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Ecos do "World Diabetes Congress 2013"

Organizado pela "International Diabetes Federation" (2013) realizou-se, entre 2 e 6 de Dezembro de 2013, no centro de Congressos e Exposições de Melbourne, na província de Victória, Austrália, o Congresso Mundial de Diabetes ("World Diabetes Congress") que reúne, de dois em dois anos, profissionais de saúde, investigadores biomédicos, decisores, pessoas com diabetes, seus familiares e cuidadores, de todo o mundo.

Nesta edição 2013, o Congresso Mundial de Diabetes contou com 10.300 participantes de 140 países, 400 prelectores, 275 horas de sessões científicas e 1000 posters bem como com a participação de 200 associações membros da IDF, incluindo a Associação Protectora dos Diabéticos de Portugal (APDP).

O programa do congresso foi dividido em 7 grandes temas - "Basic and Clinical Science", "Diabetes in Indigenous Peoples", "Diabetes Research in the 20th Century: a Historical Perspective", "Education, Integrated Care", "Global Challenges in Health" e "Living with Diabetes" – que foram abordados em vários tipos de sessões (simpósios, comunicações orais, posters, sessões de debate), decorrendo entre 3/13 e 6/13. O programa de sessões de cada um desses 7 grandes temas foi da responsabilidade de um organizador designado pela IDF. No caso do tema "Living with Diabetes", essa responsabilidade esteve a cargo do Prof João Valente Nabais, Professor Assistente da Universidade de Évora e actual Presidente da IDF Europa.

Nesta Revista Internacional, publicamos os "abstracts" dos trabalhos científicos apresentados por portugueses no "World Diabetes Congress 2013", por tipo de sessão e com a numeração atribuída pela organização do congresso (o nome sublinhado é do primeiro autor).

> COMUNICAÇÕES ORAIS

OP-0452
The effects of truncal vagotomy in energy homeostasis and acute response to GLP-1

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The vagus nerve is the major nervous boundary between the GI tract and the central nervous system, however its role in glucose homeostasis is still ill understood. Several gut hormones have been identified as important mediators of the gut pancreatic axis, while recent evidence supports the role for central and peripheral GLP-1 in the acute and chronic regulation of energy balance and glucose homeostasis. The aim of this research was to characterize the role of the vagus nerve in energy homeostasis and in mediating the effects of GLP-1.

Male Wistar rats were submitted to truncal sub-diaphragmatic vagotomy plus pyloroplasty (n=12) or sham procedure (n=12). After the procedures, food intake and body weight were recorded through the experiment, indirect calorimetry was performed to measure energy expenditure and epididymal white adipose tissue (WAT) and interscapular brown adipose tissue (BAT) were collected. Confirmation of vagotomy was done *in vivo* by performing a CCK-8 feeding response test and *ex vivo* by assessing CGRP-1 expression in the stomach by IHC. Feeding response to GLP-1 (165 µg/kg i.p) was evaluated and 90 minutes before sacrifice rats were injected with GLP-1, vagotomized (n=6) and controls (n=6), in order to assess the effects of GLP-1 on hypothalamic NPY, POMC and BAT UCP-1 gene expression. Fasting plasma levels of glucose, insulin, GLP-1, PYY and oxyntomodulin were measured.

Body weight, body weight gain and food intake were significantly lower in vagotomized rats, while there was no difference in energy expenditure between the groups. Vagotomized rats presented a significantly lower percentage of WAT and BAT, while the ratio between WAT and BAT was significantly higher in the control group. Vagotomized animals had also significantly lower fasting blood glucose and insulin. Truncal vagotomy blunted the GLP-1 anorexigenic response observed in control animals, while the administration of GLP-1 did not change fasting glucose levels in any group. The expression of NPY, POMC and UCP-1, as well as circulating levels of insulin, PYY and OXM, were not affected by either the vagotomy or acute GLP-1 administration.

Truncal vagotomy results in decreased food intake, body weight, body fat content, fasting glucose and insulin, without interfering in energy expenditure and neuropeptides gene expression. These results suggest that the vagus nerve has an important role in mediating glucose and energy homeostasis.

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> POSTERS

PD-0907
Screening for diabetic retinopathy in primary care in Portugal: an observational study

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Introduction: Diabetic retinopathy is one frequent complication associated to diabetes. Its diagnosis is possible through an ophthalmological consultation or through the implementation of a screening program and posterior ophthalmology observation. The aim of this

study was to evaluate a pilot project of screening for diabetic retinopathy.
Methods: Eleven primary health centers of Lisbon area were selected. A total of 15851 adult people with diabetes registered in those centers were invited to participate in a free retinopathy screening. A 4 image, non-mydriatic digital photography was used. Data were recorded on an electronic database and images were transferred to a reading center; images were analysed and reported by 3 ophthalmologists.
Results: A total of 8533 patients were screened; they were all screened during a 10 months period. In total, 22% had some level of retinopathy detected (n= 1020); 7.2% had non-proliferative retinopathy (n= 614), 3.1% had pre-proliferative retinopathy (n= 268), and 1.6% had proliferative retinopathy (n=138).
Conclusion: The use of a non-mydriatic retinography screening tool detected 22% of people with some degree of retinopathy, thus saving 78% of being referred to an ophthalmology consultation. With this data we confirm that for our setting the use of retinopathy screening program is a useful tool for further implementation.

P-1045
Type 2 diabetic with high normal BP had high urinary AER compared with normal BP diabetics and controls: a primary care cross-sectional study

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Introduction: The risk of cardiovascular (CV) disease in persons with high normal (HN) blood pressure (BP), namely diabetics, is unkown. Recently ESH recommendations changed the BP target in diabetics to 140/90mmHg. AER is an independent risk factor for CV mortality and morbidity.
Aims: To evaluate the differential impact of HNBP > 130/80 and < 140/90 mmHg on AER and CV events in a sample of consecutive primary care (PC) attendees with diabetes and normal BP and to correlate the AER values with other risk factors and vascular events.
Methods: Cross-sectional observational study in a nationwide sample of 500 PC physicians. Diagnosis of co-morbidities were provided by the PC physician. BP was taken as the average of 2 determinations and MA was done with a spot urine dipstick test. AER stages were defined as grade 0 (G0) < 20 mg/L; G1 - >20 and <50 mg/L; G2 > 50 mg/L and 100 mg/L and G3 > 100mg/L. Estimated glomerular filtration rate (eGFR) was calculated by MDRD formula. The 432 normotensive type 2 diabetics (ND) 207 females (48.9%), with a mean BMI 27.7 Kg/m2, were compared with 1906 normotensive nondiabetic controls (C).
Results: HNBP was observed in 238 patients and the remaining 183 had normal BP (NBP). AER was present in 51.3% of ND: 37.6% G1, 9.5% G2 and 4.3% G3. Patients with AER were more frequently men (p=0.01) and had more coronary heart disease (CHD) (p=0.031) and eGRF decline (p=0.018). The presence of HNBP in normotensive diabetics is associated with an higher risk of increase AER (p<0.001, OR 2.011 CI 95% 1.36-2.974). The same it was not true for controls (p=0.132, OR 1.2). Diabetics with HNBP compared with NBP had significantly higher AER [G1 HNBP 10 (55.6%) vs NBP 8 (44.4); G2 26(65%) vs NBP 14 (35%); G3 104 (65.8%) vs NBP 54 (34.2%); G0 HNBP 98(47.8%) vs NBP 107(52,2%), p=0.004]. The slightly higher BP of HNBP is associated with an increase in G1 (0.001, OR 2.103 CI 95% 1.371-3.266) and G2 but not of G3 (0.52, OR 1.36 CI 95% 0.51-3.59). When we analyze the data according to gender, female gender in HNBP is significantly associated with increased AER (p < 0.001, OR=3.98; p=<0.001), eGFR decline (p=0.01, OR 3.20, CI 95% 1.22-8.43). No significant association of HNBP to stroke, peripheral vascular disease and coronary arterial disease was demonstrated.
Conclusions: Type 2 Diabetic with HNBP had high AER compared with Normal BP diabetics and controls. Patients with AER had more CHD and eGRF decline. More interventions trials are need to clarify if reducing this risk factor could reduce CV events.

