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599

CIRCULATING TUMOUR CELLS IN BREAST AND OVARIAN CANCER: SIZE-BASED ISOLATION AND EX VIVO EXPANSION

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Introduction/Background Circulating tumour cells (CTCs) play a crucial role in cancer dissemination and cellular extravasation leading to metastasis. There are only a limited number of CTCs per clinically/ethically allowed cancer patient's blood draw and expanding this population of cells in vitro is crucial in order to provide a reliable number of cells to analyse CTC biology. CTCs can grow in a hypoxic environment and the activation of hypoxia-inducible factor (HIF-1 α) results in increased cell survival and cellular proliferation, leading to cancer progression. Our aim was to optimise cell culture conditions using cobalt chloride (CoCl₂) as a chemical inducer of hypoxia that would allow us to examine growth of cells in real time. Primary ovarian cancer cells would be used for the hypoxia optimisation and conditions adapted ovarian/breast CTC cultures in vitro.

Methodology Primary ovarian cancer cells were cultured in modified media supplemented with various concentrations of CoCl₂ for HIF1 α induction (50, 100, 150 and 200 μ M). Cell viability and the expression of HIF-1 α , PHH3, EpCAM and HER2 were examined in these cells using either ELISA, Immunoblotting or Immunofluorescence techniques. CTCs were isolated from breast and ovarian cancer patients using the ScreenCell[®] Cyto R device and cultured in specially modified media optimised for CTC culture supplemented with 20% FCS, growth factors and additives including: FGF-2, FGF-10, Nicotinamide, Y-27632, Primocin and CoCl₂. EpCAM and HER2 were examined in cultured and expanded CTCs using Immunofluorescence techniques.

Results HIF-1 α expression was induced and cell proliferation and viability were maintained in the primary ovarian cancer cells at a concentration of 100 μ M of CoCl₂. Subsequently this concentration was used for the culturing of isolated CTCs. Using this condition, CTCs were successfully cultured and expanded for more than nine weeks. Based on the morphological and phenotypical characterisation, two phenotypes of CTCs were isolated from a breast cancer patient; epithelial-like expressed EpCAM and quasi-mesenchymal express HER2.

Conclusion We demonstrated the feasibility of culturing cancer patient blood derived CTCs under hypoxic conditions. We also demonstrated the presence of heterogeneous CTC populations; classical epithelial-like CTCs and quasi-mesenchymal subtypes in a breast cancer patient and their corresponding molecular phenotypes. Our work also demonstrated the suitability of size-based isolation for this culturing approach.

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Vaginal and vulvar cancer

606

ANGIOMYOFIBROBLASTOMA VULVAR: CASE REPORT AND LITERATURE REVIEW

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Introduction/Background Angiomyofibroblastoma is part of the benign mesenchymal tumors of the genital tract and was first described by Fletcher in 1992. The vulva represents the main presentation site, but cases have been described at the level of the vagina, cervix, fallopian tubes, the scrotum and the ischioanal fossa. It presents as a mass, generally painless, with well-defined edges and without compromising the overlying skin. It is normally less than 5 cm, but cases of up to 37 cm have been described.

Methodology A 45-year-old woman with a 1 month history of painful vulvar mass of progressive growth. Physical examination reveals a stony, mobile mass of 5 $\times$ 5 cm in right labia majora. Initial immunostaining suggested an AMFB, so she was taken to vulvectomy. A review was made of all articles in English or Spanish, published until March 10, 2019, related to the diagnosis and treatment of vulvar AMFB. The search included the PubMed, Embase, Cochrane, LILACS and Scielo databases, with the keywords "Vulvar Angiomyofibroblastoma"