Cough In Children: The Most Common Problem In Pediatrics

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ABSTRACT

Cough is a common problem in childhood, which leads to frequent visits to the pediatrician, affects the quality of life, and also causes material losses for the family and society. In pediatric practice, cough is most often associated with acute respiratory infections, which can be observed in children up to 5-8 times a year. 50-70% of children under 1 year and 30-60% of school-age children consult pediatricians with this problem. When examining patients with cough, the most common causes of recurrent cough can be bronchial asthma, prolonged bacterial bronchitis, chronic ENT diseases, gastroesophageal reflux, as well as bronchial reactivity after respiratory syncytial, rhinovirus or pertussis infections. Under the influence of external factors, mucociliary clearance in children can decrease, which contributes to the development of infections. The effectiveness of cough in children, especially at an early age, depends on the severity of the cough reflex, bronchial patency, and viscosity of bronchial secretions. The choice of therapy affecting cough should take into account age characteristics and the etiology of cough. In case of prolonged cough, unjustified treatment with antibiotics leads to an increased risk of developing resistance to antibacterial drugs. Codeine-containing drugs, given their potential side effect in the form of respiratory depression and opioid toxicity, are not recommended for use in children under 12 years of age. An alternative in the treatment of cough are herbal preparations with a complex effect: anti-inflammatory, bronchodilator, expectorant and mucolytic.

Keywords: chronic cough, acute cough, children, mucociliary clearance, herbal medicine.

INTRODUCTION

Cough is a common problem in childhood, which leads to frequent visits to the pediatrician, affects the quality of life, and also brings material losses to the family and society [1]. Cough is a non-specific symptom of various diseases. In pediatric practice, cough is most often associated with acute respiratory infections, which can be observed in children up to 5-8 times a year [2]. In more than 90% of children, cough caused by ARVI passes by the third week of illness [3]. However, in some cases, cough can be observed in children for a longer period or be recurrent. 50-70% of children under 1 year of age and 30-60% of school-age children consult pediatricians with this problem [3].

MATERIALS AND METHODS

When examining patients with cough, the most common causes of recurrent cough may be bronchial asthma, prolonged bacterial bronchitis, chronic ENT diseases, gastroesophageal reflux, as well as increased bronchial reactivity after respiratory syncytial

rhinovirus or whooping cough infections [4]. In a study conducted in Leicestershire (United Kingdom) [2], 22,840 children aged 1 to 17 years were examined. In addition to age, gender, and ethnicity, factors such as low birth weight, maternal or other relatives smoking, child's attendance at preschool institutions, parental education and family income, and family history of allergic diseases were taken into account. When assessing cough, provoking situations were taken into account: physical activity/play, laughing/crying, reaction to house dust or pollen, presence of pets, reaction to food/drinks.

RESULTS AND DISCUSSION

The protective mechanisms are cough, anatomical and aerodynamic barriers and immune mechanisms. The surface of the respiratory tract is lined with ciliated epithelium and covered with a layer of mucus; the coordinated interaction of these components ensures effective mucociliary clearance. Some environmental factors can affect mucociliary clearance: for example, at low temperature and humidity, ciliary cells reduce their activity and mucociliary clearance slows down, which contributes to the development of infections. Conversely, high humidity increases mucociliary clearance. With a change in mucus viscosity, which is observed in patients with bronchial asthma and cystic fibrosis, the rate of mucociliary clearance also decreases [4]. Cough as a protective mechanism is directly related to mucociliary clearance and is an important link in the local respiratory protection system in combination with the tracheobronchial epithelium. The most common cause of acute cough in children is viral or viral-bacterial infections of the upper respiratory tract, which are accompanied by a disruption of the formation and evacuation of tracheobronchial secretions (excessive formation and/or increased viscosity of bronchial secretions) and, as a consequence, a disruption of mucociliary transport [8]. In the early stages, when infectious agents penetrate the mucous membrane of the respiratory tract, a protective reaction is manifested in the form of hypersecretion of more viscous mucus with increased adhesive properties, the functional activity of the ciliated epithelium decreases, which leads to a disruption of mucociliary transport. A decrease in the production of secretory immunoglobulin (sIg) A, interferon, lactoferrin and lysozyme is also noted. Thus, favorable conditions are created for the colonization of the bronchi by pathogenic microflora and the development of bronchial obstruction. In this situation, cough is an effective mechanism for the sanitation of the tracheobronchial tree [9]. It should be remembered that the effectiveness of cough in children, especially at an early age, depends on the severity of the cough reflex, bronchial patency, and the viscosity of bronchial secretions [3].

