

CORRELATION BETWEEN VITAMIN D DEFICIENCY AND HIP FRACTURE SEVERITY IN SENIORS IN GREECE

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Aim: Several studies support that vitamin D levels are associated with hip fracture severity.

Material-Method: This cross-sectional study included 61 consecutive individuals over 65, with mean age 83.39, admitted to authors hospital for osteoporotic hip fracture over a year. Demographic data, fracture type, fracture severity were evaluated, while 25-hydroxy vitamin D was measured by the enzyme-linked immunosorbent assay. We defined the severe subcapital fractures those with grade 3 or 4 according to Garden classification, while severe intertrochanteric fractures were defined those with grade A2.2, A2.3 and all A3 fractures according to AO/OTA classification. Intertrochanteric hip fractures predominated, after being found to be 44, while subcapital hip fractures were 17. The vast majority of men had intertrochanteric fracture (9/10), while women in 30% of cases had subcapital (15/50) fractures. We found out that intracapsular fractures ($8,09 \pm 4,74$ ng/ml) are associated with more severe vitamin D deficiency compared with the intertrochanteric fractures ($9,3 \pm 8,5$ ng/ml). The severe hip fractures were 40 of 61, to wit 65,6%. The vitamin D levels in patients with severe fracture were $8,1 \pm 7,6$ ng/ml, while in cases with not comminuted fractures the vitamin D levels were higher ($10,7 \pm 7,4$ ng/ml). It is noteworthy that 31 out of 40 cases (77,5%) of severe comminuted fractures revealed vitamin D levels less than 10 ng/ml and only 9 cases had vitamin D levels more than 10 ng/ml. On the other hand, the group with stable hip fractures had 47,6 % of cases with vitamin D more than 10 ng/ml and only 52,4 % less than 10 ng/ml. Correlation between fracture severity and status of vitamin D levels according to Horlick classification (<10ng/ml, 10-20ng/ml, 20-30ng/ml, >30ng/ml) with Spearman's equation is very close to statistical significance, as the p-value was found to be 0,059.

Conclusions: Although vitamin D levels are not very different between patients with intracapsular or extracapsular hip fractures, a more severe vitamin D deficiency seems to be associated with more severe osteoporotic hip fractures. A prior vitamin D supplementation could restrict the severity of these fractures. Comminuted fractures are associated with fixation difficulties rehabilitation restrictions and finally functional disability. Authors suggest vitamin D measurements regardless of annual insolation, to identify and counsel the elderly with an increased risk of a severe comminuted hip fracture.

References:

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