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Femoral Bone Cortical Thickness (FBCT) in patients with Chronic Obstructive Pulmonary Disease (COPD) and hip fracture: Role of comorbidities and lifestyle characteristics

Abstract:

Aim: To evaluate in COPD patients with hip fracture (HF) factors affecting the FBCT, a new and simple tool to assess skeletal status.

Methods: In 426 patients with COPD and HF (mean age 80.5 years, 295 females) and 106 healthy controls (mean age 32.0 years, 45 females) FBCT was measured at 3 cm and 10 cm from the greater trochanter. Data were correlated with 19 comorbid and lifestyle characteristics, 2 bone turnover markers (β-CTX, P1NP) and 5 bone-related parameters (PTH, 25 OH-vitamin D, calcium, phosphate, magnesium)

Results: In patients and controls, FBCT at both levels was significantly lower in females than in males. Low FBCT (lower than lowest quartile in controls) was found in 79% of male and 67% of female patients, and this proportion increased in parallel with the number of comorbidities, in males: from 7.7% (no comorbidities) to 44.3% (with ≥3 comorbidities) and in females from 3.7% to 36.3%, respectively. The highest number of low FBCT demonstrated males with stroke (85.7%), anaemia (80.0%) and walking aids users (81.3%), and females with a transient ischemic attack (TIA, 86.4%), stroke (77.1%) and excessive alcohol users (77.8%). Bone turnover marker (β-CTX) was significantly associated with low FBCT. Multivariate analysis identified cardiovascular disease, diabetes, TIA and smoking as independent determinants of low FBCT.

Conclusion: In COPD patients with HF, the FBCT is sex-dependent and significantly influenced by type and number of comorbid conditions, frailty, alcohol overuse. FBCT together with comorbid and lifestyle characteristics can help in assessment and prediction osteoporotic fractures risk.

Biography

Htoo Myat was originally from Myanmar and earned his primary medical degree from University of Medicine 1, Yangon, Myanmar in 2007. He migrated to Australia in 2013 and is currently working as a final year Geriatric Medicine Trainee in John Hunter Hospital, New South Wales, Australia. As part of his training, Htoo Myat has conducted a research project on femoral bone cortical thickness in COPD patients with hip fracture, and the findings have been presented locally and internationally. He has also contributed to a scoping review on adult patients with de novo glomerular diseases following COVID-19 infection or vaccine.