

## **The tobacco smoking as predictor of bronchial hiperreactivity in abolescents and teenagers**

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### **Abstract:**

There were examined 120 abolescents and teenagers. Some of them are active (53 persons) and others are passive (67 persons) smokers. All patients have hyperreactivity of bronchus but only 60,4% have bronchial obstruction. The heaviness of disease not depend from smokers characters. We show that active smokers' patients have early signs of chronic bronchitis too. They are "smokers' cough" and reversible obstruction.

**Keywords:** WHO,

Tobacco smoking is one of the aggressive risk factors leading to the early development of diseases that carry a high social burden on society. The wide spread of tobacco smoking in different countries of the world leads to a decrease in life expectancy, which is proved by many scientific studies of both domestic and foreign authors [2, 10]. In recent decades, tobacco smoking has become widespread among teenagers, with little difference between female and male. WHO estimates that more than 150 million adolescents in the world use tobacco, and this number is steadily increasing. Currently, about 5.4 million people die each year from tobacco-related diseases, which are the only and preventable cause of death [9, 10]. The number is projected to increase to 8 million or more per year by 2030. If the trend continues, most deaths will occur in developing countries, where more than 7 million people die each year from tobacco-related diseases, more than malaria, injuries and living conditions combined [5, 8,11].

One in five people in the world is a teenager, and the way of life instilled at a young age necessarily produces results at the age of maturity, able to work. Such habits as smoking tobacco, lack of physical activity will have an impact on the formation of various diseases, including chronic ones, leading to early disability, decreased external respiratory function and, consequently, lower work capacity, tolerance for physical activity, early formation of chronic diseases of the respiratory and cardiovascular systems [1]. It is known that the development of dependence on nicotine is most rapid in young age [4]. Therefore, the main audience for active tobacco prevention are young people, adolescents, among whom the problem of tobacco addiction has become an epidemic in the last decade [7,9].

Exposure to second-hand smoke is particularly dangerous for children. Its negative influence is expressed in the increased risk of lower respiratory tract infection (bronchitis, pneumonia), accumulation of fluid in the middle ear, the appearance of

symptoms of upper respiratory tract inflammation (cough, sputum, shortness of breath), a reliable decrease in functional indicators of bronchial permeability, heavier course of bronchial asthma. Children do not have good time at school, get tired quickly, hardly perceive the new material [3,6].

Purpose. The effects of tobacco smoking on bronchial hyperactivity in adolescents and young adults have not been sufficiently studied and we have therefore conducted this study.

**Materials and methods.** The study involved 120 teenagers and boys from 15-18 years old (students of colleges of Tashkent city), whose history showed active and passive smoking of tobacco.

The study of external breathing function (ERS) was conducted on the device "Masterlab" (firm "Erich Eger", Germany) with the analysis of all speed and volume indicators. The degree of bronchial tree obstruction was determined by analyzing the flow-volume curve and by increasing bronchial resistance to air flow.

At the next stage of the study, the patients were assessed for bronchial hyperreactivity by means of weekly picfloometry monitoring, to determine which the index of daily K fluctuations was calculated:

$$K = ((\max \text{ISP} - \min \text{ISP}) / \max \text{ISP}) \times 100\%,$$

where max PSV is the maximum peak exhalation rate per week;

min ISP - minimum value of peak speed for a week.

In addition, to determine the reversibility of the bronchial obstruction a bronchodynamic test was conducted. Broncholytic test was considered positive if FEV1 or PEF increased by more than 12%.

Analysis of the survey data revealed that only 53 were active smokers (44.2%) and 67 (55.8%) were passive smokers. However, burdened heredity was common among passive smokers.

Clinical manifestations of bronchial asthma were typical in 88.2% of patients who had expiratory dyspnea and cough attacks with hard-to-separate viscous sputum, the withdrawal of which led to a significant improvement. Choking attacks occurred mainly at night and only 18% during the day. 83.0% of active smokers complained about coughing with sputum secretion in the morning ("smoker's cough"). In the case of an atypical current, 11.8% of patients reported sputum secretion without a previous cough, shortness of breath during exercise with classic suffocation attacks and functionally confirmed signs of hypersensitivity of bronchi. All patients had astheno-vegetative syndrome, rapid fatigue, tearfulness and sleep disturbance.

In a functional study, signs of reversible bronchial obstruction were detected in 60.4% of cases in active smokers, while other patients had no bronchial patency disorders. Signs of bronchial hyperreactivity were revealed in all examined patients.

Table 1 shows that "smoker's cough", along with reversible bronchial patency disorders, was significantly more frequently (83,0%) found in the group of active smokers of BA patients despite their young age. It can be concluded that this category

of patients is a direct risk group for chronic obstructive pulmonary disease. The severity of the course of the disease did not depend on the nature of smoking of the analyzed patients.

**Table 1**

**Comparative characteristics of AD patients - active and passive smokers**

Nature of smoking	Number of patients	"smoker's cough»	Weakened Heredity	More than 4 attacks of suffocation a day.	Recurrent bronchial abnormalities
Active	53	44 (83,0%)*	26 (49,1%)*	18 (34,0%)	32(60,3%)*
Passive	67	10 (15,0%)	53 (79,1%)	20 (29,8%)	7 (10,4%)

\* Reliable differences ( $p < 0.05$ ) between active and passive smokers with BA.

Specific anti-inflammatory drugs were taken only by 25% of young patients, the rest resorted to symptomatic bronchial therapy (theophylline group drugs, sympathomimetics), and almost no one took expectorants.

**Conclusions:**

- 1) Young people with AD are more likely to be passive smokers.
- 2) The severity of AA in young people depends on the nature of smoking.
- 3) Indirect signs of chronic bronchitis - symptoms of reversible bronchial obstruction, "smoker's cough" - were significantly more common in the group of active smokers.

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