The aim of the study was to improve the treatment of acute obstructive bronchitis at infants by optimizing the anti-inflammatory therapy based on the evaluation of it's clinical, immunological and molecular genetic efficiency.

Materials and methods. We have examined 80 children aged from 6 months to 3 years old with acute obstructive bronchitis. Patients were divided into two groups. The children of the first group (n=40) received systemic corticosteroids, the children of the second group (n=40) received inhaled corticosteroids. We determined the concentration of total IgE, content of IFN-γ, IL-4 and IL-13 in serum by ELISA and the expression of the transcription factor NF-κB in lymphocytes of peripheral blood by flow cytometry at all the children before the treatment start and after the therapy end.

Results. Most of the children, who were examined, had been admitted to the hospital on the second or third day of the disease. They had functional disorder of breathing due to respiratory ventilation failure degree I-II by the obstructive type and moderately expressed catarrhal and intoxication syndrome. The content of inflammatory cytokines in serum and the level of activity of the transcription factor NF-κB almost correlated with the reference value. It emerges that acute obstructive bronchitis accompanied mostly local, not systemic changes in immune status. It was shown that the positive impact of the activity of transcription factor NF-κB had almost the same force on the concentration of both IFN-γ and IgE in serum (r =+0.41, r =+0.36, respectively). During treatment with using systemic corticosteroids respiratory disorders were managed within 4.3±0.3 days. The cough became productive at 3.4±0.2 days of treatment at 65% of our observations. Dry

wheezing and wet microvesicular crepitations were heard over the lungs for 2.2±0.3 and 4.9±0.4 days respectively. The duration of intoxication syndrome was 2.6±0.2 days. Clinical improvement of patients accompanied by significant and paradoxical increase in the content of IL-12 to 211.11±21.09 pg/ml ($p \leq 0.05$) in serum. During treatment using inhaled corticosteroids respiratory disorders were managed within 2.8±0.3 days ($p > 0.05$ compared to patients of the first group). The dynamics of cough and auscultation picture were the same as in the first group. Leveling symptoms of intoxication was observed at 2.7±0.3 day of treatment ($p > 0.05$). At the same time during therapy with inhaled corticosteroids there was a significant decrease in the concentration of IgE to 6.58±0.73 IU/ml ($p \leq 0.05$) in serum and increased number of lymphocytes expressing NF-κB (52.43±5.95; $p \leq 0.05$). Under the influence of either systemic corticosteroids or inhaled corticosteroids, the impact of the transcription factor NF-κB on proinflammatory cytokines content disappeared. During treatment using systemic corticosteroids IL-13 suppressed the activity of the transcription factor NF-κB. Also, significant positive effect of IL-13 on the concentration of IL-4 ($r = +0.37$; $p \leq 0.05$) and IL-12 ($r = +0.37$; $p \leq 0.05$) appeared. Applying the inhaled corticosteroids led to the disappearance of significant relations between the content of different molecular pro-inflammatory components, which evidenced the suppression of inflammation as an integrated process.

Conclusions. The transcription factor NF-κB, having substantially the same impact on the IFN-γ concentration and IgE in serum, defines the features of inflammation, which has predominantly local nature, during acute obstructive

bronchitis. Corticosteroids therapy promotes the disappearance of the effect of NF-κB on the content of pro-inflammatory cytokines. Inhaled corticosteroids, in addition, lead to a reduction in the concentration of IgE in the blood and inhibit the activity of pro-inflammatory intracellular cascades. High clinical efficiency and safety profile prove the feasibility of their use in the treatment of acute obstructive bronchitis at infants as the drugs of pathogenetic therapy.