

# PRESCRIBING PECULIARITIES AND EFFICACY OF BUDESONIDE NEBULIZER THERAPY IN PATIENTS WITH LUNG DISEASES

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**Abstract.** Due to inflammatory nature of many respiratory diseases, the basis of their treatment is anti-inflammatory therapy with glucocorticosteroids. The route of drug delivery in lung pathology is logically based on the inhalation, therefore anti-inflammatory therapy with inhaled corticosteroids (ICS) is the basis of basic therapy for bronchial asthma (BA), is prescribed to relieve symptoms of BA as part of combination drugs, and has also found wide application for the nebulize treatment of asthma exacerbations. There are clinical situations when the use of usual inhalers with ICS is impossible, thus there are indications for the nebulizers usage. Budesonide suspension for nebulization is the only ICS approved for use in children under 4 years of age (from 6 months) both in Ukraine and abroad.

**The aim:** to study the prescribing peculiarities and efficacy of budesonide nebulizer therapy in patients with lung diseases by the literature data.

**Materials and methods.** A search for sources in scientific databases was conducted using the keywords "budesonide" and "nebulizer" and "efficacy" and "safety" in Ukrainian and English. Publications were screened first by titles, and then by abstracts. The criteria for selecting articles were clarity of definition of concepts and coverage of the purpose of the work.

**Results.** Extensive clinical experience with budesonide nebulizer therapy evidences its high efficacy and safety. Budesonide has anti-inflammatory effects, reduces airway hyperreactivity, and inhibits goblet cell function and sputum hyperproduction, thereby affecting the main links in the asthma pathogenesis. The molecular structure of budesonide, unique pharmacokinetic and pharmacodynamic properties, relatively low lipophilicity and high water solubility of budesonide, lower volume of distribution in combination with rapid systemic elimination are responsible for faster absorption in the lung tissue and low risk of side effects. The ability of budesonide to undergo partial esterification increases lipophilicity in the target tissue, prolongs the duration of its action and expands the effectiveness and selectivity in the respiratory tract. Budesonide in nebules currently available on the market are not the same, which is due to the characteristics of the suspensions. In micronized budesonide, Budixon Neb, half of the budesonide particles are larger than 2 microns, and 90 % of the weighed particles do not exceed 3.82 microns. Micronized budesonide has a higher degree of budesonide micronization and a higher emission of the drug from the membrane nebulizer, which contribute the greater deposition in the respiratory system and reduce drug losses.

**Conclusions.** Budesonide is the most universal ICS and applicable for nebulization in infants or frail elderly patients. Budesonide is the first-line treatment for stenosing laryngotracheitis in children. Among modern ICS, budesonide has the fastest onset of action and is currently the most commonly used ICS for nebulization in emergency care.

**Key words:** budesonide, nebulizer, efficacy, safety, bronchial asthma.