

عنوان مقاله:

Inhibition of human neuroblastoma cell line SH-SY5Y growth due to the modulation of oxidative stress by retinoic acid

محل انتشار:

بیست و یکمین کنگره ملی و نهمین کنگره بین المللی زیست شناسی ایران (سال: 1399)

تعداد صفحات اصل مقاله: 1

نویسندگان:

Nazli Rostamzadeh - *Department of Biology, Faculty of Science, Urmia University, Urmia, Iran*

Nima Shaykh-Baygloo - *Department of Biology, Faculty of Science, Urmia University, Urmia, Iran*

Mehdi Imani - *Department of Basic Sciences, Faculty of Veterinary Medicine, Urmia University, Urmia, Iran*

Safiyeh Aghazadeh - *Department of Basic Sciences, Faculty of Veterinary Medicine, Urmia University, Urmia, Iran*

خلاصه مقاله:

Neuroblastoma is a type of malignancy with an embryonic origin of the autonomic nervous system. Tumors usually form in the chest or abdomen of children. The cause of the neuroblastoma is not exactly known. Environmental and/or genetic factors can play a role in the development of the disease. Success in treatment depends a lot on the age at which chemotherapy is started; with higher chance of success, and more possibility of reversing the progression of the disease at the age of less than eighteen months. Vitamin A derivative, all-trans retinoic acid (ATRA), with the ability to differentiate cells has antioxidant properties. Therefore, at the present study, the human neuroblastoma cell line SH-SY5Y was treated with a concentration of $1 \mu\text{M}$ ATRA. After 7 days, by examining different cellular parameters, it was found that the rate of reactive oxygen species and lipid peroxidation was decreased by 20% and 50%, respectively, and the amount of glutathione (GSH), which is the most important natural antioxidant in cells, was increased by 50%. There was also a 40% reduction in cell viability. After treatment with $1 \mu\text{M}$ ATRA, SH-SY5Y cells were morphologically elongated, with longer and fused neurites and in the form of a network. According to the results of the present study, ATRA can be used as a growth inhibitor and viability reducer of neuroblastoma cells, effectively in chemotherapy.

کلمات کلیدی:

Reactive Oxygen Species, ATRA, Cancer, SH-SY5Y, Chemotherapy

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