podem: (1) auxiliar na redução de episódios de *bullying* em relação ao autocuidado; (2) evitar a perda de consciência em hipoglicemias não tratadas por desconhecimento do manejo adequado; e (3) perceber casos novos de DM1 pelo reconhecimento precoce dos sinais e sintomas da hiperglicemia, possibilitando, assim, a redução da abertura desses casos com um início traumático como a cetoacidose. **Palavras-chave:** Educação em diabetes; diabetes nas escolas; educação.

106703

IMUNOLOGIA E TRANSPLANTE

EVALUATION OF ANTIGEN-SPECIFIC AND POLYCLONAL CELLULAR IMMUNE RESPONSE IN PATIENTS WITH METABOLIC SYNDROME WITH OR WITHOUT THE USE OF HYPOGLYCEMIC AND LIPID LOWERING TREATMENT

Isabela Ghetfi Macedo Isaac¹, Morgana Kelly Borges Prado¹, Carolina do Prado Servian¹, Fernanda de Oliveira Feitosa de Castro², Miriam Leandro Dorta¹, Daniela Espíndola Antunes¹, Simone Gonçalves da Fonseca¹

¹ Universidade Federal de Goiás, ² Pontifícia Universidade Católica de Goiás

Introduction: Metabolic syndrome is characterized by a set of clinical conditions that lead to a higher cardiovascular risk. It has an increasing and variable prevalence (20%-33%) according to world regions. It is known that metabolic syndrome may interfere in several pathways of the immune system, as well as the medication used for its treatment. **Objectives:** The aim of this study was to evaluate antigen-specific and polyclonal cellular immune response in patients with metabolic syndrome with and without the use of hypoglycemic and lipid lowering treatment. **Methods:** Thirty-two individuals were divided into 3 groups: healthy donors (HD), metabolic syndrome treated with hypoglycemic and lipid lowering drugs (MST) and metabolic syndrome without treatment (MS). Blood samples were collected and in vitro experiment was carried out. Peripheral blood mononuclear cells were obtained and stimulated or not with three different stimuli: Cytomegalovirus (CMV) peptide pool; a pool of CMV, Epstein-Barr and Influenza peptides (CEF) and staphylococcal enterotoxin-B (SEB). The cells were kept in culture for 48h and the supernatants were collected for quantification of IL-2, IFN-gamma, TNF-alpha, and IL-10 cytokines by ELISA. **Results:** In intragroup analysis, the MS group presented polyfunctional response (significant changes in IFN-gamma, IL-10 and TNF-alpha production) and the other groups responded significantly only for IFN-gamma after antigen-specific stimulation. Comparisons between groups regarding antigen-specific stimulus response showed significant difference only for IL-10 production, lower in MST group than in MS for CMV challenge. Polyclonal SEB stimulus showed a lower response of metabolic syndrome individuals (with and without treatment) compared to healthy donors for IL-2. MST had lower IL-2 and IL-10 production than HD group. MST group had also lower TNF-alpha production than MS. The reduced capacity of cytokine production under polyclonal stimulation in the metabolic syndrome group patients may have multiple causes, such as cellular exhaustion, hyperglycemia inhibitory effects on cytokines production and/or the use of drugs with anti-inflammatory effects. **Conclusion:** Presented data allows to conclude that there are different cytokine production patterns after antigen-specific and polyclonal stimulation among healthy and metabolic syndrome individuals, especially for those under treatment. The implications of these responses should be better investigated. **Keywords:** Metabolic syndrome; cellular immunity; peptides stimulation.

106753

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

EVALUATION OF THE CLINICAL REMISSION PHASE OF TYPE 1 DIABETES IN THE FIRST TWO YEARS AFTER HETEROLOGOUS MESENCHYMAL STEM CELL TRANSPLANTATION ASSOCIATED WITH VITAMIN D SUPPLEMENTATION

Isabella Sued Leão¹, Maria Eduarda Nascimento Ramos¹, Cesar S. Claudio da Silva¹, Maria de Fátima C. Pereira¹, Joana Rodrigues Dantas Vezzani¹, Lenita Zajdenverg¹, Melanie Rodacki¹

¹ Universidade Federal do Rio de Janeiro

Introduction: Partial clinical remission phase (PCRP) is observed in some patients with type 1 diabetes (T1D) after initiation of insulin treatment. This phase is characterized by good glycemic control with low insulin requirement. Patients that develop PCR have better long-term glycemic control and lower risk of diabetes-related complications and hypoglycemia. Interventions with adipose-derived stem cells (ASC) + vitamin D are been studied to preserve β cell function and prolong PCRP. **Objectives:** To compare the presence and duration of PCR at 6, 12, 18 and 24 months after the diagnosis of T1D using IDAA1c in patients who received therapy with intravenous ASC + oral vitamin D supplementation and control group. **Methods:** Retrospective cohort study analyzing data from medical records of patients from a university hospital diagnosed with T1D between 14 and 40 years. PCRP was defined by IDAA1c index < 9 at least six months after diagnosis. Patients in the intervention group received a single infusion of ASC within 3 months after T1D onset and daily oral 2,000 IU of cholecalciferol for one year. **Results:** 22 patients were included, 7 in the intervention group (group 1) and 15 in control group (group 2). All patients undergoing the intervention evolved with PCRP (average duration of 21.42 months), while 46.6% of patients in the control group had this outcome (average duration of 19.71 months). At 6 months, intervention with ASC + vitamin D, ethnicity (Caucasian) and older age were associated with PCRP ($p = 0.002$, 0.002 and 0.011 , respectively). Only older age was associated with PCRP at 12 months ($p = 0.036$). Group 1 had lower insulin dose/kg at 18 and 24 months than group 2, with no difference in glycemic control. In group 2, those with PCRP had lower mean HbA1c during the follow-up period, but used higher insulin dose/kg than those that received intervention ($p = 0.002$). The dose of insulin/kg was significantly lower at 24 months in patients who developed PCRP within 6 months after diagnosis, with no difference in glycemic control ($p = 0.002$). Patients with PCRP at 12 months had not only lower insulin requirements at 24 months, but also better glycemic control ($p = 0.032$). **Conclusion:** Intervention with a single dose of intravenous ASC + oral vitamin D for one year was associated with a higher frequency of PCRP in T1D patients. This benefit seems temporary but PCRP may have subsequent impact in glycemic control and insulin requirement. A larger follow-up is necessary to understand the long-term impact of this intervention in T1D patients. **Keywords:** Clinical remission phase; type 1 diabetes; stem cells.

