DIETARY CONSUMPTION OF CALCIUM AND VITAMIN D BY RESIDENTS OF THE WESTERN REGION OF BELARUS

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Objectives. One of the environmental factors influencing the formation of the skeleton, prevention of osteoporosis and a number of other diseases is adequate diet containing sufficient amounts of calcium (Ca) and vitamin D.

Aim. The purpose of the study was to assess dietary consumption of Ca and vitamin D by residents of the Western

Region of Belarus.

Materials and methods. 279 individuals (238 females and 41 males) aged 53.03±8.23 years underwent questionnaire survey containing photos of foods and dishes as well as detailed description of their diet within three days before the study. Dietary consumption of proteins, fats, carbohydrates, some mineral substances such as Ca, magnesium (Mg), phosphorus (P) and vitamins including vitamin D was assessed by the computer program “Test of rational diet ” (Kiev, Ukraine). Serum and urine levels of Ca and P were evaluated by the spectrophotometric method. We also assessed height, body mass (m) and calculated body mass index (BMI). Statistical analysis of the results was done by using «STATISTICA 7.0».

Results. Males daily consumed more ($p<0.05$) proteins 68.94 [49.69;89.16] mg/day, carbohydrates 205.0 [130.4;265.6] mg/day and P 1096 [879.9;1413] mg/day as compared to women. Protein consumption showed correlation relationships ($p<0.05$) with the consumption of all the studied micronutrients and vitamin D (R=0.26; $p=0.00001$). Carbohydrates consumption correlated with dietary vitamin D (R=0.12; $p=0.045$), Ca (R=0.33; $p<0.0001$), Mg (R=0.71; $p<0.00001$), P (R=0.626; $p<0.00001$) and inversely correlated with plasma level of Ca (R=-0.20; $p=0.003$). 154 individuals had BMI <30 kg/m^2 and in 125 individuals BMI was ≥30 kg/m^2. Those suffering from obesity consumed daily less ($p=0.009$) vitamin D than normal subjects – 0,22 [0.12;0.68] and 0.38 [0.18;1.62] mcg/day correspondingly. Correlation relationships were found between m and consumption vitamin D (R=-0.11; $p=0.05$). Given the fact that only 5.4% of the respondents received minimally sufficient amount of vitamin D (more than 5 mcg/day) all subjects were divided into two groups by the median of consumption: ≥0.4 mcg/day (N=161) and <0,4 mcg/day (N=119). The groups differed significantly ($p<0.05$) by m and BMI (28.94±5.0 and 30.63±5.76 kg/m^2), as well as by consumption of proteins, fats, Ca, Mg, P.

Average consumption of Ca was 510 [374,7;676,5] mg/day. While dividing the respondents into groups with sufficient ≥1000 mg/day (N=14; 5.3%) and insufficient <1000 mg/day (N=265) daily Ca consumption we determined that those consuming ≥1000 mg/day Ca also consumed more (*p<0.05*) proteins, fats, carbohydrates, Mg, P. Daily Ca consumption showed correlation relationships with dietary fats (R=0.41; *p<0.00001*), vitamin D (R=0.32; *p<0.00001*), Mg (R=0.45; *p<0.00001*), P (R=0.645; *p<0.00001*). Calciuria was present more often (*p=0.04*) in males (13.95% cases) than in females (7.6% cases) and correlated with m (R=0.152; *p=0.023*) and urinary P (R=0,24; *p=0.001*).

Conclusions. Thus, most residents of the Western Region of Belarus (94.7%) demonstrated marked daily deficit of dietary Ca and vitamin D, especially those with obesity, which was closely related with their dietary consumption of proteins, fats, carbohydrates, Mg, P.

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SPOŻYCIE CA ORAZ WIT. D W DIECIE WŚRÓD MIESZKAŃCÓW ZACHODNIEJ CZĘŚCI BIAŁORUSI

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Słowa kluczowe: *wapń, witamina D*