The Evaluation of Serum Nitrite, Nitrate and Malondialdehyde Levels in Smokers

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±3.1 and 19.6±5.9 and in non-smokers is 14.6±4.4 and 29.3±6.7 (p<0.00001) µmol/L, respectively. The results show that smokers’ are significantly lower than non-smokers’. Serum MDA level in smokers (11.7±2.6 µmol/L) is significantly higher (p<0.00001) than non-smokers (8.3±1.9 µmol/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, Malondialdehyde (MDA), cardiovascular disease (CVD).

---

**Rostami, M (BSc)**
Student of MSc of Biochemistry, Ahwaz Jondishapur University of Medical Sciences, Faculty of Medicine.

**Jorfi, M (BSc)**
Student of MSc of Biochemistry, Ahwaz Jondishapur University of Medical Sciences, Faculty of Medicine.

**Corresponding Author:** Rostami, M  
**E-mail:** morad_r56@yahoo.com