106707

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

EVOLUTION OF DIABETIC WOUND AFTER TREATMENT WITH PHOTODYNAMIC THERAPY: PRELIMINARY RESULTSMônica Ferreira Silva Cruvinel¹, Fernanda Oliveira Magalhães¹, Patrícia Ibler Bernardo Ceron¹, Geraldo Thedei Junior¹, Ana Cláudia Pelegrinelli¹, Raianny Cunha Duarte¹, Pamela Cristiene Cassiano¹¹ Universidade de Uberaba (Uniuibe)

Introduction: Diabetic patients are more susceptible to developing ulcers, with a high risk of amputation and, at present, there is a gap in the therapeutic strategies for diabetic ulcers. In photodynamic therapy (PDT), a light source is associated with specific dyes to produce reactive oxygen species (ROS) responsible for many biological effects including healing. **Objective:** The aim of this study is to evaluate the association between size and type of diabetic wound infection and their evolution with photodynamic therapy. **Methods:** After approval by the Research Ethics Committee, 12 lesions from 8 patients were treated twice a week with association of laser light (100 mW/cm²) with 1% methylene blue aqueous solution, over a variable period of 3 months. The wounds were measured at each session. At the beginning of treatment, superficial samples of the lesions were collected to determine infectious agents. The data were analyzed by the Chi2 Test and Pearson's Test, using the SPSS 25.0 software, with a significance level of 5% and described as mean \pm SEM (standard error of the mean). **Results:** 50% of the patients were male, and the mean age was 66.12 \pm 6.85 years. The initial area of the lesions was 20.81 \pm 35.36 cm² and the final area of the lesions was 7.75 \pm 12.53 cm². There was a mean reduction of 56.12 \pm 38.10%. The number of sessions performed was in average 13.75 \pm 5.41. A significant reduction in wound area was obtained after the photodynamic therapy sessions ($p = 0.018$). Eight wounds had positive culture for *Pseudomonas aeruginosa* ($n = 4$), *Enterobacter* spp., *Proteus* spp., *Staphylococcus* coagulase and *Klebsiella* spp. ($n = 1$ for each one). There was no association between their presence in the diabetic wounds and the percentage of reduction of the lesion (Chi2 = 6.75, $p = 0.24$). There was also no association between the type of infection (gram positive, gram negative, multiple or fungal) and the percentage of lesion reduction (Qui2 = 13.667, $p = 0.551$). Finally, there was no association between the initial size of the wound and its percentage of reduction (Qui2 = 20.4, $p = 0.157$), indicating that the effectiveness of the healing process is independent of wound size. **Conclusion:** Preliminary data suggest that PDT may be effective in treating diabetic ulcers, regardless of the presence of infection, the type of infection and the initial size of the lesion. **Keywords:** Diabetes mellitus; photodynamic therapy; ulcers.

106718

FISIOLOGIA INTEGRADA E OBESIDADE

GROWTH OF METABOLIC DISEASES AND SERIOUS OUTCOMES OF CARDIOVASCULAR DISEASES IN YOUNG PEOPLE UNDER 40 YEARS OLD IN BRAZIL: THE ENDOCRINE ROLE OF THE ADIPOSE TISSUE IN OBESE AND ITS POSSIBLE COMPLICATIONSRonney Argolo Ferreira¹, Pedro Resende Ferreira Rende¹¹ Universidade Federal da Bahia

Introduction: Metabolic causes are the main culprits for cardiovascular diseases under 40 years old. The adipose tissue of obese individuals produces excess adipokines and cytokines, creating a chronic subinflammatory state that favors insulin resistance, diabetes (DM), and atherosclerosis – the main cause of acute myocardial infarction (AMI) and cerebral infarction (CI). There is also an increase in pulmonary embolism (PE) due to metabolic issues. **Objective:** To investigate whether, in Brazil, serious outcomes of cardiovascular diseases are increasing at the same time as obesity and DM in people under 40 years old. **Methods:** Comparative retrospective cohort between two sexennia (2009-2014 and 2015-2020), in DATASUS, focusing on patients between 10-39 years old. Epidemiological curves collected: Obesity, DM, AMI, CI, and PE of patients in elective and emergency hospitalizations. **Results:** We found +39.01% of hospitalizations of obese patients between 10-39 years old (26,324 in the 1st sexennium and 36,592 in the 2nd), -0.07% of DM (114,113 and 114,035), +28.52% of AMI (19,081 and 24,523); +46.42% of CI (5,138 and 7,523), and +73.99% of PE (5,955 and 10,361). CI and PE rates increased more in this group than between 40-79 years old. Between 10-39 years old, some of the worst rates were for 30-39 years old, the interval with the most obese (24,586) and diabetics (45,961). In this group, DM decreased (-6.65%), but increased: obesity (42.08%); AMI (30.2%); CI (52.51%); EP (86.71%) – EP and CI rates showed the largest proportional increase among all 10-year subintervals between 10-79 years old. Between 15-19 years old, there was the greatest increase in the obesity rate (52.51%) and an increase in the DM rate (8.53%). There was also an increase of 12.73% in the DM rate between 10-14 years old. DM reduced in all age groups between 20-79 years old. **Conclusion:** The increase in hospitalizations of people 10-39 years old with metabolic diseases and serious outcomes of cardiovascular diseases was concomitant. The rates of CI and PE in this group are higher than in the age group between 40-79 years old and there is an isolated increase in DM between 10-19 years old - in addition to lifestyle, there is a lack of information on prevention for young people. Hospitalizations of obese people have increased and, for DM, they remain stable. There are mechanisms of atherosclerosis in obesity that are independent of DM – this, however, can accelerate changes. **Keywords:** Obesity; cardiovascular diseases; diabetes.

106811

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

IDENTIFYING GLUCOKINASE GENE MUTATIONS IN DIABETES DIAGNOSED DURING THE PREGJuliana Cristina Cardoso Ferreira¹, Giovanna Campos Paranhos Abrahao¹, Felipe Cripim¹, Andre Fernandes Reis¹, Regina Moises¹, Patrícia Medici Dualib¹¹ Universidade Federal de São Paulo

Introduction: Mutations in the gene encoding the enzyme glucokinase (GCK) are frequent causes of MODY (MODY-GCK). Affected individuals have a lifelong nonprogressive mild fasting hyperglycemia (100-150mg / dL) that is often subclinical. As all pregnant women are routinely screened for hyperglycemia during prenatal care, this is an opportunity to identify MODY-GCK. **Objective:** Our aim was to determine the frequency of MODY-GCK among women with diabetes mellitus diagnosed during pregnancy. Also, to identify clinical criteria indicative of this form of diabetes in a population with a high degree of miscegenation, such as the Brazilian population. **Methods:** Patients with the following inclusion criteria were selected: (1) pregnant women with fasting glucose ≥ 92 mg/dL during the first trimester and BMI < 30 kg/m² before pregnancy; (2) pregnant women diagnosed with diabetes (diabetes complicating pregnancy or gestational diabetes) and BMI < 30 kg/m² before pregnancy or (3) non-obese women with diabetes diagnosed during the pregnancy and persistent hyperglycemia after pregnancy (fasting glucose ≥ 100 mg/dL). Direct sequencing of the entire coding region and exon – intron boundary of the GCK gene was performed. **Results:** 112 patients were evaluated, with a mean age of 33.17 ± 5.90 years and pre-pregnancy BMI of 24.59 ± 2.73 kg/m². Four heterozygous mutations in the GCK gene were identified in 4 patients (T255S, P59S, G162S, D124N). All of these variants were previously described in association with MODY phenotype. Diabetes diagnosed in the first trimester of pregnancy was more frequent in MODY-GCK patients than in non-MODY-GCK (4/4 vs. 46/108, respectively); and a family history of diabetes in first degree relatives (4/4 vs. 46/108), although not statistically significant. There was no record of large for gestational age among newborns from MODY-GCK mothers. **Conclusion:** Our findings indicate a significant proportion of MODY-GCK among non-obese women with diabetes diagnosed during pregnancy. Certain clinical characteristics for MODY-GCK screening could be considered. **Keywords:** MODY-GCK; diabetes mellitus; pregnancy.

