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No effect of Proton Pump Inhibitor (PPI) medications on vitamin B$_{12}$ status in elderly rehabilitation patients. Is there a dietary component?

F O’Leary$^{1,2}$, J Wai$^1$, L Wormald$^1$, J Bennett$^2$, P Petocz$^3$, V Flood$^1$, AS Truswell$^1$, S Samman$^1$

$^1$Human Nutrition Unit, School of Molecular and Microbial Biosciences, University of Sydney,  
$^2$Calvary Health Care Sydney, $^3$Department of Statistics, Macquarie University

Background – PPI medications that are used to treat oesophageal reflux disease have been shown in some studies to adversely affect vitamin B$_{12}$ status, mainly due to its decreased absorption, but there have been no investigations into the contribution of the background diet.

Objective – To compare the dietary intakes and vitamin B$_{12}$ status in PPI users compared to non-users.

Design – Cross-sectional study of elderly rehabilitation inpatients. Diet was assessed by food frequency questionnaire and blood samples collected for the analysis of serum vitamin B$_{12}$, serum and red blood cell folate, plasma total homocysteine and methylmalonic acid (MMA) concentrations.

Outcomes – PPI users (n=27) had significantly higher serum vitamin B$_{12}$ ($P=0.049$) and dietary calcium intakes ($P=0.008$) compared to non-users (n=23). The length of time on PPI medications was not related to markers of vitamin B$_{12}$ status, but was mildly correlated with dietary calcium intake ($r=0.4$, $P<0.01$). PPI users of > 1 year had similar serum vitamin B$_{12}$ concentrations but significantly higher dietary calcium intake compared to controls ($P<0.05$). In subjects with vitamin B$_{12}$ status in the normal range, total calcium intake (diet and supplements) wascorrelated with serum vitamin B$_{12}$ concentrations ($r=0.33$, $P<0.05$). Folate status and plasma homocysteine concentrations were similar in the two groups.

Conclusions – Use of PPI did not affect vitamin B$_{12}$ status in this population. PPI users had a higher dietary calcium intake, and calcium intake was correlated with serum vitamin B$_{12}$ concentrations in non-deficient subjects. Additional research is needed to investigate the effect of calcium on the absorption of vitamin B$_{12}$.

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Micronutrient status of an elderly population in a poor peri-urban settlement in South Africa

WH Oldewage-Theron$^1$, FO Samuel$^1$

$^1$Institute of Sustainable Livelihoods, Vaal University of Technology, South Africa

Background – Elderly people in low-income communities are particularly vulnerable to malnutrition. Empirical data about the micronutrient status of elderly people living in resource-poor settings in South Africa is lacking. Data are needed to suitably address any deficiencies particularly within the local context of this increasing elderly population.

Objective – Performing dietary and biochemical assessments to determine the nutritional status of elderly persons attending a day-care centre in Sharpeville, South Africa.

Design – Cross-sectional, descriptive study of 170 randomly selected elderly people out of a total of 300 attending a care centre in Sharpeville. The methods included 24-hr recalls for dietary intake, weight and height measurements, and venous blood samples for biochemical indicators.

Outcomes – The mean age of the subjects was 71.7 years. The main source of food intake was carbohydrates. Mean daily micronutrient intakes (mean ± SD) were deficient for vitamin A (649.2±1689.0 µg), vitamin C (38.3 ± 73.4 mg), iron (6.0 ± 3.4 mg), iodine (33.4 ± 52.6 µg), thiamine (0.7 ± 0.4 µg) and selenium (30.2 ± 35.0 µg). The mean values of all the biochemical indices assessed were within the normal range, except for zinc 61.8 ± 8.5 µg/dL (9.4 ± 1.3 µmol/L), with 76.3% of the subjects having zinc values less than the cut-off of 70 µg/dL (10.7 µmol/L).

Conclusions – These findings suggest poor dietary intake and zinc deficiency among these elderly. Sustainable community-based interventions are needed to address the nutritional vulnerability in this community.