Approaches to the treatment of cough in children with ARI are still controversial. Respiratory diseases are the most common reason for prescribing antibiotics in primary care, although their prescription is not always justified. Unjustified treatment with antibiotics increases the risk of developing resistance to antibacterial drugs [4]. Codeine-containing drugs, given their potential side effects in the form of respiratory depression and opioid toxicity, are not recommended for use in children under 12 years of age [2]. Some studies [3] have shown that in the treatment of acute cough against the background of acute respiratory infections in children, the use of anti-inflammatory and antihistamine drugs has the same effectiveness as placebo. Bronchodilators (beta2-agonists are also not effective in acute cough in children without asthma) [4]. Another study showed that honey relieves cough symptoms to a greater extent than placebo and dextromethorphan, and also has a better effect on the duration of cough than placebo and salbutamol [5]. However, it should be taken into account that the use of honey can cause allergic reactions, especially in children under 1 year of age.

Mucolytic therapy is an important task in the complex treatment of respiratory diseases in children, the choice of drug should be individual, taking into account the age characteristics of the child's body and drug tolerance. Among the mucolytic drugs in pediatric practice are expectorants of reflex action, mucolytics,

secretolytics, mucoregulators, and combination drugs. British pediatric guidelines for the use of cough medications say that children under 6 years of age should not use drugs containing brompheniramine, chlorphenamine maleate, diphenhydramine, doxylamine, promethazine, triprolidine (antihistamines); dextromethorphan or pholcodine (cough remedies); guaifenesin or ipecac (expectorants) without a prescription. Combination drugs can be used in children aged 6–12 years for no more than 5 days. Also, 2 or more cough medications cannot be used simultaneously [2]. It is known that the use of synthetic drugs for the treatment of cough in children is often associated with high risks of side effects, or drugs are limited in use for pediatric practice. Therefore, for the treatment of acute cough in children, it is advisable to use official herbal preparations of complex action due to their effectiveness and safety. For example, the medicinal properties of thyme and ivy in the treatment of cough have long been known. A herbal preparation, which includes liquid extracts of thyme herb (Thymus vulgaris) and ivy leaves (Hedera helix), is Bronchipret syrup (approved for use in children from 3 months of age). The tablet form contains dry extracts of thyme and primrose root (Primulae radix).

CONCLUSION

Thus, the treatment of cough in children is a pressing issue in pediatrics. Cough can be a symptom of a very large number of diseases, and timely diagnosis of the underlying disease is important. In the case of respiratory infections, cough is a protective reaction of the body. Drugs that suppress the cough reflex should be used sparingly in children. Herbal preparations are a safe and effective alternative in the treatment of cough in children.

REFERENCES

1. Thompson M., Cohen H.D., Vodicka T.A., Blair P.S., Buckley D.I., Heneghan C., Hay A.D. Duration of symptoms of respiratory tract infections in children: systematic review. BMJ. 2013;347:f7027. doi: 10.1136/bmj.f7027.

2. Jurca M., Ramette A., Dogaru C.M., Goutaki M., Spycher B.D., Latzin P. et al. Prevalence of cough throughout childhood: A cohort study. PLoS One. 2017;12(5):e0177485. doi: 10.1371/journal.pone.0177485.

3. Safina A.I. Cough in children with a cold: effectiveness and new possibilities of herbal medicine. Medical Council. 2019; (2): 90–94. doi: 10.21518/2079-701X-2019-2-90-94.

4. Chang A.B., Robertson C.F. , Van Asperen P.P., Glasgow N.J., Mellis C.M., Masters I.B. et al. A multicenter study on chronic cough in children: burden and etiologies based on a standardized management pathway. Chest. 2012;142(4):943–950. doi: 10.1378/chest.11-2725.

5. Chen X., Peng W.-S., Wang L. Etiology analysis of nonspecific chronic cough in children of 5 years and younger. Medicine. 2019;98(3):e13910. doi: 10.1097/MD.0000000000013910.