106764

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

IMPROVEMENT OF GLYCEMIC PROFILE IN CHILDREN AND ADOLESCENTS WITH TYPE 1 DIABETES AFTER SHORT-TERM USE OF FLASH GLUCOSE MONITORING SYSTEMElisa Cardoso Bernardes¹, Ana Flávia Peixoto Campos¹, Dandara Sampaio Leão de Carvalho¹, Ianca Vítor Siqueira¹, Isabella Oliveira Carvalho¹, Matheus Felipe Alves Martins¹, Monike Lourenço Dias Rodrigues¹¹ Hospital das Clínicas da Universidade Federal de Goiás (UFG)

Introduction: Flash Glucose Monitoring System (FGM) is a proven educational and therapeutic tool for children and adults with type 1 diabetes (DM1), with A1c and hypoglycemic episodes reduction if used in a continuous manner. Most studies assess the benefits after at least 6 months of use. **Objective:** To evaluate a short-term FGM use for glycemic control and therapeutic adjustment. **Patients and methods:** Twenty-one non-pregnant consecutive DM1 patients, aged 4-17 (median 12), 11 females, on MDI, were offered FGM for 8 continuous weeks. Patients had to come to our institution fortnightly for sensor change, data download, treatment adjustment and education mostly by the same staff member. Previous A1c was recorded for all patients, as upper-limit of normality values (ULN) to overcome different methodologies. Treatment adjustment was based on software graphics and patients on-site consultations. Insulin adjustment was focused on first correcting time-below-range, then time-above-range, also focusing similar proportions of basal and bolus insulins, matching prandial boluses to carbohydrate ingestions and step-wise diabetes education. Comparison of the 1st and the last 14-days-period was done for each patient, and software data (GMI, TIR, TAR1 (180-250), TAR 2 (>250), TBR1 (less than 4%), TBR2 (less than 1%), number of daily boluses, total insulin dose were compared. **Results:** 17 patients finished the study. In 1 patient, initial A1C replaced GMI for analysis due to low active sensor time. Regarding graphics parameters, median, first versus last reports show: GMI 8,43 vs. 7,65 ($p = 0,028$), glucose average 213,12 vs. 181,0 ($p = 0,026$), TIR 38,82% vs. 48,18% ($p = 0,008$), TAR1 23,12% vs. 23,06 ($p = 0,97$) TAR2 31,76% vs. 21,71% ($p = 0,034$), TBR1 3,82% vs. 4,41% ($p = 0,573$), TBR2 2,47% vs. 2,65 ($p = 0,777$). Number of patients with TBR1 less than 4% had a significant improvement 1,35 vs. 1,71 ($p = 0,014$). Insulin adjustments showed a slight increase, first versus last reports show dose per kg 0,89 vs. 1,09 ($p = 0,057$). **Conclusion:** FGM use for a 8-week period resulted a significant improvement in TIR and in the number of patients outside the hypoglycemic range. Moreover, a significant reduction in GMI, mean glucose and very high blood glucose levels (>250 mg/dL) was also seen. These results suggests that short-term FGM use is sufficient to bring significant improvement in glycemic profiles. **Keywords:** Flash Glucose Monitoring; type 1 diabetes; glycaemic control.

106816

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

MORTALITY RISK ASSOCIATED WITH RECURRENT KETOACIDOSIS IN A COHORT OF BRAZILIAN PATIENTS WITH TYPE 1 DIABETESSarah Simaan dos Santos¹, Sarah Simaan dos Santos¹, Luana Ramaldes¹, Monica Andrade Lima Gabbay¹, João Roberto Sá¹, Sérgio Atala Dib¹¹ Universidade Federal de São Paulo (Unifesp)

Objective: Analyze the predictors and the impact on mortality of the recurrent episodes of diabetic ketoacidosis (rDKA) in type 1 diabetes mellitus patients. **Research design and methods:** Patients hospitalized (n = 231) during 10 years (2007-2018) were studied. A follow-up (~1,823 days) was carried out over the phone and through digital or personal contacts. Mortality curves were compared in 4 groups: a) DKA as the new-onset type 1 diabetes b) A single DKA after type 1 diagnosis c) 2 to 5 DKAs IV) More than 5 DKAs during follow-up period. The Kaplan-Meier method was used to make the survival graphs. **Results:** We found a 16.02% mortality rate (37/231) during the follow-up period. The median age at death was 38.7 yrs [IQR 28.43-48.91 yrs] with a diabetes duration of 19.2 yrs [IQR 13.67-23.80]. In relation to the survival curve at 1,926 days (5 yrs) the probabilities of death were HR 7.78%; 4.58%; 24.40%; 26.63%, in groups a, b, c and d, respectively. Diabetic neuropathy (RR 10.04; 97.5% CI: 4.18-24.15; p < 0.001), retinopathy (RR 7.94; 97.5% CI: 3.09-20.40; p < 0.01), nephropathy (RR 7.10; 97.5% CI: 3.24-15.56; p < 0.001), mood disorders (RR 3.57; 97.5% CI: 1.56-8.18; p = 0.002), antidepressant use (RR 3.09; 97.5% CI: 1.62-5.91; p = 0.004), statin use (RR 2.81; 97.5% CI: 1.44-5.48; p = 0.0024) increased the risk of death. **Conclusions:** Type 1 diabetes patients with more than 2 DKA episodes have about 5 times greater a risk of death in the next 5 years. Diabetic microangiopathy, mood disorders and antidepressant use were important risk factors for short term mortality. **Keywords:** Diabetic ketoacidosis; type 1 diabetes; ketoacidosis mortality.

