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CORRELATIONS BETWEEN 25(OH)D, MARKERS OF BONE TURNOVER AND ANTHROPOMETRIC DATA IN WOMEN OF MIDDLE AND OLD AGE

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The aim of our study was to evaluate levels of serum 25(OH)D, markers of bone turnover, calcium (Ca), phosphorus (P) and anthropometric data in Belarusian women of middle and old age as well as links between this indicators.

Materials and methods: 384 women aged from 45 to 86 years (mean age 61.4; 8.3 years) were examined. Determination of serum 25(OH)D, ß-crosslaps and osteocalcin by the method of electrochemiluminescence (Cobas e411, Roche Diagnostic) and the content of total Ca and inorganic P in biochemical analysis was carried out from November 2011 to December 2012. Levels of vitamin D was considered as normal for the value of 25(OH)D >30 ng/ml, showings of 25(OH)D 20–30 ng/ml was considered as vitamin D insufficiency, <20 ng/ml as vitamin D deficiency, <10 ng/ml as severe deficiency. Medical history was taken using a specially designed questionnaire. Statistical analysis was performed using Statistica 6.0, differences were significant at $p<0.05$.

Results: Normal levels of vitamin D was detected in 86 (22 %) of the examined women, 129 (34 %) of them had vitamin D insufficiency, 121 (32 %) and 48 (13 %) - deficit and severe deficit of vitamin D. Woman with normal values of vitamin D (group I, n 86) had statistically significant differences from women with varying degrees of failure (group II, n 298) by weight (69.1; 10.8 and 75.3; 15 kg), BMI (26.9; 3.6 and 29.5; 5.8), serum P (1.2; 0.2 and 1.3; 0.3 mmol/l), respectively. Women with severe vitamin D deficiency had statistically significant lower serum Ca (2.52; 0.18 mmol/l) compared to those with normal value of 25(OH)D (2.66; 0.25 mmol/l). There were no differences in the showings of ß-crosslaps and osteocalcin in the studied groups. Analysis of questioning revealed that women who took vitamin D supplements at the dose more than 400 IU/day for at least 3 months (n 155) had higher levels of 25(OH)D than those who did not (n 229): 29.8; 8.9 and 20.4; 11.7 ng/ml respectively. There was observed statistically significant correlation between 25(OH)D and duration of vitamin D supplementation: Pearson linear correlation coefficient was 0.48.

Conclusion: Deficiency of vitamin D in Belarusian women of middle and old age is widespread and is associated with higher BMI, lower serum values of P and Ca, women who regularly take vitamin D supplements have higher levels of 25(OH)D which correlates with duration of intake.