

Effects of hyperbaric oxygenation on blood pressure levels of spontaneously hypertensive rats.

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Source

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Abstract

Five-week-old normotensive Wistar-Kyoto rats (WKY) and spontaneously hypertensive rats (SHR) were subjected to hyperbaric oxygenation with an enhanced atmospheric pressure (950 mmHg) and an increased oxygen concentration (36%) for 6 h per day. Systolic blood pressure (SBP) and diastolic blood pressure (DBP) were monitored for 8 weeks of hyperbaric oxygenation period. After 8 weeks of hyperbaric oxygenation, the derivatives of reactive oxygen metabolites (dROMs) and biological antioxidant potentials (BAPs) were measured. After 5 weeks of hyperbaric oxygenation, the hyperbaric group of WKY exhibited lower SBP than the age-matched normobaric group, while there were no differences in the DBP between the normobaric and hyperbaric groups. After 3 and 7 weeks of hyperbaric oxygenation, the hyperbaric group of SHR exhibited lower SBP and DBP than the age-matched normobaric group. The hyperbaric groups of both WKY and SHR exhibited lower dROMs than the respective normobaric groups. There were no differences in BAPs between the normobaric and hyperbaric groups of WKY. In contrast, the hyperbaric group of SHR exhibited higher BAPs than the normobaric group. We conclude that the hyperbaric oxygenation conditions used in this study effectively repress hypertension.

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