106369

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

NECK CIRCUMFERENCE IN OBESE PREGNANT WOMEN WITH AND WITHOUT GESTATIONAL DIABETES IS ASSOCIATED WITH GLUCOSE METABOLISM IN POSTPARTUMCamila Rodrigues de Souza Carvalho¹, Rosiane Mattar¹, Sérgio Atala Dib¹, Bianca de Almeida Pititto¹, Patricia Medici Dualib¹¹ Universidade Federal de São Paulo (Unifesp)

Introduction: Neck circumference (NC) outside gestation is a well-known cardiometabolic risk factor. It is unknown whether NC measured during pregnancy could be useful to characterize higher risk of type 2 diabetes (DM2) in postpartum. **Objective:** To evaluate the association of NC measured during pregnancy with markers of glucose metabolism between 2 and 4 months postpartum in overweight/obese women with and without gestational diabetes (GDM). **Methods:** This longitudinal study, included 100 pregnant women (50 with GDM), >18 yrs and with pre-gestational body mass index (BMI) ≥ 25 kg/m². The sample was stratified according to tertiles of NC during pregnancy- T1: ≤ 33.3 cm, T2: ≥ 33.4 -36.3 cm; and T3: ≥ 36.4 cm. Glucose metabolism was assessed in postpartum period (60-180 days after delivery) by: fasting and 2-hour plasma glucose, HbA1c, fasting insulin, HOMA-IR and TyG index. Variables were compared by ANOVA or Qui-squared test according to tertiles of NC. Association of NC during pregnancy with markers of glucose metabolism in postpartum (dependent variables) was tested by linear regression analysis. **Results:** We found differences in post-partum BMI (32.1 ± 3.6 vs. 29.4 ± 3.7 vs. 27.4 ± 3.1 kg/m², p < 0.001) and NC (37.4 ± 2.6 vs. 34.8 ± 2.0 vs. 33.16 ± 1.32 cm, p < 0.001) according to the third, second and first tertile groups, respectively. In postpartum, HbA1c (5.6 ± 0.4 vs. 5.4 ± 0.3 vs. 5.3 ± 0.2 , p = 0.006), fasting insulin (13.2 ± 6.6 vs. 11.1 ± 5.8 vs. 9.5 ± 4.9 μ UI/mL, p = 0.035), HOMA-IR (3.1 ± 1.7 vs. 2.5 ± 1.3 vs. 9.5 ± 4.9 , p = 0.035) and TyG index (4.6 ± 0.2 vs. 4.5 ± 0.2 vs. 4.5 ± 0.3 , p = 0.010) were all higher in the third tertile than the second and first ones, respectively. In crude linear regression analysis, NC during pregnancy had statistically significant association with levels of fasting plasma glucose, 2-hour glucose, HbA1c, Log HOMA-IR and Tyg index, keeping the association after adjustment for age, familiar history of diabetes and number of pregnancies (model 1). When adjusted for pre-gestational BMI and gestational weight gain (model 2), NC persisted independently associated with fasting plasma glucose and HbA1c. After adjustment for GDM, NC maintains association with borderline significance with HbA1c and HOMA-IR. **Conclusion:** We observed that NC during pregnancy is associated with a worse glucose metabolic profile in puerperium of obese women with and without GDM and might be a feasible tool for early identification of women with higher risk to develop DM2. **Keywords:** Neck circumference; gestational diabetes mellitus; postpartum glucose metabolism.

106810

NUTRIÇÃO, MEDICINA COMPORTAMENTAL, EDUCAÇÃO E EXERCÍCIO

NURSING PROCESS FOR THE PERSON WITH TYPE 2 DIABETES MELLITUS IN PRIMARY HEALTH CARERosilei Teresinha Weiss Baade¹, Antônia Tayana da Franca Xavier², Heloisa de Carvalho Torres³, Fernanda Azevedo Chaves⁴, Maria Eugenia Silva Hitchon⁵, Agma Viana Souza⁴, Nilce Botto Dompieri⁵¹ Secretaria Municipal de Saúde de São Bento do Sul, SC, Brasil. ² Universidade de São Paulo. ³ Universidade Federal de Minas Gerais.⁴ Secretaria Municipal de Saúde de Belo Horizonte. ⁵ Sociedade Brasileira de Diabetes

Introduction: The Nursing Process is a methodological tool that guides nursing care and the registration of professional practice based on scientific evidence, which supports clinical reasoning and decision-making, making the conduct safer and more effective. Following the stages of the Nursing Process in consultations with people with type 2 diabetes mellitus favors autonomy in decision-making in conducting self-care practices, to improve the control and prevention of chronic complications. From this perspective, the Pillar of Public Health working group, linked to the Nursing Department of the Brazilian Diabetes Society (SBD), elaborated an instrument to improve the Nursing Process in the nursing consultation of the person with diabetes. This instrument is based on the Theory of Basic Human Needs (NHB) of Wanda de Aguiar Horta and uses the International Classification of Nursing Practices - ICNP®. **Objective:** To describe the process of constructing the instruments for the systematization of the nursing consultation in type 2 diabetes mellitus in primary care. **Methods:** This is a descriptive methodological approach study, conducted from June 2020 to October 2021, in weekly meetings with the participation of 9 nurses, comprising the following stages: 1) review of the literature and documents on nursing care for people with type 2 diabetes mellitus in primary care. 2) selection of the statements of nursing diagnoses/outcomes of the ICNP that are related to DM; 3) construction and adaptation of nursing interventions in the context of diabetes; 4) Organization of the steps of the EP from the Psychobiological, Psychosocial and Psychospiritual Needs of Horta. **Results:** Nursing history, diagnosis/outcome and nursing intervention were idealized seeking comprehensive care, contemplating people in different phases of the disease, with those without complications, in order to be used in a practical way and based on the demands of the person with diabetes. These instruments guide nursing care and the registration of professional practice, which support clinical reasoning and decision-making, making the conduct safe. **Conclusion:** It is expected that the use of the instrument in the nursing consultation will contribute to decision-making and self-care, to decrease the burden of the disease to people and to the health system. **Keywords:** Nursing care; diabetes mellitus type 2; primary health care.

106296

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

OPTICAL COHERENCE TOMOGRAPHY ANALYSIS OF DIABETIC MACULAR EDEMA SCREENED BY HANDHELD SMARTPHONE-BASED RETINAL CAMERA AND ARTIFICIAL INTELLIGENCEFernando Korn Malerbi¹, Giovana Mendes², Nathan Barboza³, Paulo Henrique Morales¹, Roseanne Montargil⁴, Rafael Ernane Andrade²¹ Universidade Federal de São Paulo (Unifesp). ² Hospital de Olhos Beira-Rio. ³ Faculdade de Medicina Santo Agostinho. ⁴ Universidade Estadual de Santa Cruz

