Influence of Omega-3 Fatty Acid in B16F1 and SHSY5Y Cell Lineages Proliferation

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Introduction: Human neuroblastoma is a solid malignant extracranial tumor originating of multipotent embryonic cells from neural crest and occurring chiefly in infants and young children. Tumor cells behavior and development analysis during experimental substances treatment is very important to identify potential new therapies. **Objective:** this research analyzed two neuronal tumor cell lineages (B16F1 and SHSY5Y) in order to evaluate the effects of omega-3 fatty acid upon cellular proliferation and viability. Once this fatty acids incorporation in the cell membrane was related to tumor cell growth regulation in several experimental models. **Materials and Methods:** SHSY-5Y and B16F10 cell lineages were cultivated and distributed and treated as follows: control cell (treatment: DMEM 10% SFB + BSA 2%), emulsified fish oil or *sacha inca* oil (emulsion preparation: 1ml of fatty oil in 9ml of DMEM 10% SFB + BSA 2% mixed gently over night at 4ºC) (treatment: emulsified oil diluted 1:10, 1:20 e 1:50 in DMEM 10% SFB + BSA 2%). Cell viability and proliferation were measured at 24, 48 and 72 hours after treated by Alamar blue colorimetric/fluorimetric method. **Results and Discussion:** it was identified an increase of proliferation rate for both cell lineages, probably due to the high developmental EPA and DHA cerebral tissue needs. However, B16F1 exhibited a lower proliferation rate compared to SHSY-5Y. Cell incorporation of fatty acids was measured by HPLC techniques. **Conclusions:** Omega 3 fatty acids elevated cell proliferation rate in both neuronal lineages. And proliferation behavior seems to be related to differentiation state of the lineage.

Key words: neuroblastoma, cell membrane, fish oil

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