

Concurrent Session 12: Nutrition for the elderly

High incidence of vitamin B12 and vitamin D deficiencies in the elderly

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Background – Malnutrition is common in the elderly. Vitamin B12 is of particular interest as deficiency is linked to chronic diseases including dementia, osteoporosis, stroke and macular degeneration.

Objective – To examine the extent and determinants of malnutrition, including micronutrient deficiencies in an aged care rehabilitation unit.

Design – Patients (n=67, age >60 y) admitted to Calvary Health Care Sydney, underwent screening using the Mini Nutritional Assessment (MNA) and a modified MNA (mMNA) incorporating Australian protein and anthropometric indices. Biochemical screening assessed protein and micronutrient status. A sub-group of patients (n=22) underwent additional investigations to determine vitamin B12 status, as assessed by methylmalonic acid (MMA) and homocysteine concentrations, and dietary intake using a semi-quantitative food frequency questionnaire (FFQ).

Outcomes – Eighteen and 27% of patients were malnourished as determined by the MNA and mMNA, respectively, with both tools indicating 61% of patients were at risk of malnutrition. Twenty-six subjects (38%) were deficient in vitamin B12 (based on values <220 pmol/L) and 53 subjects (79%) were deficient in vitamin D (<50 nmol/L). A positive correlation was found between serum folate concentrations and the mMNA score (r= +0.28, P<0.05). Hyperhomocysteinemia (>12 µmol/L) was found in 73% of subjects (n=16), and was significantly associated with lower serum- and erythrocyte-folate concentrations. Thirty-six percent (n=8) of subjects had elevated MMA indicating cellular vitamin B12 deficiency, but all had serum vitamin B12 in the normal range. All subjects had adequate intakes (>77% 1991RDI) of vitamin B6, B12 and folate.

Conclusions – The present study highlights malnutrition, vitamin D and vitamin B12 deficiencies in subjects with normal serum vitamin B12 levels. This study supports routine screening and appropriate supplementation of micronutrients.

Risk factors for falls and fractures in aged care residents: can improving nutrition better the odds?

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Background – Falls and fractures are common in aged-care residents and are a costly health burden. Sub-optimal nutritional intake, especially that of calcium, protein and vitamin D may contribute to fragility fractures and falls risk either by directly affecting metabolic process or functions, or by affecting body composition.

Objectives – To determine the risk factors for falls and fractures in ambulatory aged care residents.

Design – Cross sectional analysis of 82 aged care residents (mean age 86.2 yrs) from 18 hostels in Melbourne. Nutrient intake was determined from 3 day weighed food intake. Bone mineral density (BMD) was ascertained using DXA. Balance, leg strength and functional capacity were measured using established methods. Blood samples were drawn and analysed for 25(OH) vitamin D, PTH, creatinine, albumin, and bone metabolism. Medical records were reviewed to determine medication use, medical conditions and fracture history. Prospective falls data was collected over a 12-month period.

Outcomes – Over the 12 months, falls were reported in half of residents, with 100 falls recorded. One third of residents had a history of fractures. Mean calcium (668 mg/day) and protein (0.82 g/kg BW) intakes were below recommended levels. 34% had vitamin D levels below 30 nmol/L. Residents with a history of fractures consumed less calcium and had less lean mass, after adjusting for size (P<0.05). Fracture sufferers had reduced leg strength, lower femoral neck BMD (P<0.05) and tended to have reduced functional capacity (P< 0.1). Fallers were heavier and had a higher BMI than non-fallers (P<0.05), and tended to demonstrate more body sway (P< 0.1). Those with vitamin D levels below 30 nmol/L tended to have lower functional capacity and more body sway (P<0.1).

Conclusion – Risk factors for falls or fractures appear to differ. The potential for vitamin D to improve balance and functional capacity and calcium to reduce fracture risk in this group, warrants further investigation. Protein intake was not related to falls or fractures in this group. However, frank protein deficiency may contribute to risk factors.