Title: Effect of radical scavengers and hyperbaric oxygen on smoke-induced pulmonary edema

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Abstract: Respiratory complications, especially pulmonary edema, account for over 50% of mortalities in inhalation injuries. This study was conducted to determine the effect of free radical scavengers and hyperbaric oxygen (HBO) in vivo on reducing pulmonary edema. Adult New Zealand rabbits were allowed to breath cooled, cotton smoke until a significant inhalation lung injury was produced. Five percent of body weight lactated Ringer's solution was then administered i.v. over 2 h. The following free radical scavengers were given as bolus infusions at the beginning of fluids resuscitation: superoxide dismutase, catalase, butylated hydroxytoluene/piperonyl butoxide, and mannitol. At the completion of fluid administration, half of the subjects were given HBO treatment. Pulmonary edema was then measured as extravascular lung water and wet/dry lung weight. Results indicate that free radical scavengers or HBO reduce pulmonary edema. Free radical scavengers in conjunction with HBO showed no significant improvement over HBO or free radical scavengers alone.

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