17.º CONGRESSO PORTUGUÊS DE OBESIDADE

Da Patogénese à Prevenção da Obesidade

RESUMOS

COMUNICAÇÕES ORAIS

CO01

Circulating levels of persistent organic pollutants in pre- and postmenopausal obese women – relationship with metabolic outcomes

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Background: Background exposure to persistent organic pollutants (POPs), some of them lipophilic xenoestrogens that accumulate mainly in adipose tissue (AT), has recently emerged as a new risk factor for obesity and cardiovascular disease.**Objectives:** In this regard, we evaluated POPs levels in plasma in a sample of Portuguese obese patients that underwent bariatric surgery. Its putative association with pre-operative metabolic dysfunction parameters was assessed, in addition, to the relation between plasma levels and AT POPs content and also, 10-year cardiovascular disease (CVD) risk, according to menopausal status. **Methods:** Plasma samples from obese (BMI≥35) premenopausal (n=73) and postmenopausal (n=48) women were collected and the levels of 13 POPs were determined by gas chromatography with electron-capture detection (GC-ECD). Anthropometric and biochemical data were collected at the time of surgery. Visceral (vAT) and subcutaneous AT (scAT) POP levels as well as adipocyte size were previously measured. **Results:** Our data shows that POPs are pervasive in this obese population, confirming their bioaccumulation with a higher detection percentage in both AT depots than in plasma. Postmenopausal women had higher prevalence of metabolic syndrome and higher median concentrations of some POPs, namely åHexachlorocyclohexane and p,p'-Dichlorodiphenyldichloroethylene environmental estrogens in vAT and scAT samples. ∑POP levels in plasma correlated with those found in total AT in postmenopausal women. ∑POP in plasma seems to be a predictor 10-year CVD risk in premenopausal women. **Conclusion:** These preliminary results highlight that exposure assessment using circulating POPs levels is closely related to those in different AT depots. Moreover our findings point toward the influence of POPs on the development of metabolic abnormalities in women according to menopausal status, when considering an obese population. Most of all, this study underlines the need for human biomonitoring to assess exposure to environmental pollutants.

This work was supported by FCT (Fundo Social Europeu, Programa Operacional Potencial Humano da EU (POPH); PEst-OE/SAU/UI0038/2011; SFRH/BD/46640/2008, SFRH/BD/64691/2009, SFRH/BD/78367/2011, SFRH/BPD/75294/2010; and SFRH/BPD/40110/2007), and Projectos de Investigação na Pré-graduação 2011, Universidade do Porto (IJUP)

Palavras Chave: Adipose tissue; Menopause; Metabolic Syndrome; Obesity; Persistent Organic Pollutants;

CO02

Adipocyte-Released Factors Enhance Melanocyte's Proliferation and Motility

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Background: Obesity, favored by the modern lifestyle, acquired epidemic proportions nowadays. Obesity has been associated with various major causes of death and morbidity including malignant neoplasms. Cutaneous melanoma incidence rates have also been increasing during the last four decades in several countries. Obesity involvement in melanoma etiology has been recognized, but the implicated mechanisms remain unclear. We propose to address the above relationship and investigate the mechanism interplaying between obesity and an increased risk of melanoma onset. **Methods**: 3T3-L1 pre-adipocytes and B16F10 melanocytes were cultured in DMEM. 3T3-L1 pre-adipocytes were differentiated into mature adipocytes using a cocktail of 3-isobutyl-1-methylxanthine, dexamethasone and insulin. Subsequently, B16F10 cells were exposed to conditioned medium obtained from the mature adipocyte cultures, for a 24 hours period. Later on, treated B16F10 cells viability, migration and apoptosis were accessed by MTS, Injury and TUNEL assays, respectively. **Results:** After a 24 hour exposure to adipocyte conditioned medium, melanoma cells show an increase of 48% in their viability. Adipocyte conditioned medium simultaneously decreased B16F10 programmed cell death by approximately 50%. In the injury assay, melanocytes motility was highly increased when exposed to adipocyte conditioned medium. **Conclusion**: Adipocyte-released factors play a dual role in increasing melanocytes survival; both by enhancing melanoma cell's viability and

simultaneously decreasing melanocyte apoptosis. B16F10 cell motility was also improved by exposure to adipocyte conditioned medium, suggesting that adipocyte secretome might be able to increase melanoma cell invasiveness. The preliminary results obtained in the present study are good indicators of the possible deleterious effects of adiposity on melanoma growth. The adipocyte-mediated increased survival and invasive phenotype of melanocytes support our intentions of additional in vitro assays and future in vivo animal models to further scrutinize the mechanisms that predispose obese individuals to cutaneous melanoma.
Palavras Chave: Obesity; Melanoma; Adipocytes; Cancer proliferation; Cancer motility

