عنوان مقاله:

Evaluation of Oxidative Stress Induced by Occupational Inhalation Exposure to N۲O, an Anesthetic Gas

محل انتشار:

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خلاصه مقاله:

Introduction: Nitrous oxide (N۲O) is the most common anesthetic gas used in operating rooms. The major objective of this investigation is to measure N۲O values in two modes: first, when the ventilation system is on, and second, when it is off; and to determine the biomarkers of oxidative stress associated with this exposure among operating room personnel. Materials and Methods: A cross-sectional study was conducted on ۶۰ operating room personnel as the N۲O exposed group, and on ۶۰ nurses as the referent group. N۲O concentrations were determined according to NIOSH method ۶۶۰۰. Total antioxidant capacity (TAC) levels, malondialdehyde (MDA), and superoxide dismutase (SOD) activities were also measured. Results: The concentrations of N۲O in the presence and absence of ventilation systems were significantly higher than the recommended exposure limit (REL) of ۲۵ ppm recommended by NIOSH. The levels of TAC and SOD were significantly lower in participants exposed to N۲O in comparison with the referent group. Adjusted for age, work experience, and sex, exposure to N۲O was found to be an occupational risk factor for low levels of TAC and SOD, so that exposure to N۲O reduced TAC and SOD levels by ۰.۱۶ mM and ۰.۷۵ U/ml, respectively. Conclusion: The present study shows that the operating room personnel are exposed to levels of .N۲O several times more than the REL of this gas and this heavy exposure is associated with a significant increase in oxidative stress

کلمات کلیدی:

.Nitrous Oxide, Operating Rooms, Oxidative Stress, Ventilation, Anesthetics