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.

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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).

This study showed a significant inverse relationship between DPID and BMD among Kazakh adolescents. Study demonstrated lower bone density in adolescents who had a higher level of DPID.

Key words: *BMD, bone metabolism, adolescents*

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FEATURES OF BONE REMODELING IN TYPE 2 DIABETES, COMBINED WITH OSTEOARTHRITIS

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Comorbidity as the coexistence of two or more diseases in one patient, pathogenetically and genetically interconnected - is a fairly common phenomenon in the general population. Combination of diabetes mellitus type 2 with osteoarthritis causes formation of certain pathogenetic mechanisms that can provoke development of osteodeficiency. Given metabolic disorders in diabetes, involvement of the musculoskeletal system in the pathological process, presence of other potential factors associated with osteodeficiency, bone tissue can be considered as a target organ for type 2 diabetes. There is evidence that in patients with osteoarthritis over the age of 50 years, about five diseases are simultaneously diagnosed. So, according to the results of the study conducted in 2005 by R. Caporali and co-authors, 52% of patients with osteoarthritis had hypertension, 21% - osteoporosis, 15% - diabetes mellitus type 2, 12% - chronic obstructive pulmonary disease, 9% - coronary artery disease, 6% - peptic ulcer [1]. Based on this, osteoporosis in patients with comorbid pathology may be a complication of a combined course of illness, or vice versa, will cause a tandem of certain nosologies. Laboratory diagnostics of bone metabolism disorders is preferred method for identifying pathologies at an early stage. Bone remodeling is determined by two main processes - bone formation and resorption, the activity of which is normally equal. Osteodeficiency as insufficient bone formation or excessive bone resorption may be evaluated with markers of bone remodeling. The aim was to study the features of bone remodeling in patients with type 2 diabetes mellitus and concomitant osteoarthrosis.

Materials and Methods. The study included patients with diabetes mellitus type 2 in combination with osteoarthritis. Diagnostic criteria for osteoarthritis were the criteria of the American Rheumatologic Association (the presence of the first (46,2%) and the second (53,8%) X-ray stage of osteoarthritis, the classification J.H. Kellgren and J.S. Lawrence). Bone homeostasis was assessed by the activity of a marker of bone formation (bone isoenzyme of alkaline phosphatase - BIAF,%) and a marker of bone resorption (TRKF - tartrate-resistant acid phosphatase, U/L) by biochemical method.

Results. Comprehensive examination of 39 patients (17 men and 22 women) with type 2 diabetes combined with osteoarthritis was performed. The average age of patients was 52±7.6 years. To obtain normative indicators, a group of practically healthy patients (20 people) of the corresponding age was examined. In order to study the effect of the degree of carbohydrate metabolism compensation on bone remodeling, patients were divided into two subgroups - 25 patients with controlled glycemia (glycosylated hemoglobin index <7%) and 14 patients with uncontrolled glycemia HbA1**C>**7%). A study of the state of bone remodeling revealed its multidirectional changes, which was manifested by a moderate decrease in the activity of bone formation against a background of a significant increase in the activity of bone resorption. In all examined patients, decrease in the activity of the bone fraction of alkaline phosphatase by