

## The Evaluation of Serum Nitrite, Nitrate and Malonyldialdehyde Levels in Smokers

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### Abstract

**Background and objectives:** Smokers are exposed to significant quantities of ROS (Reactive Oxygen Species); and The Level of Nitric Oxide (NO), the primary vasodilator produced by endothelial cells, is changed by cigarette smoking. Cigarette smoking is associated with impaired endothelium-dependent vasodilatation and cardiovascular disease (CVD). The aim of this study is to determine the level of serum nitrite, nitrate and malondialdehyde (MDA) levels in smokers.

**Material and Methods:** In this descriptive analytical study, 60 healthy male smokers and 60 male non-smokers (control group) were selected by a Purposive sampling and then serum levels of nitrite, nitrate and MDA in all patients were determined and compared to together.

**Results:** Serum nitrite and nitrate level in smokers are  $10.4 \pm 3.1$  and  $19.6 \pm 5.9$  and in non-smokers is  $14.6 \pm 4.4$  and  $29.3 \pm 6.7$  ( $p < 0.00001$ )  $\mu\text{mol/L}$ , respectively. The results show that smokers' are significantly lower than non-smokers'. Serum MDA level in smokers ( $11.7 \pm 2.6$   $\mu\text{mol/L}$ ) is significantly higher ( $p < 0.00001$ ) than non-smokers ( $8.3 \pm 1.9$   $\mu\text{mol/L}$ ).

**Conclusion:** Based on the results, serum level of nitrite and nitrate are lower and MDA is higher in smokers. This difference can be related to CVD in smokers.

**Keywords:** Smokers, Non-smokers, Nitrite, Nitrate, Malodialdehyde (MDA), cardiovascular disease (CVD).