

Effects of conditioned medium from human amniotic mesenchymal tissue cell cultures on prostate cancer cells

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It has been recently demonstrated that human amniotic mesenchymal tissue cells (hAMTC) derived from term placenta inhibit lymphocyte proliferation and significantly reduce the growth of haemopoietic and non haemopoietic cancer cell lines (HeLa and Saos cells) *in vitro* (1). The aim of our study was to evaluate the effects of hAMTC-conditioned medium (CM) on two human prostate cancer cells lines: LNCaP, androgen responsive and well differentiated, and PC-3, androgen unresponsive and less differentiated. Cells were grown in their standard culture conditions in the absence or in the presence of various concentrations (0.001–50%) of hAMTC-CM or their own exhausted medium. Cell numbers were determined by using a haemocytometer, after three days. Moreover, E- and N-cadherin expression was evaluated in PC-3 cells cultured in medium with 0.01, 1 or 25% hAMTC-CM by Immunocytochemistry and Western blot analysis. Our findings indicate that hAMTC-CM reduces the growth of both PC-3 and LNCaP cells. The effect is more pronounced in PC-3 cells in which inhibition is about 25% vs control ($p < 0.001$) at a very low concentration (0.001%) and reaches the maximum (about 55% vs control, $p < 0.001$) with the highest concentration used (50%). In LNCaP cells only the highest concentration of hAMTC-CM (50%) inhibits cell proliferation (about 40% vs control, $p < 0.001$). Interestingly, growth of LNCaP cells is reduced by their own exhausted medium, while proliferation of PC-3 cells is not affected by their spent medium. Both E- and N-cadherin expression have been detected at the membrane level in untreated PC-3 cells and the localization does not change in hAMTC-CM-treated cells. Preliminary data obtained by Western blot analysis seem to indicate an increase in both E- and N-cadherin levels. Our findings show that hAMTC-CM reduces prostate cancer cell proliferation in relationship to their androgen sensitivity and modifies the expression levels of adhesion molecules. Experiments are in progress to determine the mechanisms which underlie the observed effects and assess if hAMTC-CM can determine any variation in the differentiation status of prostate cancer cells.

References

[1] Magatti M et al. (2012), J Cell Mol Med 16(9):2208-18. doi: 10.1111/j.1582-4934.2012.01531.x.

Keywords

Prostate cancer cell lines; human amniotic mesenchymal cells; conditioned medium.