Falls, fractures and trauma

VITAMIN D, PARATHYROID HORMONE AND LENGTH OF STAY IN HIP FRACTURE PATIENTS

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Introduction: A recent Australian study found that secondary hyperparathyroidism (SHPT) was associated with a greater length of stay (LOS) after hip fracture (HF), irrespective of vitamin D levels (Fisher A. et al. Calcif Tissue Int. 2009;85:301-9). We report associations between parathyroid hormone (PTH), 25-OH vitamin D levels and LOS for HF patients admitted to a UK District General Hospital.

Methods: A retrospective analysis using data collected for the UK National Hip Fracture Database from HF patients admitted to Conquest Hospital, combined with blood results including PTH, 25-OH vitamin D, calcium, albumin and creatinine. LREC approval reference: 14/LO/0159.

Results: 408 patients were admitted to Conquest Hospital with HF between August 2012 and January 2014; their average age was 83 (47–104) years, 74% of them were female. 25-OH vitamin D was measured in 307 of these patients (75%), 243 of whom also had PTH measured (60%). PTH was significantly correlated with 25-OH vitamin D: p < 0.001. 63% of these patients were vitamin D deficient (25-OH vitamin D <30nmol/l), 46% of whom showed SHPT (PTH >72ng/l, the upper limit of normal for our laboratory). In agreement with the Australian study, a greater LOS was found in those with SHPT compared to those whose PTH was in the normal range (p = 0.004). In contrast to the Australian findings our patients with 25-OH vitamin D levels below 50nmol/l also had significantly greater LOS compared to those with 25-OH vitamin D levels >49nmol/l (p = 0.006). In those with 25-OH vitamin D <50nmol/l there was no significant difference in LOS between normal and raised PTH sub-groups. However in those with 25-OH vitamin D levels >49nmol/l, a raised PTH was significantly associated with a greater LOS (p = 0.042).

Conclusion: These results suggest that both low vitamin D and SHPT contribute to poor outcome after HF but may act by different mechanisms.