

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

N.N.Ubaydullaeva, H.M. Tashmetov

Tashkent Institute of Advanced Medical Studies, Republic of Uzbekistan

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: smokers, tobacco, who, HFD

Introduction. Tobacco is one of the aggressive risk factors leading to the early development of diseases that carry a large social burden on society. The widespread use of tobacco in different countries of the world leads to a decrease in the life expectancy of the population, which is proved by many scientific studies of both domestic and foreign authors [2, 10]. In recent decades, tobacco smoking among adolescents has become widespread, with no particular differences among females and males. According to WHO estimates, more than 150 million adolescents in the world use tobacco, and this number is growing steadily. Currently, about 5.4 million people die every year due to smoking-related illnesses, which is the only and preventable cause of death [9, 10]. It is predicted that the figure will increase to 8 or more millions per year by 2030. If the trend continues, most deaths will occur in developing countries, where more than 7 million people will die each year as a result of tobacco-related diseases, more than from malaria, injuries and living conditions combined [5, 8,11].

Every fifth person in the world is a teenager, and a lifestyle instilled at a young age necessarily gives results at a mature, able-bodied age. Habits such as tobacco smoking, lack of physical activity will affect the formation of various diseases, including chronic ones, leading to early disability, lower indices of the function of external respiration and, as a result, lower working capacity, exercise tolerance, early formation of chronic diseases respiratory and cardiovascular systems [1]. It is known that the development of dependence on nicotine most rapidly occurs at a young age [4]. Therefore, young people and adolescents consider the main audience for active prevention of tobacco smoking, among which the problem of the formation of tobacco dependence has acquired the character of an epidemic in the last decade [7,9].

Of particular danger to children is passive smoking. Its negative effect is expressed in an increased risk of developing a lower respiratory tract infection (bronchitis, pneumonia), accumulation of fluid in the middle ear, the appearance of symptoms of inflammation of the upper respiratory tract (cough, sputum, shortness of breath), a significant decrease in the functional parameters of bronchial patency, and more severe bronchial asthma . Children do poorly at school, get tired quickly, hardly perceive new material [3,6].

Purpose. The issues of the influence of tobacco smoking on the occurrence of bronchial hyperractivity in adolescents and youths are not well understood, and therefore we conducted this study.

Materials and methods. The study involved 120 adolescents and youths from 15-18 years old (students of Tashkent colleges), in the history of which active and passive smoking of tobacco was noted.

The study of the function of external respiration (HFD) was performed on a Masterlab apparatus (Erich Jäger company, Germany) with an analysis of all speed and volume indicators. The degree of obstruction of the bronchial tree was determined by analyzing the flow-volume curve and the increase in bronchial resistance to air flow.

At the next stage of the study, the bronchial hyperreactivity was assessed in patients using weekly monitoring of peak flowmetry, to determine which the daily fluctuation index K was calculated:

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

where max PSV is the maximum value of the peak expiratory flow rate per week;

min PSV - the minimum value of the peak speed per week.

In addition, a bronchodilator test was performed to determine the reversibility of bronchial obstruction. A bronchodilator test was considered positive if, when performed, 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. At the same time, burdened heredity was characteristic of passive smokers. Clinical manifestations of bronchial asthma were typical in 88.2% of patients who experienced active smoking with attacks of expiratory dyspnea and cough with difficult to separate viscous sputum, the discharge of which led to a significant improvement. Attacks of suffocation occurred mainly at night and only in 18% - during the day. 83.0% of actively smoking patients complained of a cough with sputum discharge in the morning ("smoker's cough"). In the case of an atypical course, 11.8% of patients noted sputum production without previous coughing, shortness of breath during physical exertion with classical asthma attacks and functionally confirmed signs of bronchial hypersensitivity. All patients had astheno-vegetative syndrome, fatigue, tearfulness, sleep disturbance.

In a functional study, signs of reversible bronchial obstruction were detected in 60.4% of cases in active smokers, in the remaining patients there were no bronchial obstruction. All examined showed signs of bronchial hyperreactivity.

Table 1 shows that the "smoker's cough", along with reversible bronchial obstruction, was significantly more frequent (83.0%) in the group of active smokers with asthma, despite their young age. It can be concluded that this category of patients is a direct risk group for the occurrence of chronic obstructive pulmonary disease. The severity of the disease did not depend on the nature of smoking analyzed.

Table 1

Comparative characteristics of AD patients - active and passive smokers

Nature of smoking	Number of patients	"Smoker's cough»	Burdened by heredity	More than 4 attacks of suffocation per day	Reversible bronchial obstruction
Active	53	44 (83,0%)*	26 (49,0%)*	18 (34,0%)	32(60,3%)*
Passive	67	10 (15,0%)	53 (79,1%)	20 (29,8%)	7 (10,4%)

* Significant differences (p <0.05) between the group of active and passive smokers suffering from AD.

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

Findings:

1. Young people with asthma are more often passive smokers.
2. The severity of AD 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 likely to occur in the group of active smokers.

References

1. Andreev P.M., Latypov A.G. The state of external respiration function in adolescents // Kazan Medical Journal. - 1994. - T. IXXV, No. 6. - P. 461-462.
2. Babanov S.A. Epidemiology and prevention of smoking // Hygiene and Sanitation. - 2002. - № 3. -P. 33-36.
3. Golub N.I. The effect of smoking on immune and non-specific resistance. // Pulmonology.-1992.-№1.-P.83-86.
4. Gurova O.A., Samburova I.P., Sokolov E.V. The effect of tobacco smoking on adolescents // New studies in psychology and age-related physiology. - 1991. - № 2. - P. 110-112.
5. Kamardina T.V., Glazunov I.S., Sokolova L.A., Lukicheva L.A. The prevalence of smoking among women in Russia // Disease Prevention and Health Promotion. - 2002. - № 1. - P. 7-12.
6. Levashova I.A., Chaika A.N., Adelshina A.A. The health status of schoolchildren and the prevalence of smoking among them // Materials of the scientific-practical conference “Actual issues of ensuring sanitary and epidemiological well-being and protecting the health of the central region of Russia”. - Smolensk, 2002. - P. 147-149.
7. Sapunova N.O. Hygienic substantiation of the program for the prevention and protection of the health of schoolchildren under the Healthy Cities project: abstract diss. ... cand. honey. sciences. - Moscow, 2005 - 18 p.
8. Skvortsova E.S. The prevalence and motives of smoking among urban teenagers of the Russian Federation // Russian Medical Journal. - 1996. - No. 6. - P. 14-17.
9. Website of the US Federal Agency for Integrated Prevention and Control of Tobacco Addiction and Smoking (CDC) / <http://www.cdc.gov/tobacco/global/gyts/> (accessed: 03/26/2010).
10. Chuchalin A.G. Tobacco and respiratory diseases // Russian Medical Journal. - 2008.- T. 16, No. 22. - P. 1477.
11. Shubochkina E.I., Molchanova S.S., Kulikova A.V. Smoking teenagers as a medical and social problem // Materials of the 10th Congress of Pediatricians of Russia “Ways to Improve the Effectiveness of Medical Care for Children”. - M. - 2005. - P. 611.