



Significant risk factors for AKI in term neonates following multivariate analysis were mother's age more than 35 years (OR 3.21; 95% CI 1.08, 9.54), chronic urinary pathology (OR 2.53; 95% CI 1.05, 6.13), and gestational pyelonephritis (OR 11.8; 95% CI 1.33, 105.36).

In the multivariate logistic analysis, infertility (OR 11.07; 95% CI 1.30, 94.18), twins (OR 4.82; 95% CI 1.44, 16.07), hydramnion (OR 117.51; 95% CI 2.16, 141.77), anemia (OR 3.14; 95% CI 1.64, 5.99), isthmiccervical insufficiency (OR 17.51; 95% CI 2.16, 141.77), premature rupture of membranes (OR 2.47; 95% CI 1.05, 5.84), abruptio placentae (OR 3.15; 95% CI 1.09, 9.13), chorioamnionitis (OR 5.48; 95% CI 1.07, 28.04) were associated with a greater risk of AKI in preterm neonates.

Thus, 5-year retrospective single-center study showed that risk factors of neonatal AKI are often present in patients of our NICU in both term and preterm neonates. AKI in the neonatal period is frequently associated with negative prenatal conditions, especially in group of preterm neonates. A multiple-center national study is planned with the intention to confirm these results.

Ben Othmen Mabruk

DIAGNOSTIC VALUE OF RUFFIER AND BREATH-HOLDING TESTS

*Department of Pediatrics, Neonatology and Perinatal Medicine,
Higher State Educational Establishment of Ukraine
"Bukovinian State Medical University"*

The deterioration of the child population health of Ukraine registered in recent years. It has been largely due to different diseases. But other factors such as body overweight, insufficient physical activity with reduction in cardiorespiratory fitness and low tolerance for physical loading are a strong predictor of cardiovascular events and respiratory diseases in future. There are a lot of the complex, ambiguous and difficult to perform functional diagnostic methods which may reveal a decrease in cardiorespiratory function reserves and an increase in the risk of diseases. But it is also possible to evaluate optimal efficiency of cardiovascular system by making the easy functional tests. One of them is the Ruffier test, which is simple to perform and with sufficient rate of reliability. We could assess the functional state of the cardiovascular system and readiness of child organism for physical loading. Other simplest tests include breath-holding hypoxic Stange and Genchi probe. They make it possible to evaluate a person's adaptation to hypoxia and hypoxemia, and give some idea of the body's ability to withstand oxygen deficiency. Persons with high levels of Ruffier and hypoxemic tests, better tolerate physical activity and have lower risk of cardiovascular and respiratory events.

Objective of the study was to examine the relationship between a Ruffier and breath holding tests in healthy children. In total 78 children in age 7-15 years were examined. The children did not have chronic diseases and the majority of them led a healthy lifestyle. The study includes assessment of resting anthropometric data, physical activity habits, tests for the functional state of the cardiovascular system and readiness of child organism for physical loading (Ruffier and breath-holding hypoxic tests Stange and Genchi). Statistical analysis conducted with program Statistica.

Children were asked to sit and rest for 5 minutes. Resting heart rate (HR) was collected at the end of 5 minutes (P1). The HR before testing in average was 80.6 ± 1.28 beat per minute. Immediately after performing 20 squats in 60 seconds in average HR (P2) was 120.4 ± 1.52 beat per minute and recovery post-test level HR (P3) was 86.8 ± 1.37 beat per minute. Based on the three HR measurements, the Ruffier Index (RI) was calculated and average level was 8.75 ± 0.32 units. By the assessment scale children were belonged to four groups: persons with excellent endurance (RI from 0 to 5) were absent, with good endurance (RI from 5 to 10) were 60 persons (76.9%), with moderate endurance (RI from 10 to 15) were 14 persons (17.9%) and with poor endurance (RI from 15 and up) were 4 persons (5.2%). The average level of breath-holding test Stange was 37.0 ± 1.8 sec (with range from 13 to 76 sec) and Genchi – 22.2 ± 1.3 sec (with range from 13 to 49 sec). Test Stange has negative correlation with RI ($r = -0.31$, $p < 0.05$).

