

Effects of methylprednisolone and hyperbaric oxygen on oxidative status after experimental spinal cord injury: a comparative study in rats.

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Abstract

The effects of hyperbaric oxygen (HBO) therapy or methylprednisolone on the oxidative status were evaluated in experimental spinal cord injury. Clip compression method was used to produce acute spinal cord injury rats. Hyperbaric oxygen was administered twice daily for a total of eight 90 min-sessions at 2.8 atmospheres. Methylprednisolone was first injected with a bolus of 30 mg/kg followed with an infusion rate of 5.4 mg/kg/h for 24 h. Five days after clip application animals were sacrificed and their traumatized spinal cord segment were excised. Tissue levels of thiobarbituric acid reactive substances (TBARS), superoxide dismutase (SOD) and glutathione peroxidase (GSH-Px) were evaluated to reflect oxidant/antioxidant status. Non-treated clip-operated animals reflected significantly higher SOD, GSH-Px and TBARS levels that were found to be significantly higher than the sham-operated. Methylprednisolone was not able to lower these levels. HBO administration diminished all measured parameters significantly; however, their levels appeared already to be high when compared with sham animals. According to these results obtained on the 5th day after induction, HBO, but not methylprednisolone, seems to procure prevention against oxidative spinal cord injury.

Source: