

# VITAMIN D DEFICIENCY IN PATIENTS WITH OSTEOPOROSIS

V Środkowo Europejski Kongres Osteoporozy i Osteoartrozy oraz XVII Zjazd Polskiego Towarzystwa Osteoartrologii i Polskiej Fundacji Osteoporozy, Kraków 20-21.09.2013

**Streszczenia:**

Ortopedia Traumatologia Rehabilitacja 2013, vol 15 (Suppl. 2).str 114

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**Keywords:** *vitamin D, osteoporosis, bone, fracture*

**Objectives.** Vitamin D is important for calcium absorption and bone mineralization which is positively associated with bone mineral density. There is a direct relationship between BMD and fracture risk, with a decrease in bone strength and density associated with an increased incidence rate of fractures. Given the relationship between vitamin D and bone mineralization, optimal vitamin D status is essential for minimization of fracture risk.

**Aim.** The aim of study was to determine the frequency of vitamin D-deficiency and insufficiency in patients with osteoporosis.

**Materials and methods.** There were examined 283 patients with systemic osteoporosis aged 40-94 years who were treated

in department of age-related changes of musculoskeletal diseases D.F. Chebotarev Institute of gerontology. The average age of women –  $65.26 \pm 0.60$  yrs, men –  $65.25 \pm 2.12$  yrs. 25(OH)D and iPTH level was evaluated by electrochemiluminescence method (Elecsys 2010, Roche). Vitamin D deficiency was defined as level of 25(OH)D below 50 nmol/l, and vitamin D insufficiency as concentration of 25(OH)D of 50–75 nmol/l. Bone mineral density was measured by DXA.

**Results.** The study shows that vitamin D deficiency was diagnosed in 80.7% patients with systemic osteoporosis, insufficiency – in 11.5% examined. Secondary hyperparathyroidism was diagnosed in 13.9% cases. It was found significant correlations between 25(OH)D amount and bone mineral density at the level of Ward's zone ( $r=0.14$ ,  $p<0.04$ ), trochanter ( $r=0.18$ ,  $p<0.01$ ), proximal femur ( $r=0.16$ ,  $p<0.02$ ), lower extremities ( $r=0.14$ ,  $p<0.04$ ), forearm 33% ( $r=0.13$ ,  $p<0.05$ ). 82.2% patients with low-energy fractures has got vitamin D deficiency. In examined with vertebral fractures deficiency of vitamin D was registered in 86.5%.

**Conclusions.** The revealed high frequency of vitamin D deficiency in patients with systemic osteoporosis make doctors to pay attention to 25(OH)D status and update the doses of vitamin D supplements in Ukraine.

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**NIEDOBORY WITAMINY D U PACJENTÓW Z OSTEOPOROZĄ**

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**Słowa kluczowe:** witamina D, osteoporoza, kość, złamanie