

## TOBACCO XENOBIOTICS RELEASE NITRIC OXIDE

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**The purpose** of study was to determine levels of nitrates, nitrites, S-nitrosothiols and endothelin-1 in saliva of tobacco smoking young men and healthy young men without bad habits and estimate the interrelationship between results.

**Materials and methods.** The sixty young men aged 20 - 22 years took part in the present study. They were students of H.S. Skovoroda Kharkiv National Pedagogical University. They have been examined in outpatient department of Kharkiv city student hospital during annual preventive health exam. Forty-five of tobacco smoking students were selected from total number of examined young men. According to duration of cigarette smoking habits in years, forty-five men were divided to three groups. First group consisted from students have consumed of the cigarettes for two years. Second group was formed by young men have smoked for four years. Third group of students had tobacco smoking habit for six years. The amount of cigarettes smoked per day ranged from 11 to 25 in each group of young men. Fifteen normal persons having devoid of any bad habits were selected as a control group. The investigation involved the collection of two milliliters whole unstimulated saliva samples between 8 and 9 AM in all 60 volunteers. The nitrate, nitrite, S-nitrosothiols and endothelin-1 levels were measured in 60 saliva samples. The ratio of salivary endothelin-1 (ET-1) and S-nitrosothiols (S-NO) content was determined.

**Results.** The salivary nitrate, nitrite, S-NO and ET-1 levels were detected  $15,00 \pm 1,6$   $\mu\text{mol/L}$ ,  $1,16 \pm 0,04$   $\mu\text{mol/L}$ ,  $0,5 \pm 0,01$   $\mu\text{mol/L}$ , and  $3,12 \pm 0,06$   $\text{pmol/L}$ , respectively, in control group. There was a significant increase in the salivary nitrates ( $17,53 \pm 1,9$   $\mu\text{mol/L}$  and  $22,14 \pm 1,8$   $\mu\text{mol/L}$ ), nitrites ( $5,42 \pm 0,21$   $\mu\text{mol/L}$  and  $6,82 \pm 0,19$   $\mu\text{mol/L}$ ) and ET-1 ( $12,33 \pm 0,09$   $\text{pmol/L}$  and  $14,19 \pm 0,8$   $\text{pmol/L}$ ) levels among the second and third groups of smokers with maximum values seen in third group consisting of young men with six-year experience of cigarettes smoking. The increase was not significant in smoking volunteers of first group whom had a two-year period of cigarette smoking. Comparisons between first and third groups showed significant differences in values ( $p < 0,05$ ). At the same time, the level of S-NO which exhibiting a vasodilator effect was significantly decreased by 1,7 and 2,3 times in saliva of smokers ( $0,29 \pm 0,03$   $\mu\text{mol/L}$  and  $0,22 \pm 0,02$   $\mu\text{mol/L}$ ) of the second and third groups, respectively, with regard to the control data ( $0,5 \pm 0,01$   $\mu\text{mol/L}$ ). The ratio of ET-1/S-NO was  $42,51 \pm 1,27$  and  $64,5 \pm 1,78$  in second and third groups, respectively, that was significantly higher than data of control ( $6,24 \pm 0,13$ ). A similar though less pronounced dynamics of this parameter was in smokers of first group ( $20,29 \pm 1,25$ ) ( $p > 0,05$ ).

**Conclusion.** The results demonstrated the endothelial dysfunction in groups of smokers by the influence of tobacco components.