

عنوان مقاله:

Evaluation of Neuroprotective Effect of Adenosine on Neural Stem Cells exposed to Oxidative Stress Condition with H_2O_2

محل انتشار:

مجله علمی پژوهشی دانشگاه علوم پزشکی زنجان، دوره 25، شماره 112 (سال: 1396)

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خلاصه مقاله:

Background and Objective: Excessive production of free radicals during oxidative stress can cause serious damage to important biomolecules and activate programmed cell death pathways in the body. In the nervous system, neuronal cell death leads to many progressive neurodegenerative disorders. The aim of this study was to evaluate the effects of adenosine on the inhibition of apoptosis in oxidative damage induced by hydrogen peroxide in bone marrow derived neural stem cells (BMSCs-dNSCs). **Materials and Methods:** BMSCs-dNSCs were pretreated with different doses of adenosine for 48 hours and then exposed to $125\mu M H_2O_2$ for 30 minutes. Using MTT and TUNEL assay, we evaluated the effects of adenosine on cell survival and apoptosis in pretreated BMSCs-dNSCs in comparison to control groups. **Results:** The results showed that the apoptosis rate in the $6\mu M$ adenosine pretreated BMSCs-dNSCs was significantly decreased compared to the control group in the condition of oxidative stress ($P<0.05$). **Conclusion:** Our findings suggest that adenosine protects NSCs against oxidative stress induced cell death, therefore it may be used to promote the survival rate of NSCs and could be a candidate for the treatment of oxidative stress mediated neurological diseases.

کلمات کلیدی:

Keywords: Adenosine, Neural stem cells, Apoptosis

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