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hNSCs Migration towards BTSCs *in vitro* and *in vivo*

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Objective: To clarify the capacity of selective migration of human neural stem cells (hNSCs) to brain tumor stem cells (BTSCs) derived from glioblastoma, we studied the tropism of hNSC to BTSCs *in vitro* and *in vivo*.

Methods: We cultured BTSCs from GBM tissues by neurosphere culture method, then, investigated the tropism ability of hNSCs to BTSCs using *in vitro* transwell chamber cell migration assay and *in vivo* tumor tropism studies.

Results: The BTSCs could be obtained from human GBM tissues, and formed neurospheres after cultured 7d *in vitro*, and were CD133- positive and nestin-positive. These BTSCs could regenerate a GBM tumor *in vivo* when implanted intraventricularly. Cell migration assay showed that BTSCs have the capacity to actively attract hNSCs. The fate of hNSCs *in vivo* can be visualized under confocal fluorescence microscope. hNSCs exhibit extensive tropism toward the site of the tumor and infiltrate tumor foci.

Conclusions: BTSCs could be derived rapidly from GBM tissues by neurosphere method. The normal hNSCs possess the capacity to migrate toward BTSCs *in vitro* and *in vivo*. The tropism of hNSCs towards brain tumors may provide an additional tool for the treatment of brain cancer.

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Insulin and leptin levels in obese patients with and without breast cancer

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Background: Obesity and breast cancer (BC) are considered serious health problems worldwide. A possible link between both diseases has been postulated. Leptin could be implicated in this link. We performed a cross-sectional study in obese women, and found higher levels of leptin in BC patients. This could open a new research area in BC prevention and treatment. Leptin has been associated with progression and poor survival in BC. Moreover, it is still controversial as to whether the effect of leptin depends only on its correlation with body mass index (BMI), or could be a direct role of adipokine in the development of BC.

Objective: The aim of this study was to identify if there was a difference between serum leptin levels and insulin in obese patients with and without BC.

Patients and methods: A cross-sectional study was made in 156 women, a group of 78 with obesity and BC and 78 with obesity without BC. When subjects agreed to participate, written informed consent was obtained from all subjects. Biochemical variables such as glucose, triglycerides, high-density and low-density lipoprotein, cholesterol, insulin, and leptin were measured and homeostasis model assessment (HOMA-IR) was calculated.

Results: The age, number of parities, glucose, HOMA-IR, and leptin were significantly different at $P < 0.05$.

Conclusion: Serum leptin levels and leptin/BMI ratio were statistically significantly increased in patients with BC.

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