P-1664
Food and nutritional intake of Portuguese adolescents with and without type 1 diabetes

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Aims: These studies were performed in Portugal, to characterize the eating habits of teenagers, but there are no studies that have evaluated and compared the food intake of adolescents with and without diabetes in order to identify possible risk factors and assess the need for more effective nutritional education strategies and guidelines.
Objective: The objective was to compare food and nutritional intake of adolescents with and without type 1 diabetes.
Methods: It is a descriptive, cross-sectional and retrospective study. The participants were 31 adolescents with Type 1 DM (45.2% girls) from APDP with average 15.58 years and 47 adolescents without diabetes (61.7% girls), from secondary schools in Lisbon with average 15.47 years. The food intake were assessed by direct application of a semi-quantitative food frequency questionnaire, and the physical activity with a questionnaire adapted from the International Physical Activity Questionnaire. Demographic data, BMI, waist circumference and body fat were collected. Overweight and obesity were defined according to CDC criteria. To study the food and nutritional intake between the groups it was used linear generalized models analysis, adjusting for confounding factors and energy.
Results: The contribution of the total carbohydrates and sugars to total energy intake was significantly lower among boys with diabetes, but significantly increased the total and saturated fats; in girls with diabetes, the protein contribution was significantly higher, and total carbohydrates, sugars, total and saturated fats found to be lower only after adjustment for confounders. The sugar, sugary foods and drinks intake, was lower among adolescents with diabetes (p<0.05), and sweeteners and foods with modified sugar content and/or fat intake frequency was different between the two groups (p<0.05). The prevalence of overweight and obesity was 28.5% and 13.8% in girls with and without diabetes respectively, and 17.6% and 11.1% in boys with and without diabetes.

Discussion/Conclusion: It is important to intervene, particularly in adolescents with diabetes, especially boys, to promote healthy food choices.

P-1668
Therapeutic education for newly-arrived persons to a diabetes clinic

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Aims: APDP introduced last February a new structured program of type 2 Diabetes self-management education (DSME). It is addressed to newly-arrived patients and covers a wide range of Diabetes Care in an integrated way.
This is a comprehensive program of patient-centered care designed to increase autonomy, promote better adherence to treatment, and thus a better metabolic control. Here we aim to perceive the program's practical feasibility and people's adherence.
Methods: The welcome program lasts for three months, divided in three group education sessions, before the diabetes individual consultation at the clinic. Group sessions are guided by a facilitator (nurse or nutritionist) using an IDF approved education tool, which provides an interactive verbal and visual learning experience, allowing small groups engagement in an open and meaningful debate about diabetes.
Sessions are divided by themes in which the first leads one to reflect on their role in disease's self-management, the second session covers general concepts for healthy eating, and the last is a physical activity session with the intervention of a gym teacher. For this program patients are selected based on their age (between 60-80 years old) and HbA1c (< 10 %).
Results: The first seven groups received upon implementation were considered for the present analysis, representing 51 invited patients. These had 69.0±1.2 years of age, and an initial mean HbA1c of 8.3±0.3%.
From participating patients, 11 (21.6%) only attended the initial session, 19 (37.3%) dropped out before the exercise session, and 21 (41.2%) completed the three sessions. Interestingly, those persons that remained in the program after the initial session showed a decrease in BMI after only 3 weeks (from 31.58±1.18 to 31.08±1.17, $p<0.001$).
Discussion/Conclusion: It is well known that the use of active methods is a fundamental tool in group training. Here, the consistent decrease in BMI in half the participants in only 3 weeks hints to the impact of the sharing of solutions among peers by boosting diabetes acceptance, well-being and development of autonomy with DSME. However, the high drop-out before the exercise session advises us to consider alterations on program implementation, further encouraging patients participation.
Nonetheless, we intend to proceed with evaluating the program, in a second phase following the evolution of metabolic control in these patients, using HbA1c as indicator along with BMI.

