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Poster Presentation

Neuroprotective Effects of Saffron Extract in Rat Brain Under Ischemia Reperfusion Model

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Abstract

Introduction: There are several different molecular pathways in tissue damage by Ischemic Brain Injury. The use of antioxidants and free radical scavengers are a matter of attention by some researchers. Crocus sativus (saffron) is used previously for protective effects in ischemia state by some researchers. To assess pathologic aspects of neuroprotection of saffron in some susceptible brain area, we used ischemia- reperfusion rat model. **Materials and Methods:** Adult male Wistar Rats 250-350 g were kept in constant condition (12 hr. day, night and temperature) with Food and Water ad libitum. The animals were divided into 4 groups of 8 including: Group 1, was negative control in which ischemia was done and 1 mg normal saline injected IP. Group 2, was sham operated without induction of ischemia. Group 3, positive control in which ischemia induction and 100mg /kg phenytoin injected IP as a standard neuroprotective agent. Group 4, 80 mg/kg aqueous extract of saffron was injected intraperitoneal. Brain global ischemia was done using Four Vessel Occluding (4VO) method expatiated by Pulsinelli et al (1983) with some modification. Tissue preparation: After 72 hour's brain removed and immediately fixed with formaldehyde 10%. Thin slice (2-4 Microns) of tissues stained for H&E. **Results:** Ischemic neuronal cell was seen especially in hippocampus, but some degree of necrosis seen in other area of brain such as cerebellum, basal ganglia and cortex. In normal saline injection, ischemia and necrosis of CA1, CA2 and CA3, 4 occurred. In group 2 No necrosis has seen. Phenytoin group were slightly ischemic changes only in CA1 area. In saffron injected group the necrosis in CA1 or CA3 was compatible with group 3. **Conclusion:** the result of this study showed significant anti ischemic effect that need to more investigation for other aspects of safe use of these compound and determining of effective doses.

Keywords: Saffron extract, Ischemia, Brain injury

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