Risk Factors for Spontaneous Long Bone Fractures in Long Term Care residents: A 7-year Prospective Cohort Analysis

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Introduction
Spontaneous long bone fractures are associated with significant morbidity and mortality in long term care residents and with high associated healthcare costs. Currently there is lack of data on the risk factors associated with bone fractures in the local population of long term care residents.

Objectives
To identify the risk factors for bone fractures in long term care residents so that prevention strategies can be developed.

Methodology
This is a prospective cohort study with 7 years of follow up. 333 long –term care residents were followed for fracture after baseline assessment. Long bone fracture ascertained by assessment of an orthopedic doctor with x-ray confirmation. Information on residents’ demographics, degree of limb spasticity as measured by the Modified Ashworth Scale (MAS), passive range of joint movement (PROM) of the major joints, social support, medical co-morbidities, nutritional status, disability level, toileting patterns, use of restraints, mental status, clinical data, laboratory results and medications was collected at baseline. Univariate and multiple Cox proportional hazard regression were used to identify predictors of spontaneous long bone fractures.

Result
333 residents were included in the analysis. There were 13 fractures (3.9%) during the follow-up period. The site of fractures was femur in 9 residents (69%) and humerus in 4 residents (31%). In univariate analysis, there were only two risk factors for bone fractures in seven years: mode of feeding (oral feeding) (P=0.063) and lower
BMI (P=0.03). Multivariate analysis revealed only one independent predictor of fracture: a BMI <18.5 (hazard ratio: 3.41; P =0.047) The results showed that improving nutrition in long term care residents should be a major target in fracture prevention programs. Moreover, long term care residents who oral-fed themselves seems more likely to have lower BMI which may predispose them to subsequent bone fractures.