P-1809
Fatty liver disease and loss of glycemic control on a 5-years follow-up population study

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Background and Aims: Both diabetes and fatty liver disease are rising epidemics, with increasing social-economic impact. PREVADIAB, the first Portuguese nationwide study on the prevalence of diabetes, showed that 11,7% of the population had diabetes, and nearly 25% presented a defect of glycemic control (IFG, IGT, or both - 'prediabetes').
Five years after the initial study, we aimed to evaluate the evolution of glycemic control and the prevalence and impact of fatty liver.
Methods: Subjects aged 23-83 years, from 33 Centers, evaluated on the first PREVADIAB as non-diabetes (designated with 'normal' or 'prediabetes' based on fasting glycemia and 2h OGTT) were recruited 5 years after the original call. An OGTT was performed to evaluate glycemic control, and biochemical parameters were quantified. Fatty liver status and hepatic insulin sensitivity were estimated through surrogate indexes validated on human studies (FLI and HIR).
Results: 519 people participated, representative of the overall distribution on the first study. The found prevalence of diabetes was 9,6%. Additionally, IFG was 4,0%, IGT was 13,1%, and IFG+IGT was 3,3%, to a prevalence of 'prediabetes' of 20,4%. More, 60% of individuals initially assessed as IFG+IGT have progressed to diabetes (T2D), while it happened in around 20% of IGT and IFG, and only on 5% of normal individuals.
Fatty Liver Index (FLI) was found to be increasingly higher throughout disglycemic worsening (FLI: 44.5±1.3 for normal subjects versus 56.4±3.1 for IGT, $p<0.01$; 62.5±4.5 for IFG, $p<0.05$; 64.3±5.6 for IFG+IGT, $p<0.05$; 70.2±3.4 for T2D, $p<0.001$).
Fatty liver condition was identified on 66.0% of individuals with T2D, and in almost half of people with 'prediabetes' (47.0% of IFG+IGT, 47.6% of IFG, and 44.1% of IGT). Surprisingly, fatty liver was identified on 28.9% of people with normal glycemic control.

Hepatic insulin resistance was shown to correlate directly with FLI progression (r=0.631). Also, it showed both a correlation with fasting hyperglycemia (r=0,330), and, even stronger, with 2h post-OGTT hyperglycemia (r=0.543), p<0.0001 for all.
Discussion/Conclusion: Fatty liver was shown to be a prevalent condition in a previously non-diabetes Portuguese population, and to be strongly related to a worsening in glycemic control, both fasting and postprandial. Also, one third of the normoglycemic population may be particularly prone to develop disglycemia soon due to an established condition of fatty liver.

P-1817
Diabetic autonomic neuropathy: frequency and association with clinical and socio-economic variables

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Introduction: Diabetic autonomic neuropathy (DAN) is a stealthy complication of diabetes developing slowly over the years and quietly robbing diabetic their ability to sense when they are becoming hypoglycemic or having a heart attack. It can affect any organ from the gastrointestinal system to the skin.
Material and Methods: Descriptive study of patients attending for the first time a Diabetic appointment at a District Hospital in 2012. Data about epidemiology, metabolic and socio-economic parameters was collected. All patients underwent a well validated self standardized questionnaire concerning the different autonomic symptoms (Autonomic Symptom Profile-ASP) and evaluated the severity and distribution of autonomic deficits with the Composite Autonomic Severity Score (CASS). We used SPSS v20 for statistical analysis.
Results: We studied 287 patients, 52.8% male. Mean age was 63.3 years (28-98), being women older (mean=65.85 years; p<0,05). 96.8% had DM type 2. Patients were diagnosed, in mean, 14 years before attending a Diabetic appointment. 12.9% were smokers, 83.9% had high blood pressure, 63.4% had dyslipidemia and 20.7% declared alcoholic consume (>3 units per week). In general, patients had average hemoglobin A1C levels of 7.83% (42% had a good metabolic control with levels <7%), with no differences in gender. Women had significantly lower education and income compared with men (p<0,05). Evidence of DAN was present in 70% of the patients. The most frequent symptoms were gastrointestinal 59% followed by symptoms of orthostatic hypotension 38% and genitourinary 22%. Average CASS was 26. Those diabetics with more than 16 years from diabetes diagnosis, being on insulin, women, those with lower incomes (<500 euros per month) and low education level (less than primary school) were associated with greater scores (p<0.05).
Conclusion: The presence of autonomic neuropathy is frequent in our diabetic population, but mild in severity; especially in those with longer diabetic duration, lower income and educational level and those who are on insulin treatment. Given the clinical and economic impact of this complication, testing the diabetic patients for DAN should be part of their standard of care.