By analyzing data all children were divided in two groups according to median of RI (8.0). A better RI correlated with lower body mass index (15.9 kg/m^2 against 17.3 kg/m^2), higher level of



physical activity, better breath-holding tests Stange (33.3 sec against 30.6 sec) and lower systolic blood pressure (97.3 mm Hg against 102.0 mm Hg). Both tests could be executed anywhere and in a short period of time. They could be use for assessment of tolerance for physical loading but they measure different process: RI – heart tolerance, breath-holding tests – cardiorespiratory readiness with oxygen supplying.

Bilous T.M.

PHENOTYPE-ORIENTED TREATMENT OF BRONCHIAL ASTHMA IN CHILDREN DEPENDING ON THE TERM OF ONSET OF THE DISEASE

Department of Paediatrics and Children Infectious Diseases

Higher State Educational Establishment of Ukraine

“Bukovinian State Medical University”

To determine and analyze the efficacy of rapidly relieving therapy during exacerbations and basic anti-inflammatory treatment in the period of bronchial asthma (BA) remission in school children with alternative phenotypes of the disease by the time of its onset.

Keeping to the principles of bioethics a comprehensive retrospective examination of 50 school children suffering from BA was performed. The patients were divided into two clinical groups depending on the term of the onset of the disease. The first (I) clinical group included 25 children with the early onset phenotype of BA (EOP – under 3 years of age), and the second (II) group (comparison) included 25 patients with BA of a late onset (LOP – older than 5-6-years of age).

Inconsiderably pronounced syndrome of bronchial obstruction during admission regarding exacerbation of BA was found to occur in patients with BA phenotype of a late onset (12,1 against 11,7 points, $P > 0,05$). Attributive risk (AR) of more severe course of BA attack in children with LOP concerning the patients with manifested symptoms of the disease to six years was 11,0%, relative risk (RR) - 1,25 (95% CI: 0,64-2,42) and odds ratio (OR) - 1,56 (95% CI: 0,42-5,82). Therefore, with EOP daily symptoms of BA occurred 4 times as frequent and night symptoms – twice as frequent in comparison with the patients from II clinical groups. Thus, AR of more than one episode of daily symptoms during a week among the school children of I clinical group concerning the patients with symptoms manifested after six years of age was 28,0%, RR - 1,44 (95% CI: 0,40-5,17) and OR - 6,47 (95% CI: 1,23-34,01). In case of EOP a higher risk of frequent night symptoms of BA occurred: AR – 12,0%; RR – 1,16 (95% CI: 0,44-3,04) and OR – 2,32 (95% CI: 0,51-10,54). According to a worse control over BA symptoms among the representatives of I group the risk of situational use of rapidly acting β_2 -agonists increased: AR – 20,0%; RR – 1,63 (95% CI: 0,94-2,81) and OR – 2,30 (95% CI: 0,73-7,27). Therefore, the patients with early onset phenotype of BA have the risk of a worse control over asthma symptoms, in particular, the chances of more frequent daily episodes were 6,5 times as much, night symptoms and situational use of bronchodilators – 2,3 times as much. Although by the frequency of restriction of physical activity there was no difference found in the groups of comparison.

To assess the efficacy of the phenotype-oriented basic treatment of BA the anamnesis of the disease of patients from the clinical groups of comparison was carried out, which demonstrated that in spite of indicated basic therapy during three late months, children developed exacerbations requiring hospitalization into a specialized department. A part of patients suffering from BA with exacerbations was 1,8 times less among the patients with EOP and was $32,0 \pm 9,3\%$ cases, and among school children with LOP – $56,0 \pm 9,9\%$ cases ($P > 0,05$). AR of the control loss over BA and occurring exacerbations in the representatives of II group concerning patients with EOP was 24,0%, RR – 1,54 (95% CI: 0,82-2,90) with OR – 2,70 (95% CI: 0,85-8,57). Thus, the patients with manifestation of BA symptoms after the age of six years were characterized by 2,7 times higher risk of hospitalization concerning exacerbations of the disease.

While indicating relieving therapy regarding exacerbation of bronchial asthma on admission the patients with EOP should be recommended to take more aggressive symptomatic therapy since the first day of hospitalization; and children with the first onset of the disease after the age of six higher