# Levels of Nitric Oxide in Gastric Juice of Smoker and Non-smoker

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## Abstract

**Background and objectives:** Epidemiological studies have shown that using tobacco products is one of the main factors in forming malignancies in various tissues of the body. There is many nitric oxide radical ($NO^{\circ}$) in gas phase in each cigarette. Hence, due to oxidation of nitrogen components in tobacco, more than 100 µgr of atmospheric $NO^{\circ}$ is produced by smoking, would be transferred to the body without any filtration. We studied nitric oxide levels in the gastric juice of smokers and non-smokers patients with active peptic ulcer.

**Material and Methods:** In this study, 43 smoker patients with active peptic ulcer (14 female & 29 male) referred to gastroenterology clinic with mean age of 45.30±13.16 as case group.Forthy-three non-smokers without peptic ulcer (13 female & 30 male) aged 42.67±16.04, 43 smoker without peptic ulcer (16 female & 27 male) with mean age of 44.58±12.07 and 43 non-smoker with active peptic ulcer (20 female & 23 male) with mean age of 45.37±13.39 were selected as control groups of 1, 2 and 3 ,respectively. The level of Nitric oxide in gastric juice was measured by using Greiss colorimetric method.

**Results**: Comparing with control group one and two, meaningful rise is noticed in mean level of nitric oxide case group ($p<0.0001$). Mean levels of NO in control group 1, 3 and case group are 4.21±1.13, 5.37±2.26, 7.90±2.12 µmol/L, respectively. Nitric oxide level in case group in comparison with control group 2 dose not show Significant difference ($p=0.656$). Mean levels of NO in control 2 and case groups are 7.45±1.54 and 7.90±2.12 µmol/L, respectively.

**Conclusion:** It can be concluded that cigarette smoking may be one of the cause of increased level of gastric juice nitric oxide. This increase may be due to component in cigarette smoke and tar. These components can cause DNA damage through oxidation-reduction cycle and consequently increase the risk of malignancies in gastric tissues.

**Key words:** Smoking, Nitric Oxide, Nitrosamines, Peptic Ulcer