# Pengaruh induksi hipoksia hipobarik intermiten pada aktivitas MnSOD dan kadar MDA pada jaringan paru tikus = The induction effect of intermitten hypobaric hypoxia toward manganese superoxide dismutase activity and malondialdehyde levels in rat's lung

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Abstrak

Hipoksia hipobarik merupakan suatu keadaan dimana tubuh kekurangan suplai oksigen karena tekanan parsial oksigen menurun. Salah satu contohnya adalah saat berada di ketinggian. Secara alami telah terjadi proses adaptasi sebagai mekanisme kompensasi terhadap hipoksia hipobarik. Penelitian ini dilakukan untuk mengetahui gambaran tentang aktivitas spesifik MnSOD, kadar MDA, dan hubungan antar keduanya pada paru tikus percobaan hipoksia hipobarik akut berulang. Sebanyak 25 tikus hewan percobaan jenis Wistar dibagi menjadi 5 kelompok, yaitu kelompok kontrol dan kelompok yang terpajan hipoksia hipobarik intermiten 1 kali, 2 kali, 3 kali dan 4 kali, masing-masing dengan interval 7 hari. Tiap kelompok ditempatkan dalam hypobaric chamber dan dipajankan kepada kondisi hipoksia hipobarik selama 45 menit dengan berbagai ketinggian. Tikus kemudian dimatikan dan sampel berbagai jaringan diambil untuk diukur parameter antioksidan enzim manganese superoxide dismutase (MnSOD) dan penanda stres oksidatif adalah malondialdehyde (MDA). Dari hasil penelitian didapatkan aktivitas MnSOD kelompok perlakuan 1 kali induksi menunjukkan penurunan bermakna dibanding kelompok kontrol dan terdapat penurunan bermakna dari kadar MDA kelompok perlakuan 4 kali induksi dibanding kelompok kontrol. Dari uji statistik diketahui bahwa aktivitas MnSOD dan kadar MDA tidak berhubungan bermakna.

.....Hypobaric hypoxia is a condition where the body lacks oxygen supply due to the partial pressure of oxygen decreases. One example is while flying at high altitudes. Naturally there has been a process of adaptation as a compensation mechanism against hypobaric hypoxia. This research was conducted to determine the description of the specific activity of MnSOD, MDA, and the relationship between the two in the lungs of rats hypobaric acute repetitive hypoxia. As many as 25 types of animal experiments Wistar rats were divided into 5 groups. namely the control group and groups exposed to intermittent 1 time, 2 times, 3 times and 4 times hypobaric hypoxia, each with an interval of 7 days. Each group was placed in a hypobaric chamber and exposed to hypobaric hypoxia conditions for 45 minutes with various heights. Rats then turned off and samples were taken to measure various parameters of tissue antioxidant enzyme manganese superoxide dismutase (MnSOD) and oxidative stress markers are malondialdehyde (MDA). From the results, one time induction treatment MnSOD activity groups showed significant decrease compared to the control group and there is significant reduction of 4 time induction treatment MDA level group than the control group. From the statistical test showed that MnSOD activity and MDA levels do not relate significantly.