Introduction: Diabetic macular edema (DME) is the most common cause of vision loss and referrals associated with diabetic retinopathy (DR). Color fundus photographs (CFPs) are the basis of most DR screening programs, but they carry a low diagnostic accuracy for the detection of DME, which is ideally assessed by optical coherence tomography (OCT), a costly and scarcely available tool. Artificial intelligence (AI) algorithms could potentially predict DME from CFPs. **Methods:** We have assessed the tomographic presence of DME in a sample of 366 adult type 2 diabetes patients who were screened for DR with CFPs and an assistive deep learning AI algorithm. Participants underwent two, fovea-centered and optic disc centered, 450 retinal images of each eye, obtained with a portable smartphone-based retinal camera; besides algorithmic assessment, images were also remotely evaluated and classified by two retinal specialists. Patients with suspected macular changes (Figure 1) underwent spectral domain OCT; central macular thickness (CMT) > 300 µm and/or the presence of cystoid changes or subretinal fluid confirmed DME diagnosis. **Results:** DME was suspected in 34 and confirmed in 29 patients (7.9 % of all screened individuals), mostly women (51.7%) with average age of 60.5 ± 10.9 years and HbA1C of 9.8 ± 2.4 %; use of insulin, statins and aspirin was reported in 44.8%, 37.9% and 34.5% of individuals, respectively; systemic blood hypertension, dyslipidemia, abdominal obesity, chronic kidney disease, moderate to high risk for diabetic foot ulcers and proliferative DR were present in 100%, 58.6%, 62.1%, 48.3%, 27.5% and 31% of individuals, respectively. DR severity was associated with albuminuria (p = 0.028). Eyes with DME confirmed by OCT had average CMT 329.89 ± 80.98 µm; intraretinal cysts, subretinal fluid, hyper-reflective foci, epiretinal membrane and vitreomacular traction were found in 87.2%, 6.4%, 85.1%, 10.6% and 6.4% of eyes, respectively. False-positive cases (11.8% of patients) presented macular hard exudates without macular thickening, pigment clumping, or image artifact that was misinterpreted by the algorithm as DME. **Conclusion:** Screening for DR may overwhelm health systems as hundreds of millions of individuals need at least annual screening globally. We believe the present, semi-automated strategy offers a better alternative for low-resource areas where availability of OCT is limited, contributing to decrease blindness secondary to diabetes. **Keywords:** Diabetic retinopathy; artificial intelligence; mobile health.

106728

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

PERFORMANCE OF THE FULL AGE SPECTRUM AND THE EUROPEAN KIDNEY FUNCTION CONSORTIUM EQUATIONS FOR ESTIMATING GLOMERULAR FILTRATION RATE IN PEOPLE WITH TYPE 2 DIABETES MELLITUS

Bruna Martins Rocha¹, Gustavo Monteiro Escott¹, Luíza Carolina Fagundes Silva¹, Indianara Franciele Porgere¹, Luis Afonso Tochetto², Letícia de Almeida Brondani¹, Sandra Pinho Silveiro²

¹ Universidade Federal do Rio Grande do Sul. ² Hospital de Clínicas de Porto Alegre

Introduction: Equations to estimate glomerular filtration (eGFR) are routinely used to assess kidney function in the screening for diabetic kidney disease. However, current equations accuracies have been questioned for patients with diabetes mellitus (DM). **Objective:** To evaluate the performance of three creatinine-based equations – Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI), Full Age Spectrum (FAS), and European Kidney Function Consortium (EKFC) – to estimate GFR in healthy and type 2 DM participants. **Methods:** This cross-sectional study compared eGFR by the equations with a reference method: GFR measured (mGFR) by the plasma clearance of an exogenous marker (51Cr-EDTA). The equations performance was assessed using Bland-Altman plot, concordance correlation coefficient (CCC), bias and P30 accuracy (defined as the percentage of GFR estimations falling within 30% of mGFR values). Serum creatinine was measured by a traceable Jaffe method. The equations were evaluated in two different populations: healthy adults (eligibility criteria: BMI ≤ 30 kg/m²) and patients with type 2 DM (eligibility criteria: mGFR > 60 mL/min/1.73 m²). **Results:** For the 100 healthy adults (aged 39 ± 15 years, 67% women) included in the study, mean mGFR, CKD-EPI, FAS and EKFC were 112 ± 20 , 109 ± 18 , 104 ± 19 and 102 ± 18 mL/min/1.73 m², respectively ($p = 0.238$ between mGFR and CKD-EPI; $p < 0.01$ for the other equations). All equations presented acceptable P30 accuracy (92% for CKD-EPI, 89% FAS and 87% EKFC; $p = 0.348$) in the healthy participants. In the 122 people with type 2 DM, (aged 61 ± 10 years, 55% women), mean mGFR was 100 ± 28 , CKD-EPI 84 ± 20 , FAS 79 ± 24 , and EKFC 77 ± 18 ($p < 0.01$ for all comparisons). The equations had inferior performance for participants with DM: CKD-EPI showed the higher P30 accuracy, but not statistically significant different from FAS (74% vs. 66%, $p = 0.082$), while better than EKFC (64%; $p = 0.01$). A poor agreement with the reference method was found (CCC < 0.5) for all equations. The Bland Altman plot showed a positive bias for all equations, thus they underestimated true GFR. Larger biases were found for people with type 2 DM, demonstrating that the underestimation was more pronounced in the presence of DM. CKD-EPI had the lowest mean difference in both groups. **Conclusion:** In healthy adults, CKD-EPI, FAS and EKFC are suitable to estimate GFR. However, for people with type 2 DM, all equations presented an inferior accuracy, significantly underestimating GFR. **Keywords:** Glomerular filtration rate; type 2 diabetes; equations.

106723

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

PHARMACOLOGIC TREATMENT FOR PATIENTS WITH TYPE 2 DIABETES MELLITUS: AN ASSESSMENT OF THE ADHERENCE TO GUIDELINES

Bruna Martins Rocha¹, Candice Cristine Moro¹, Pedro Augusto Martins Barcellos¹, Angélica Dall'Agnol¹, Sandra Pinho Silveiro²

¹ Universidade Federal do Rio Grande do Sul. ² Hospital de Clínicas de Porto Alegre

