SMALL AIRWAY DYSFUNCTION AND THE POSSIBILITY OF ITS CORRECTION IN ASTHMA

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Abstract. Background. Although randomized controlled trials have shown that asthma control is an achievable goal, real-life studies over the past 20 years have shown that asthma remains poorly controlled in a significant proportion of patients, even among those receiving treatment at asthma specialist, and in patients with mild asthma who regularly take inhaled corticosteroids. Even when asthma control is achieved, it is not optimal on all GINA steps. The small airways have been recognized as the primary site of airflow limitation in asthma.
The aim of the work: to study, according to the literature, the peculiarities of the dysfunction of the small airways in asthma and to evaluate the possibilities of its treatment.
Materials and methods. Scientific articles that covered the pathophysiology of small airways disorders, their impact on asthma control, diagnostic methods, and pharmacological treatment methods were analyzed.
The results. Airways with an internal diameter < 2 mm, which do not contain cartilage in their walls and extend from the 8th generation of the airways to the periphery of the lung, are collectively called "small airways". They are called the QUIET ZONE because they are difficult to assess and treat in patients with asthma who are not optimally controlled but have relatively normal FEV_1 and disproportionate small airways dysfunction (SAD). Predominant in patients at all stages of treatment, associated with poor disease control. The ATLANTIS study showed that up to 91 % of patients with asthma have. The small airways have a high density of corticosteroid and β_2-adrenoceptors, which means that they can be influenced. The main task is that the drugs should reach these small airways. Conventional inhalers that generate particles larger than 2 μm do not address the problem of SAD in patients with asthma. Inhaler devices that produce ultrafine particles of inhaled corticosteroids alone or in combination with long-acting β-agonists with a diameter of less than 2 μm have the potential to improve long-term asthma control along with a corresponding improvement in small airway function. The fixed combination of beclomethasone dipropionate with formoterol has optimal deposition in the respiratory tract — central pulmonary deposition accounts for 66 %, and peripheral — 34 % of the dose, thus the drug is delivered to both the central and peripheral respiratory tracts and affects inflammation and bronchoconstriction throughout the lungs. This is facilitated by MODULITE technology. The effectiveness and safety of the use of the BDP/F combination (Foster) in MART regimen is confirmed by a significant evidence base, which guaranteed its place in the Track1 treatment of asthma.
Conclusions: Patients with asthma have a serious inflammatory process in the peripheral airways, which makes them the main site of obstruction in asthma; SAD predominates in patients at all stages of asthma, is associated with poor disease control, is responsible for air trapping, correlates with poor asthma control1, and predicts an increased risk of exacerbations in patients. The fixed combination of beclamethasone/formoterol in one inhaler (Foster) is the only extrafinely dispersed fixed combination of ICS/LABA that reaches the small airways; the fixed combination of BDP/Formoterol in the MART regimen provides a significant reduction in the frequency of severe complications, hospitalizations, emergency calls, and reduces the number of courses of systemic corticosteroids.

Key words: asthma, small airways, combined therapy.