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Effectiveness of beta carotene in Streptozocin induced cognitive impairment in mice

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Alzheimer's is the neurodegenerative disease characterized by cascade changes in the cognitive, behavioral and social activities. Several areas of brain are involved in regulation of memory. Of most important are amygdala and hippocampus. A number of available antioxidants are used for the treatment of many ailments. The present study was conducted to evaluate the effectiveness of exogenous antioxidant such as beta carotene (1.02 & 2.05 mg/Kg) against i.c.v streptozocin induced memory impairment in mice. Streptozocin (3mg/Kg, i.c.v) was administered in two divided doses (on 1st and 3rd) for neurodegeneration. Male albino mice (n = 50) were used in the protocol which were further subdivided into five groups (Group I- control, Group II- diseased, Group III-standard, Group IV-V treated with beta carotene) to investigate the cognitive enhancement effect of selected antioxidant. Learning and memory behavior was assessed following the passive avoidance, elevated plus maze and open field paradigm. Biochemical markers of oxidative stress such as glutathione peroxidase, superoxide dismutase, catalase and acetylcholinesterase were analyzed in brain homogenates to evaluate the antioxidant potential and role of acetylcholine in memory enhancement. Results indicated that beta carotene at high dose (2.05mg/Kg) was more effective in the improvement of cognitive performance. It may be concluded from the study that beta carotene can be useful for memory enhancement and suggests its potential in the treatment of many neurodegenerative diseases such as Alzheimer's disease.

Biography

Sundas Hira is working as a lecturer at Riphah Institute of Pharmaceutical Sciences, Riphah International University. She is contributing dedicatedly her best part in research and publications. She has her expertise in assessing the use or effectiveness of natural substances in neurodegenerative diseases. Her research work based on evaluating the "effectiveness of beta carotene in streptozocin induced cognitive impairment in mice" explores the new pathways for preventing many neurodegenerative diseases associated with cognitive deficit. This research probes the use of natural supplements in various disease resulting due to oxidative stress.

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