Introduction: As stated in worldwide guidelines, metformin is the preferred initial antihyperglycemic drug for type 2 diabetes mellitus (DM). Based on recent trials that have shown undeniable reduction of atherosclerotic cardiovascular disease (ASCVD) outcomes and progression to end-stage renal disease with sodium-glucose cotransporter 2 inhibitor (SGLT2i) or glucagon-like peptide 1 receptor agonist (GLP-1 RA), these agents are formally indicated for these conditions. Guidelines also recommend treatment with angiotensin converting enzyme inhibitor (ACEi) or angiotensin II receptor blocker (ARB) for patients with diabetic kidney disease (DKD). **Objective:** To investigate the proportion of patients with type 2 DM that received pharmacologic intervention in accordance with the guidelines' recommendations. **Methods:** This cross-sectional study assessed electronic medical records of patients with type 2 DM from a reference center, from August 2019 to March 2020. Patients' prescriptions were compared to guidelines' recommendations: metformin for patients with estimated glomerular filtration rate (eGFR) ≥ 30 mL/min/1.73 m², ACEi or ARB if albuminuria > 30 mg/L, SGLT2i for patients with established or multiple ASCVD risk factors, eGFR 30-60 and/or albuminuria > 200 mg/L - unless they had contraindication to a particular drug class. **Results:** We evaluated 175 patients with type 2 DM (aged 60 ± 12 years, 69% women, A1c $9.12 \pm 2.02\%$, eGFR 69 ± 28 mL/min/1.73 m², BMI 31 ± 6 kg/m², mean diabetes duration 18 ± 10 years). Diabetic retinopathy was present in 37.7% of the patients, peripheral neuropathy in 25.7% and DKD in 56.6%. Regarding antihyperglycemic therapy, 84% received insulin, 79% metformin, 31% sulfonylurea, 19% SGLT2i and 2% DPP-4i. No patient received GLP-1 RA. Metformin was used by 90% of the patients for whom it was indicated. Of the 147 (84%) patients with hypertension, 55% used ACEi, 33% ARB, 68% diuretic, 39% calcium channel blocker (CCB) and 43% β -Blocker. Statin was prescribed for 79.8% of the patients with DKD. Either an ACEi or ARB was used by 71 (95%) of the 75 patients with albuminuria > 30 mg/L and no contraindication. Only 33 (31%) of the 105 patients for whom SGLT2i was recommended received the drug. **Conclusion:** Adherence to guidelines of pharmacologic treatment for patients with type 2 DM is fortunately substantial, except for SGLT2i and GLP-1 RA. This finding should be better elucidated so it could help establish strategies for optimized pharmacologic prescription. **Keywords:** Type 2 diabetes; SGLT2 inhibitors; ACEi and ARB.

106744

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

SCREENING FOR LOSS OF PLANTAR PROTECTIVE SENSITIVITY (LPPS) IN INDIVIDUALS WITH TYPE 2 DIABETES MELLITUS (T2DM): WHAT IS THE HIGHEST RISK PROFILE FOR THE ONSET OF “DIABETIC FOOT”?Fernanda Brandão Montes¹, Fabiana Alves Carriel¹, João Carlos Ramos Dias¹, Cristiano Roberto Grimaldi Barcellos¹, Lígia Oliveira Mattos¹, Ituo Teshima Filho¹, Giane Cristina de Moraes Garcia¹¹ Pontifícia Universidade Católica de São Paulo (PUCSP)

Introduction: Chronic poor glycemic control is associated with the emergence of micro and macrovascular complications of DM, which may already be present at the time of diagnosis in patients with T2DM. Among these complications, there is the “diabetic foot”, which results from the combination of arterial disease with peripheral diabetic neuropathy (PDN) and is characterized by an increased risk for ulcers, infectious processes and lower limb amputations. LPPS is an important characteristic of PDN and its presence is associated with an increased risk for the onset of “diabetic foot” and its consequences. **Objective:** To determine which clinical and laboratory characteristics are associated with the presence of LPPS in a group of individuals with T2DM in order to verify which profile is at greater risk for the onset of “diabetic foot”. **Methods:** This is a cross-sectional, exploratory, and descriptive study with a quantitative approach carried out at the Endocrinology Outpatient Clinic. We rated diabetic outpatients in the Neuropathy Symptom Score (NSS) and the Neuropathy Disability Score (NDS) by performing an interview, physical examination and data collection of patients. Values were considered significant if $P \leq 0.05$. **Results:** We evaluated 76 patients with T2DM, 60.5% were female. The mean age was 65.4 ± 14.1 years and the mean time since T2DM diagnosis was 17.6 ± 9.3 years and the mean most recently HbA1c was $9.4 \pm 1.9\%$. We detected LPPS in 15.8% ($n = 12$) of the group. The statistical analysis of the collected data showed a correlation between the LPPS and the following variables: presence of previous ulcer in lower limbs ($p = 0.021$), NDS ($p = 0.000$), treatment of neuropathy ($p = 0.026$) and reduced peripheral pulses in the lower limbs ($p = 0.036$). **Discussion:** The profile of outpatients with T2DM from a tertiary endocrinology service who are at greater risk of developing “diabetic foot” and its consequences are those with reduced peripheral pulses in the lower limbs and those who already have PDN characterized by significant fiber impairment peripheral nerves and the need for chronic use of medications that provide relief from neuropathic symptoms. As for individuals with previous ulcers, it was expected to present LPPS, since they already have “diabetic foot” by definition. In conclusion, we emphasize the importance of screening for LPPS in all patients with T2DM, especially in those with the presence of peripheral vascular disease and advanced PND. **Keywords:** Diabetes mellitus; diabetic foot; loss of plantar protective sensitivity.

106715

FISIOLOGIA INTEGRADA E OBESIDADE

SGLT2 INHIBITION WITH EMPAGLIFLOZIN AS A POSSIBLE THERAPEUTIC OPTION FOR POSTPRANDIAL HYPOGLYCEMIA AFTER BARIATRIC SURGERYGiovanna Braganholo Carpentieri¹, Mayra Zanon Casagrande¹, Sandra Elisa Gonçalves¹, Walid Mohamed Mourad², Lara Guimarães Carelo Pinto², Maria Tereza Zanella¹¹ Universidade Federal de São Paulo (Unifesp). ² Universidade Santo Amaro (Unisa)

Introduction: Postprandial hypoglycemia is a complication of bariatric surgery. In post bariatric patients, early and high peaks of blood glucose and insulin levels have been shown after meals, followed by late hypoglycemia. **Objective:** Since SGLT2 inhibitors, inducing glycosuria, may reduce postprandial hyperglycemia, this study aimed to evaluate if empagliflozin might be useful in the treatment of postprandial hypoglycemia post bariatric surgery. **Methods:** Fourteen post bariatric patients, seven with symptoms of post prandial hypoglycemia (hypoglycemic group; HG) and seven asymptomatic patients (non-hypoglycemic group; NHG) were included in the study. All patients were submitted to liquid meal tolerance test both before and after empagliflozin administration. Plasma glucose and serum insulin levels were measured at fasting and every 30 minutes after the liquid meal ingestion for 120 minutes. **Results:** Compared with NHG, in the basal test, the area under the curve of all plasma glucose levels (AUCgly) in the HG was smaller (158.0 ± 25.6 vs. 276.6 ± 79.2 mg.h.dL⁻¹; $p = 0.001$) while the AUC of serum insulin levels (AUCins) did not differ between groups, leading to a AUCins/AUCgly ratio higher in the HG (0.79 ± 0.5 vs. 0.38 ± 0.2 ; $p = 0.055$). The HOMA-IR was lower in HG than in NHG (0.92 ± 0.2 vs. 1.75 ± 0.8 ; $p = 0.03$). Compared with the basal meal test, after empagliflozin administration, the HG, but not NHG, showed significant increases in all plasma glucose levels and AUCgly (158.0 ± 25.6 to 197.2 ± 51.6 mg.h.dL⁻¹; $p = 0.043$) without significant changes in AUCins or AUCins/AUCgly. Also, in the HG, but not in NHG, HOMA-IR increased (0.92 ± 0.2 vs. 1.61 ± 0.3 ; $p = 0.025$) and a significant correlation was found between HOMA-IR and AUCgly values ($r = 0.594$; $p = 0.002$). No changes in peripheral insulin sensitivity were observed after empagliflozin in both groups. **Conclusion:** Our results suggest that empagliflozin increased glycemic levels after a MTT in post bariatric patients with post prandial hypoglycemia, possibly through increases in hepatic glucose production. **Keywords:** Empagliflozin; hypoglycemia; bariatric surgery.

