- Rotavirus infection evolved as mono-infection in 67.3% of cases and mixed-infection in 32.7% of cases. It is associated with severe respiratory infections and pathogenic enterobacterial infections in both groups where severe clinical forms were recorded. These circumstances call for differentiated approaches in the treatment of rotavirus infection identified separately and in combination with other pathologies.

- The results of the study reconfirmed the necessity to implement the Rotarix vaccine containing genotypes G4, G2, G9 through the National Immunization Program (2012) to reduce the burden of rotavirus infection on the health system in the Republic of Moldova.

Key words: diarrhea, rotavirus, children, infants.

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PROCALCITONIN CAN STRATIFY SEVERITY OF INFECTION IN EMERGENCY DEPARTMENT

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Procalcitonin (PCT) is a diagnostic marker of severe bacterial infection and sepsis. C-reactive protein (CRP) has been shown by several studies to have a low correlation with the severity of illness, while PCT was shown to have higher sensitivity and specificity for infection than CRP. It is also claimed that it reflects severity, progression, and prognosis of the disease better than CRP and also give indications of necessity and duration of antibiotic therapy. Also, monitoring the kinetics of the PCT concentration under antibiotic therapy can adequately display the progression of the systematic inflammatory response and be an indication of the effectiveness of treatment. Furthermore, PCT permits the evaluation of patient risk with respect to mortality and success of treatment. CRP has been employed as an objective marker of disease, but experience has shown that it almost never changed significantly. We have investigated if PCT could be a better marker of disease course and lead to better decision making in the Emergency department (ED).

Materials and Methods: Patients with various infections treated and observed in the ED, University Hospital Centre Zagreb were included into the study. CRP and PCT were measured before initiating treatment and before discharge from the ED; minimum time difference was set to 6 hours, maximum stay in the ED is 24 hours. Admission/discharge decisions were based blinded to PCT test results and patients were evaluated by a different medical team as having favourable or unfavourable disease course regardless of the admission decision. Patients who were identified as being treated in the ED because of lack of beds on the wards were excluded. Data were analyzed with non-parametric tests.

Results: 273 patients were included in the study during the first seven months, but after excluding patients with missing data, short observation (<6 h) or those just waiting for a ward bed, 178 patients entered the analysis, of which data of 87 was fully analyzed. There were 110 patients with favourable disease course, of which 36 were among admitted patients. Initial CRP was significantly higher in patients with unfavourable outcome: median 297.9 vs. 134.7; P<0.001. Change in CRP did not differ between two subgroups of patients. Initial PCT values were significantly higher in patients with unfavourable course: median 1.08 vs. 0.13 µg/L, P<0.001. Change in PCT also differed significantly between patients with favourable and those with unfavourable course: median -0.02 vs.0.34 µg/L respectively; P=0.027. If a combined criterion for admission:
initial PCT > 0.30 µg/L or PCT change > 0.07 µg/L is applied, sensitivity for unfavourable course is 89.2%, specificity 83.8%, negative predictive value of 91.7%. If this combined criterion was applied to the tested population, the number of admitted patients with favourable course could be halved.

Conclusion: PCT can be used as a marker of disease course in patients diagnosed with infections in emergency departments, lowering the number of unnecessary admissions, without missing admission of patients with severe disease course. Further investigations in process and additional data will further clarify this issue.

THE RELATIONSHIP BETWEEN DEXOXYRIDINOLINE AND MINERAL DENSITY OF BONE TISSUE IN ADOLESCENTS

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The aim of the study was to identify the main indicators of the state and markers of bone metabolism among children and their significance in practice. Osteopenic Syndrome is a common problem of public health, which is often underestimated. Development of the osteopenic syndrome may be result of imbalance between processes of bone formation and bone resorption. Concentration of parathyroid hormone increases with a compensatory mechanism, with prolonged development, this condition leads to a decrease in bone mass and osteoporosis.

It is known that bone mineral density (BMD) is affected serum intact parathyroid hormone (PTH) levels and is the basis of the cross-links of collagen in the bones which are considered to be an adequate marker of resorption of deoxypyridinilone (DPID) in the urine. The relationship between PTH and DPID with BMD has not been studied in adolescents in Kazakhstan. Differences in PTH levels and DPID as affect BMD among healthy teenage children of Kazakhstan were studied.

Materials and Methods. The total study group consisted of 110 teenage children, of which 63 were girls and 47 - boys aged 12-17 years. In the course of this study, anthropometric, densitometric and biochemical studies were carried out. Densitometric study was performed using an ultrasonic osteodensitometer (SONOST-3000, South Korea) to determine the mineral density of bone tissue, namely the calcaneus. Further, biochemical measurements included parathyroid hormone (PTH) in serum and deoxypyridinoline (DPID) in urine. According to the content of PTH, they were divided into three groups: the first group with low PTH, which had PTH < 1.6 pmol / L; a group of normal reference PTH 1.6-6.9 pmol / l; and a group with high PTH > 6.9 pmol / L. According to the content of DPID, respectively. Statistical analysis was performed using STATISTICA 10 software.

Results. The average values of BMD, that is, Z-Score - 1.97 ± 0.89 which indicates a decreased BMD. According to biochemical data, DPID is 11.7 ± 5.6 nmol / L and PTH 3.1 ± 1.2 pmol / L within normal limits. Among the examined adolescents with low PTH, 5.5%; with high PTH 1%; and the remaining percentage ratio of 94% indicates the normal range, nevertheless, a decreased BMD in all groups is noted. With a high DPID of 4%; low DPID was not detected; 96% of adolescents have a normal level of DPID. Spearman’s correlation analysis revealed a significant correlation between PTH and DPID r = 0.4 (p < 0.05), DPID and BMD r = -0.3 (p < 0.05), an insignificant correlation between PTH and BMD r = - 0.14. In a multiple regression analysis adjusted for potential risk factors, it was shown that DPID is associated with serum PTH (DPID = 6.98 + 1.56 * PTH).