EXPERIENCE OF APPLICATION OF NEBULIZER THERAPY WITH DECASAN IN PATIENTS WITH INFECTIOUS EXACERBATION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN THE CONDITIONS OF PULMONARY UNIT

S.V. Kovalenko

Regional Clinical Hospital, Chernivtsi

Resume. Experience of practical application of domestic antiseptic drug product of decamethoxine – Decasan, which possesses a wide spectrum of antimicrobial action – for treatment of patients with infectious exacerbation of chronic obstructive lung disease is outlined in the article. Inclusion of Decasan inhalations in the complex of treatment of such patients contributes to more rapid clinical remission of a disease, and also reduces the term of hospital stay.

Keywords: *decamethoxine, Decasan, nebulizer therapy, chronic obstructive pulmonary disease.*

INTRODUCTION

Nebulizer therapy plays an important role in the treatment and post-hospital rehabilitation of patients with bronchopulmonary diseases at all stages of medical care delivery. It could be applied both in the stable stage of respiratory diseases and in their exacerbations [3].

At the stage of hospital stay, nebulizer therapy takes one of the leading positions in terms of treatment of patients with the respiratory pathology. It relates to the usage of such drug products as mucolytics, bronchial spasmolytics, anti-inflammatory and antibacterial medicinal products.

Taking into account that the pathological process is localized in the respiratory tract, inhalation is considered to be the most effective mode of administration of the medicinal products in bronchopulmonary diseases. At this, 'first-pass' effect and decrease of drug activity in the liver are excluded. A substantial advantage of the inhalation therapy is a high concentration of medications in the respiratory airway at insufficient overall drug quantity and low systemic concentrations of the drug substance.

Drug substances in aerosols applied as inhalation influence on larger part of mucous membrane surface of the respiratory tract that leads to the increase in pharmacological activity of drug products and rapid onset of therapeutic effects. Moreover, a medicinal product is applied to the mucous membranes of the upper respiratory airway and lung in a chemically more active form due to dispersion form of aerosol. For nebulizer therapy, antibacterial products – antituberculous, broad-spectrum antifungal agents and antiseptics are used [4].

One of the actual aspects of application of the nebulizer therapy is administration of antimicrobial agent inhalations for treatment of patient with infectious exacerbations of COPD (chronic obstructive pulmonary diseases). As it is known, a domestic product of decamethoxine – Decasan (YURIA-PHARM) – exhibits high antibacterial activity [2]. Decamethoxine, which exerted the bactericidal effect at a concentration of 0.9 mcg/ml, exhibited the highest antistaphylococcal activity. Fecal streptococcus died in the presence of the drug product at a concentration of 3.9 mcg/ml. *Enterobacteria* family occurred to be the most susceptive to chlorhexidine bigluconate and decamethoxine activity. These drug products at concentrations of 3.9 and 15.6 mcg/ml, respectively, inhibited the growth of *Escherichia*. *Proteus* and *Salmonella* died in the presence of these substances at a concentration of 7.8 mcg/ml. Decamethoxine demonstrated high antimicrobial activity against spore formers. Thus, in *B. anthracoides* culture, bactericidal activity has

been revealed at the concentration of 0.2 mcg/ml of decamethoxine. The same product at the concentration of 7.8 mcg/ml demonstrated fungicidal activity against yeast-like fungi of *Candida* family [1, 2]. Results of the antiviral activity of decamethoxine deserve special attention. Moreover, Decasan increases susceptivity of the antibiotic-resistant microorganisms to the antibiotics, positively influences on the natural and specific immunologic responsiveness, it also exhibits desensitizing and anti-inflammatory activity. It is interesting to mention that one of the experiments revealed spasmolytic effect of the drug product, which approximates that of drotaverine [2].

STUDY OBJECT AND METHODS

56 patients with COPD (treatment group) in the exacerbation (infectious) period received treatment in the pulmonary unit of Chernivtsi Regional Clinical Hospital. Along with the basic treatment (bronchial spasmolytics, intravenous antibiotics and mucolytics), the patients received Decasan inhalations. Inhalations were administered as follows: 3 ml of 0.02 % solution of Decasan at ambient temperature through a compression nebulizer 2 times a day in a 7-day regimen. To make comparison, 44 patients with COPD of the respective age and severity level in the period of infectious exacerbation (fever, pyoptysis) were included into the control group.

RESULTS AND DISCUSSION

After treatment completion, the general state of the patients in both groups improved. However, in patients from the treatment group, intoxication events disappeared more rapidly, sputum took form of mucosal nature, dyspnea decreased, and exercise tolerance also improved.

Addition to the complex of COPD treatment of Decasan inhalations contributed to a faster elimination of bronchospasms and respiratory obstruction, and allowed to improve indices of non-specific resistance of the organism. The fever period in patients from the treatment group reduced to 1.8 ± 0.31 days versus 2.4 ± 0.41 days in the control group. Moist rales disappeared 4.5 ± 0.52 days after Decasan inhalation administration. In the group of patients who did not receive Decasan this period increased to 7.6 ± 0.43 days. At that, hospital stay period for the patients of the treatment group was reduced on the average by 4 days versus the control group. The obtained findings allowed to develop the efficient treatment schedule for the patients with the respiratory diseases, in particular COPD, by adding Decasan inhalations to the therapy complex.

CONCLUSIONS

1. Nebulizer therapy with antimicrobial Decasan is one of the efficient methods of inhalation treatment of patients with infectious exacerbations of COPD.
2. Administration of Decasan inhalations in COPD has no adverse reactions and allows to reduce the period of exacerbation elimination and to use the bed space more effectively.
3. Inclusion of the nebulizer therapy with Decasan into the practice of specialized pulmonary units will increase the efficiency and shorten the inpatient stay period for patients with respiratory pathology.

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