The effect of hyperbaric oxygen treatment on oxidative stress in experimental acute necrotizing pancreatitis.


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Various protocols may be used for acute pancreatitis treatment. Recently, the benefit of hyperbaric oxygen (HBO) has been demonstrated. To clarify the mechanism of HBO on the process of the acute pancreatitis, we determined the levels of antioxidant enzymes in an acute pancreatitis model. Forty-five Sprague-Dawley rats were randomly divided into three groups: Group I: sham group (n=15), Group II: pancreatitis group (n=15), Group III: pancreatitis group undergoing HBO therapy (n=15). HBO was applied postoperatively for 5 days, two sessions per day at 2.5 fold absolute atmospheric pressure (ATA) for 90 min. Superoxide dismutase (Cu/Zn-SOD), malondialdehyde (MDA), and glutathione peroxidase (GSH Px) activity were measured in pancreatic tissue and erythrocyte lysate. MDA and GSH Px were also determined in plasma. In addition, amylase levels were measured in the serum. While serum amylase levels and MDA values in erythrocyte, plasma and pancreatic tissue were decreased, the levels of GSH Px and SOD were found to be significantly increased in the Group III as compared to those of the Group II.

The findings of our study suggest that HBO has beneficial effects on the course of acute pancreatitis and this effect may occur through the antioxidant systems.

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