106791

COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

SURVEY OF HOSPITAL MORBIMORTALITY DUE TO DIABETES IN THE STATE OF BAHIA

Adryane Gomes Mascarenhas¹, Carla Ladeira Gomes da Silveira¹, Alex Gonçalves Reis¹, Carolina Marques de Oliveira¹, Tailande Venceslau Carneiro¹, Maria Eduarda Klier Alves¹, Larissa Ferreira Correia Baesso¹¹ Universidade Federal do Sul da Bahia (UFSB)

Introduction: Diabetes is one of the main causes of morbidity and mortality affecting 463 million adults. In 2017, Brazil ranked fourth in the number of adults with diabetes. Therefore, this disease deserves relevance as a cause of early mortality, generating major impacts on public health and quality of life. **Objective:** To survey the number of hospitalizations and deaths from diabetes in adults and the elderly in the state of Bahia. **Methods:** This is a descriptive research with simple relative frequency analysis of data from the Informatics Department of the Unified Health System related to diabetes between 2010 and 2020. For the analysis, mortality and death rates, hospitalizations, gender, race, character of service, public or private establishment and age group over 20 years old were raised. **Results:** The Northeast region has the highest diabetes mortality rate (5.0%) and Bahia is the fourth state (5.9%) in this category. In 2015, there were a greater number of hospitalizations (10.86%) and deaths (10.80%) but the highest mortality rate (7.30%) was in 2017. In highlight, the year of 2020 had the lowest rate of mortality (7.16%). As for the regime, the public service had the highest number of hospitalizations, deaths and mortality rate (38.4%; 37.9%; 5.87%), however, the number of ignored was higher in all analyzed variables (41.1%; 47.3%; 6.82%). In relation to the nature of care, urgency was more evident with 97.9% in admissions and 98.9% in deaths and a mortality rate of 6.0%. Females had a predominance of hospitalizations and deaths (55.9%; 55.1%) while males stood out in the mortality rate (6.05%). The age group of 60-69 years had the highest number of hospitalizations (23.7%) followed by 70-79 years (21.6%) and 50-59 years (18.4%). The highest number of deaths and the mortality rate was in patients greater than/equal to 80 years (27.8%; 11.94%) and 70-79 years (21.6%; 7.36%). Regarding race, the brown had the highest number of hospitalizations and deaths (49.9%; 46.0%) and the indigenous had the highest mortality rate (10%). **Conclusion:** Bahia is among the northeastern states with the highest amount of morbidity and mortality from diabetes and it is on the rise during the study period with most cases being urgent. Therefore, preventive measures that change this scenario must be rethought especially at the primary level, avoiding unnecessary expenses. **Keywords:** Hospitalization; diabetes mellitus; mortality.

105919

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

THE ASSOCIATION OF HOMA-IR WITH TRIGLYCERIDE GLUCOSE INDEX (TYG) AND LIPID ACCUMULATION PRODUCT (LAP) IN PARTICIPANTS OF THE 1993 PELOTAS BIRTH COHORT

Tulio Loyola Correa¹, Deise Farias Freitas², Clarice Brinck Brum², Isabel Oliveira de Oliveira²¹ Universidade Federal de Pelotas (UFPel). ² Programa de Pós-graduação em Epidemiologia, UFPel

Introduction: The Homeostatic Model Assessment (HOMA-IR) is used to quantify insulin resistance and assist in the assessment of type 2 diabetes. However, this model requires insulin measurement, which can be a limitation for low-income settings. The association between HOMA-IR and other cardiometabolic risk factors such as the triglyceride glucose index (TyG) and lipid accumulation product (LAP) aims to obtain more accessible methods of estimating insulin resistance. **Objective:** To evaluate the association of HOMA-IR with TyG index and LAP in 22-year-old young adults. **Methods:** At the 22-year follow-up of the 1993 Pelotas (Brazil) birth cohort, interviews and clinical measurements were performed and blood samples were drawn from the participants. Blood glucose and triglycerides (TG) were evaluated by enzymatic-colorimetric assay. Insulin was evaluated by electrochemiluminescence immunoassay. HOMA-IR was calculated as fasting insulin (microU/L) x fasting glucose (nmol/L)/22.5. The TyG index was calculated as $\ln[\text{fasting TG (mg/dL)} \times \text{fasting glucose (mg/dL)} / 2]$. LAP was evaluated by $[\text{CC (cm)} - 65] \times [\text{TG (mmol/L)}]$ in men and $[\text{CC (cm)} - 58] \times [\text{TG (mmol/L)}]$ in women. Variables are shown as mean (\pm SD) or median (25-75 IQR). HOMA-IR and LAP were log-transformed. Pearson correlations have been performed using STATA 13. **Results:** The sample was composed of 1660 (47.7%) men and 1822 (52.3%) women of approximately 22 years old. 486 (29.5%) men and 448 (24.7%) women were overweight, and 221 (13.4%) men and 338 (18.7%) women were obese. Mean (\pm SD) blood glucose (mg/dL) was higher in men than in women (91.7 ± 25.7 vs. 88.5 ± 20.9); the same was observed for waist circumference (cm) (83 ± 10.9 vs. 77.3 ± 11.7) and triglycerides (mg/dL) (101.5 ± 62.6 vs. 97.3 ± 52.4). Mean (\pm SD) TyG index was very similar between the sexes, with 8.3 ± 0.6 for men and 8.2 ± 0.5 for women. Median (25-75 IQR) LAP was higher in women [15.9 (8.9-28.4) vs. 14.5 (7.8-28.3)]; the same was observed for insulin [22.3 (12.1-44.2) vs. 18.4 (10.0-34.2)] and HOMA-IR [4.6 (2.4-9.9) vs. 4.0 (2.1-7.9)]. The correlation coefficient between HOMA-IR and TyG index was 0.46 for men and 0.43 for women. Between HOMA-IR and LAP, the correlation coefficient was 0.39 for men and 0.30 for women. **Conclusions:** HOMA-IR had a moderate correlation with TyG index and LAP. The TyG index and LAP may be alternatives to estimate insulin resistance when HOMA-IR is not available. **Financial support:** CNPq, Fapergs. **Keywords:** HOMA-IR; triglyceride glucose index; lipid accumulation product.

106762

TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

THE LEGACY OF THE COVID-19 PANDEMIC IN PRIORITIZING CARE FOR GESTATIONAL DIABETES: HOW HAS THE PANDEMIC AFFECTED QUALITY CARE INDICATORS AND PREGNANCY OUTCOMES?Janine Alessi¹, Georgia Oliveira Avila², Amanda Cunha Ritter², Roberta de Padua Borges¹, Maria Lucia Rocha Oppermann³, Gabriela Heiden Telo², Beatriz D. Schaan¹¹ Programa de Pós-graduação em Endocrinologia da Universidade Federal do Rio Grande do Sul. ² Pontifícia Universidade Católica do Rio Grande do Sul. ³ Hospital de Clínicas de Porto Alegre

Introduction: Since the first cases of COVID-19 infection, hyperglycemia has been identified as a predictor of worse outcomes, raising concerns for patients with diabetes and its variations. Moreover, the dynamics of care assistance was affected by the pandemic. These situations may both interfere with the care of pregnancies complicated by diabetes. **Objectives:** To evaluate the quality of care and maternal-neonatal outcomes in pregnancies complicated by gestational diabetes during the COVID-19 pandemic. **Methods:** Retrospective study including women with gestational diabetes in high-risk prenatal care in Southern Brazil, who gave birth during the COVID-19 pandemic, between September 2020 and March 2021. For control group, pregnancies whose delivery took place in the 6 months preceding the pandemic were included. The primary outcomes evaluated were selected quality of care indicators for gestational diabetes (blood glucose monitoring, HbA1c assessment, blood pressure assessment, nutritional assessment, and at least 3 obstetric ultrasounds), and maternal-neonatal outcomes. Analyses were performed using the χ^2 test and Mann-Whitney U test. **Results:** A total of 179 patients were included (106 in the pandemic group and 76 in the control group), with a mean age of 32.6 ± 6.8 years, and with a median of 8.0 (5.0-11.0) consultations in high-risk prenatal care. Pregnant women cared for during the pandemic more often presented all indicators for diabetes care (50.5% vs. 30.3% in control group, $P < 0.01$), and more frequently had blood glucose monitoring performed pre and postprandially (74.8% vs. 57.9% in control group, $P = 0.01$). The pandemic group had a lower median HbA1c in the second trimester [4.9% (4.7-5.2) vs. 5.1% (4.9-5.3) in control group, $P = 0.02$], but more often presented hypertension during pregnancy (17.5% vs. 4.8% in control group, $P = 0.02$). Regarding the newborns, there was a lower prevalence of small for gestational age (6.4% vs. 20.0% in the control group, $P < 0.01$) and of neonatal hypoglycemia (1.8% vs. 12.5% in the control group, $P < 0.01$). **Conclusion:** It is possible that the risks of the pandemic, especially those related to hyperglycemia, have aroused greater concern in relation to pregnancies complicated by diabetes, which reflected as an improvement in quality-of-care indicators. Furthermore, self-care seems to have improved, as there was a better glycemic control and an improvement in neonatal outcomes. **Support:** HCPA (FIPE); CNPq. **Keywords:** Gestational diabetes; quality of care; pregnancy outcomes.

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TERAPÊUTICA E ASPECTOS CLÍNICOS: GRAVIDEZ, DM NO JOVEM, FARMACOECONOMIA, NOVAS TECNOLOGIAS

USE OF GLUCOSE-LOWERING AGENTS ACCORDING TO CARDIOVASCULAR RISK FACTORS IN PEOPLE WITH T2D AND WITH OR WITHOUT CVD IN THE CAPTURE STUDYSergio Vencio¹, Emanuela Mello Ribeiro Cavalari², Guillermo Dieuzeide³, Abdullah M. Alguwaihes⁴, Jose Luis A. Leon⁵, Ofri Mosenzon⁶, Gourav Yadav⁷¹ Instituto de Ciências Farmacêuticas, Brazil. ² Novo Nordisk Brazil. ³ Centro de Atención Integral en Diabetes, Argentina. ⁴ King Saud University, Kingdom of Saudi Arabia. ⁵ Centro de Atención E Investigación Cardiovascular del Potosí, Mexico. ⁶ Hadassah Medical Center, Israel. ⁷ Bengaluru, India

Objective: This CAPTURE post-hoc analysis identified patterns in the use of selected glucose lowering agents (GLA) in people with T2D with or without CVD and by CVD risk factor prevalence. **Methods:** CAPTURE was a cross-sectional, observational study in people with T2D across 13 countries. Participant information was collected during a single routine clinical visit in a primary/specialist setting between Dec 1, 2018 and Sep 31, 2019. Data were analyzed descriptively. **Results:** Of 9,823 participants, 3582 had a history of CVD (CVD group) and 6241 had no history of CVD (NoCVD group). Regardless of CVD status, use of GLA was more common in those who were males, aged 55-75 yrs, or who had a diabetes duration > 10 yrs, HbA1c > 7 - $< 9\%$, diagnosed hypertension or an eGFR > 60 mL/min/1.73 m². Newer agents (GLP-1 RAs and SGLT2is) were less prescribed versus insulins and sulfonylureas (SUs). Compared with NoCVD, use of newer agents was lower in people from CVD group who were aged < 55 yrs or who were diagnosed with diabetes 10 yrs ago. **Conclusion:** Insulins and SUs were more frequently used than newer GLA, regardless of CVD status. The low use of newer agents, particularly in younger people with short diabetes duration, suggests delayed introduction despite recent guidelines for managing people with T2D and CVD or CV risk. **Keywords:** Diabetes; cardiovascular risk; GLP-1.

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COMPLICAÇÕES CRÔNICAS E AGUDAS: NEFROPATIA, NEUROPATIA, RETINOPATIA, HIPOGLICEMIA, DISLIPIDEMIA, PÉ DIABÉTICO

USE OF GLUCOSE-LOWERING AGENTS ACCORDING TO CARDIOVASCULAR RISK FACTORS IN PEOPLE WITH T2D AND WITH OR WITHOUT CVD IN THE CAPTURE STUDYSergio Vencio¹, Emanuela Mello Ribeiro Cavalari², Guillermo Dieuzeide³, Abdullah M. Alguwaihes⁴, Jose Luis A. Leon⁵, Ofri Mosenzon⁶, Gourav Yadav⁷¹ Instituto de Ciências Farmacêuticas, Brazil. ² Novo Nordisk Brazil. ³ Centro de Atención Integral en Diabetes, Argentina. ⁴ King Saud University, Kingdom of Saudi Arabia. ⁵ Centro de Atención E Investigación Cardiovascular del Potosí, Mexico. ⁶ Hadassah Medical Center, Israel. ⁷ Bengaluru, India

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