

Plasma vitamin D and cholesterol status in ethnic elderly

M Watts¹, M Bermingham², K Brock¹, A Cassettari¹, D Fraser³, B McGann¹, MT Trang¹

¹School of Community Health, Sydney University, East St., Lidcombe, NSW 2141;

²Department of Biomedical Sciences, ³Department of Animal Sciences

Over the last 25 years, low vitamin D status among housebound elderly has been reported in many countries, including Australia(1). This deficiency in the elderly may go undetected as the effects may be attributed to the general effects of ageing.

In this cross-sectional study 70 free living elderly from a frail aged day care centre and a Vietnamese Community Group were surveyed. An intervention sub-study of sun exposure was carried out in the Vietnamese elderly. Fasting venous blood samples were taken for analysis of 25-hydroxy vitamin D (25-OHD), total cholesterol (TC), high density lipoprotein (HDL) and triglyceride(TG). Dietary and vitamin intakes of vitamin D and calcium were assessed by a food frequency check list and other behavioural risk factors were assessed by questionnaire.

Vitamin D status at the end of summer was below the normal range-(**low** =25-OHD < 25 nmol/L) in:

17% of Northern European ,
22% of Vietnamese and
48% of the Middle Eastern population

compared to those born in Australia :

34% of Nursing Home residents,
25% of Hostel residents and
20% of those in self care .

The mean value of 25-OHD in Northern European was 52±27 nmol/L (n=18),
Vietnamese and 35±13 nmol/ (n=31),
Middle Eastern 34±33 nmol/L (n=21)

compared to those born in Australian

Nursing Home 33±18nmol/L (n=81),
Hostel 36±16nmol/L (n=55),
Self Care 44±24nmol/L. (n=48).

Middle Eastern elderly were 3.5 (1.4-9.0) times and Vietnamese elderly 2.6 (1.1-6.9) times more likely to have **borderline** vitamin D status (< 37 nmol/L) than Australians.

The only significant difference in lipid metabolic profiles (TC,HDL,TG) by ethnic background was in HDL levels where those of Middle Eastern background had a mean HDL of 1.0 ± 0.3 compared to HDL 1.3 ± 0 .5 mmol/Lfor the other ethnicities (p=0.007). In contrast to the results reported in the Australian elderly population (1) sun exposure was not found to have a confounding effect on vitamin D status in those born outside Australia. Vietnamese had lower body mass index and dietary calcium intake and they exercised and smoked more than Australians. The Middle Eastern population consumed more calcium, alcohol and cigarettes and had higher body fat percent. As none of these differences explained the low vitamin D status we hypothesise that the difference in vitamin D status by ethnicity may be explained by cultural differences in exposure of skin to the sun and skin pigmentation. We have confirmation of this in data from 19 Vietnamese elderly who were asked to increase their sun exposure by at least half an hour a day. This intervention (at the end of summer) resulted in an average rise of 3nmol/L of 25OHD (p= 0.047).

1.Brock KE, Reid JF Fraser DR. Effect of type of accomodation on the vitamin D status of the elderly in Sydney, Australia Proc 10th Int Workshop Vit D Strasbourg 1997;236.