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FEATURES OF OBSTRUCTIVE SYNDROME IN
SCHOOL-AGE CHILDREN WITH ACUTE BRONCHITIS

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The deterioration of the child population health of Ukraine registered in recent years. It has been largely due to different diseases with the first place of respiratory pathology. Acute bronchitis (AB) is one of the common presentations in any children age. In every year about 5% of the children population reports an episode of acute bronchitis. Acute bronchitis is the result of acute inflammation of the bronchi secondary to various triggers, most commonly viral infection, rarely bacterial, allergens, pollutants and other. Inflammation of the bronchial wall leads to mucosal thickening, epithelial-cell desquamation, and denudation of the basement membrane. At times, a viral upper respiratory infection can progress to infection of the lower respiratory tract resulting in acute bronchitis. Like most of the viral diseases of the respiratory tract, AB is commonly seen during the autumn and winter season. The common pathogens are a respiratory syncytial virus, influenza and parainfluenza virus, rhinovirus and other. When the infection is bacterial, the isolated pathogens are usually the same as those responsible for community-acquired pneumonia. Acute bronchitis occurs more frequently in comparison to bronchiolitis and pneumonia in pediatric practice. For severity of disease assessment several scales are available. The BSS-ped (bronchitis severity scale) an observer-rated assessment scale is suitable for all age groups and it records three major symptoms of acute bronchitis..

Objective of the study was to assess peculiarities and grade of obstructive syndrome in children with acute bronchitis. In total 98 children in age 7-15 years were examined, 75 with obstructive syndrome and 23 without it. The children were treated in pediatric division of children hospital with acute bronchitis and had no chronic diseases. The study includes assessment of resting anthropometric data, tests for the functional state of the cardiovascular system (breath-holding hypoxic tests Stange and Genchi), spirometry, pulseoxymetry. The BSS-ped used with assessment of following three items: coughing, pulmonary rales at auscultation, and dyspnoea. Their presence is to be assessed in each case according to a 5-point scale: 0 = absent, 1 = mild, 2 = moderate, 3 = severe, 4 = very severe, and total score that can amount to between 0 and 12 points and should indicate the overall severity of AB. Statistical analysis conducted with program Statistica.

In the patients subgroup with AB and obstructive syndrome of I-II degree the average score of coughing was 2.82 ± 0.05 , pulmonary rales at auscultation – 2.36 ± 0.04 , dyspnoea – 1.08 ± 0.04 and total BSS index – 6.26 ± 0.11 units. In subgroup without obstructive syndrome the average score of coughing was 2.39 ± 0.09 , pulmonary rales at auscultation – 1.91 ± 0.05 , dyspnoea – 0.39 ± 0.06 and total BSS index – 4.69 ± 0.09 units. Age and sex in both subgroups had no correlation with the symptoms or the BSS-ped total score. Oxygen saturation (by pulseoxymetry) plays an important role in judging the severity of the disease along with the pulse rate, temperature, dyspnoea and had clear correlations with BSS index ($r = -0.36$, $p < 0.05$). Also BSS-ped index had correlation with some spirometry data - predicted forced expiratory volume at 1 sec (FEV1%) ($r = -0.43$, $p < 0.05$), the ratio of FEV1 to forced vital capacity (FEV1/FVC) ($r = -0.39$, $p < 0.05$) and residual volume ($r = -0.26$, $p < 0.05$).

Thus, obtained results indicate BSS-ped scale usefulness for severity of acute bronchitis obstruction assessment in pediatric clinics. The scale is very simple and could be use in dynamic for treatment correction in children with AB.