CO03

Nutrigenómica e nitratos no metabolismo do óxido nítrico na hipertensão arterial

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Introdução: A disfunção endotelial constitui a principal causa de morbilidade/mortalidade na hipertensão arterial (HTA). Este fenómeno pode dever-se a anomalias na atividade/expressão genética da sintase induzível (iNOS) e endotelial (eNOS) do óxido nítrico (NO), e ser atenuado por fatores ambientais como a dieta. O objetivo deste estudo foi determinar se uma dieta enriquecida em nitratos modifica a influência dos polimorfismos da NOS2A e da NOS3 na resposta metabólica e cardiovascular na HTA. **Métodos:** Estudo experimental cruzado (piloto), envolveu 12 indivíduos com HTA que foram aleatorizados para uma dieta rica em nitratos, DN (≥185mg/d) ou para uma dieta padrão, DP (<185mg/d), cada uma com duração de 3 meses e ajustamento calórico de 1500kcal/d para as mulheres ou 1800kcal/d para os homens. **Resultados**: Globalmente verificaram-se diferenças significativas na redução da massa gorda corporal durante a DN (-1,7±1,2%; p=0,044; eta2G=0,04). A análise discriminante revelou que a DN induziu nos indivíduos portadores da variante alélica a redução do HDL-c (-6,8±5,0mg/dL; p=0,044; eta2G=0,05) no SNP+14C>T; a redução do índice de massa corporal (-1,5±0,6kg/m2; p=0,049; eta2G=0,03) e da atividade da redutase da methemoglobina (-4,1±1,6mcmol/gHb/min; p=0,020; eta2G=0,32) no SNP+88G>T; e aumentou a velocidade de onda de pulso (+2,8±0,8m/s; p=0,024; eta2G=0,07) no SNP+524G>A. Os indivíduos portadores do alelo wild-type não revelaram diferenças significativas durante a DN ou, em alguns casos sofreram um agravamento do fenótipo. Não foram encontradas diferenças significativas na análise do polimorfismo 4b/a. Durante a DN os fatores nutricionais que melhor se correlacionaram com estas alterações foram a variação do consumo de lípidos mono e polinsaturados, colesterol, vitamina E, flavonóides, folato e proteína. **Conclusão**: O consumo de nitratos inorgânicos apresenta efeitos ambíguos sendo potencialmente mais benéfico nos indivíduos com maior risco cardiovascular, portadores da variante alélica para uma disponibilidade reduzida de NO ou quando o consumo de antioxidantes ou de lípidos insaturados é concomitantemente superior.
Palavras Chave: Hipertensão genética nitratos óxido nítrico

CO04

Association of obesity and time spent in sedentary activity on arterial stiffness

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Introduction: Long-term exposure to behavioral risk factors predispose prematurely to the manifestation of cardiovascular diseases. This study aimed to assess the association of the obesity index and time spent in sedentary activity on arterial stiffness. **Methods**: One hundred and twenty five participants (54.4% women and 45.6% men, aged= 55.51 ± 7.16 years old), classified as moderate to high cardiovascular risk were recruited based on Primary Health Care Unit (Aldoar, Porto, Portugal) physician´s data. Subjects were assessed regarding anthropometrics measurements [weight (75.12 ± 13.63 kg); height (159.60 ± 9.3 cm) and waist circumference (98.06 ± 10.26 cm)]; arterial stiffness trough pulse wave velocity with applanation tonometry [(9.02 ± 1.73 m/s) ShygmoCor, AtCor Medical, Sidney] and sedentary activity trough accelerometry [(468.14 ± 103 minutes/day) GT1M, Actigraph, Florida] during 7 consecutive days. Waist-to-height ratio was calculated as the ratio of waist circumference (cm) and height (cm) (0.61 ± 0.67) and used as obesity index. Multiple linear regression was performed. **Results** shown that pulse wave velocity has a positive association with waist-to-height ratio (β = 0.277, p = 0.003) and time spent in sedentary activity (β = 0.194, p = 0.03), adjusted for age and sex. In this study, seems to appear a positive association between sedentary activity, obesity index and pulse wave velocity. Interventional studies should be conducted to confirm these results and to observe cause-effect relationship between physical activity patterns, obesity and pulse wave velocity.
Palavras Chave: Arterial Stiffness Obesity Sedentary Activity

CO05

Influência da prática de atividade física nos ganhos ponderais maternos no 1º e 2º trimestre gestacional

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Introdução: Na gravidez ocorre um aumento do peso, sendo que um ganho ponderal adequado é protector da saúde materno/fetal. O aumento de peso excessivo pode levar ao desenvolvimento de diversas patologias, apresentando relação com maior retenção de peso no pós-parto e risco de obesidade. São vários os factores que influenciam o ganho de peso na gravidez sendo que a Atividade física um deles. **Objetivo:** Analisar o cumprimento das recomendações de atividade física segundo o ACSM no 1º e 2º trimestre de gestação e verificar a sua influência nos ganhos ponderais em cada um dos períodos. **Métodos**: Estudo observacional longitudinal prospetivo, numa amostra consecutiva de 83gestantes, que foram avaliadas no 1º e 2º trimestre gestacional. Inicialmente aplicou-se um questionário sociodemográfico para caracterização da amostra e calculou-se o IMC pré-gestacional. Em cada um dos trimestres as mulheres preencheram o questionário de frequência alimentar para avaliar o consumo energético e avaliaram-se as medidas antropométricas. A atividade física foi avaliada através do acelerómetro GT3X ActiGraph (ActiGraph, Pensacola, Florida, USA), as mulheres foram divididas em dois grupos “cumpre as recomendações de atividade física” (CR) e “não cumpre as recomendações de atividade física” (NCR) segundo o ACSM. **Resultados:** No 1º trimestre não se registaram diferenças significativas entre os grupos CR1 e NCR1 (U=0,177; p=0,674) e os