POSTERS

BÁSICA

P01

Obesity and brain cancer: proteomic analyzes of the influence of the adipocyte secretome on glioma GI261 cells

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Aims. Glioma is the most frequent form of malignant brain tumor in the adults and childhood. There is a global tendency toward a higher incidence of gliomas in highly developed and industrialized countries. Simultaneously obesity is reaching epidemic proportions in such developed countries. It has been highly accepted that obesity may play an important role in the biology of several types of cancer. We have developed an in vitro method for the understanding of the influence of obesity on glioma mouse cells (GI261). **Methods.** 3T3-L1 mouse pre-adipocytes were induced to the maturity. The conditioned medium was harvested and used into the GI261 cultures. Using two-dimension electrophoresis it was analyzed the proteome content of GI261 in the presence of conditioned medium (CGI) and in its absence (NCGI). The differently expressed spots were collected and analyzed by means of mass spectroscopy (MALDI-TOF-MS). **Results.** Significantly expression pattern changes were observed in eleven proteins and enzymes. RFC1, KIF5C, ANXA2, N-RAP, RACK1 and citrate synthase were overexpressed or only present in the CGI. Contrariwise, STI1, hnRNPs and phosphoglycerate kinase 1 were significantly underexpressed in CGI. Aldose reductase and carbonic anhydrase were expressed only in NCGI. **Discussion and conclusions**: Our results show that obesity remodels the physiological and metabolic behavior of glioma cancer cells. Also, proteins found differently expressed are implicated in several signaling pathways that control matrix remodeling, proliferation, progression, migration and invasion. In general our results support the idea that obesity may increase glioma malignancy, however, some interesting paradox finding were also reported and discussed.
Palavras-Chave: Glioma; Cancer; Adipose tissue; Obesity; 2D Proteomics; Mass spectroscopy.

P02

Adipocyte secretome enhances metabolic activity and migration of prostate carcinoma

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Introduction: Prostate cancer is the second most frequent cancer and the sixth leading cause of death from cancer in men worldwide. Although controversial, obesity has been associated with increased prostate cancer incidence and mortality. Changes in adipokine expression associated with obesity have been one of the mechanisms proposed to explain the association between obesity and prostate cancer, particularly in promoting the development and progression of the tumor cell. **Aim**: The main goal of this study is to evaluate the effect of adipocyte secretome in the proliferation, viability and migration of androgen insensitive prostate carcinoma murine cells (RM1) when cultured with 3T3-L1 pre-adipocytes and adipocytes conditioned media (CM). **Methods**: RM1 cells were cultured with CM from pre-adipocytes and adipocytes. Cell proliferation was assessed by counting cell numbers in Neubauer chamber and the cellular metabolic rate was determined by performing a XTT viability assay. An injury assay was performed to evaluate the migration capacity of cells RM1 in the presence of CM. Results: Cell proliferation was not significantly different when cells cultured with CM were compared with normal media. Nevertheless, RM1 cells metabolic rate was found to be increased in RM1 cells cultured with adipocyte CM when compared with normal media ($p<0.05$), while there was no difference when compared with RM1 cells cultured with preadipocytes CM. RM1 cells migration rate was also shown to be increased in RM1 cells cultured with adipocytes conditioned media compared with cells cultured with normal media. **Conclusion**: Prostate carcinoma RM1 cells seem to be influenced by factors secreted by adipocytes which are able to increase their metabolic and migratory activity. UMIB is funded by FCT (Fcomp-01-0124-FEDER-015893).
Palavras Chave: Prostate cancer obesity secretome adipokines

P03

Reóstato dos esfingolípidos: análise lipidómica de ceramidas e esfingosina-1-fosfato num modelo animal de obesidade

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Introdução: O tecido adiposo é um órgão endócrino e dinâmico que secreta importantes factores para o sangue, regula o metabolismo, a função imune, o fluxo vascular e linfático, entre muitas outras. Em caso de acumulação de tecido adiposo, devido a uma dieta rica em gordura ou disfunção metabólica, os adipócitos podem desencadear uma reação inflamatória, sendo que a expressão de adipocinas varia de acordo com a distribuição de tecido adiposo subcutâneo e visceral. Os esfingolípidos constituem uma classe importante de compostos bioactivos. Lípidos como as ceramidas (Cer) esfingosinas e esfingosinas-1-fosfato (S1P) são importantes na sinalização molecular dentro e for a das células e, desempenhando assim um papel essencial na regulação de eventos celulares como o crescimento celular, diferenciação, respostas ao stress e apoptose. Alguns estudos indicam que as S1P promovem a proliferação celular enquanto que as Cer promovem a apoptose. **Objectivo**: O presente trabalho tem como objetivo estudar o envolvimento da via de sinalização Cer/S1Pna obesidade, iniciando-se com a hipótese de que existiriam diferenças entre obesos e não obesos. Como modelo de obesidade, utilizaram-se ratinhos C57Bl/6J (machos e fêmeas) sujeitos a dieta normal (ND) e dieta rica em gordura (HFD). Às 16 semanas, procedeu-se à quantificação de lípidos bioativos bem como os respetivos ácidos gordos esterificados a estes. A análise lipídica utilizou uma abordagem de alto rendimento por metabolómica (lipidómica por UPLC-MS). **Resultados**: Os ratinhos submetidos a HFD apresentaram uma diminuição significativa de S1P relativamente àqueles submetidos a ND. Inversamente, os ratinhos HFD apresentaram um aumento considerável de Cer e Glu-Cer relativamente aos animais ND. **Discussão**: Os resultados demonstraram que as S1P (factores envolvidos na proliferação celular) encontram-se elevadas na corrente sanguínea em indivíduos não obesos, em contraste com os factores envolvidos na apoptose, como as ceramidas e cerebrosídeos, as quais estão aumentadas em condições de obesidade.
Palavras Chave: Obesidade; Esfingolípidos; Lipidómica; Metabolómica; Via da Cer/S1P