



Vitamin D deficiency: a Public Health Problem in Oman



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Background

Vitamin D deficiency

- World wide prevalence
- Leads to development of Osteoporosis and Osteomalacia / Rickets.
- A risk factor for developing cancers, infections, Diabetes Mellitus, Cardiovascular Diseases¹.

Oman

- A Sunshine rich, Middle East Country.
- Lower mean Bone Marrow Density in Middle East Countries compared to US/European reference data².
- High prevalence of Osteoporosis and Hip fracture³.
- Modern Indoor Lifestyle
- Traditional dress restricts Sun Exposure; covering among women is common.
- No previous data on Vitamin D status of Omani population.

Introduction

- A cross-sectional household-based survey of micronutrient status was conducted in 2004 by the Ministry of Health, Sultanate of Oman, with support from the Centers for Disease Control and Prevention, UNICEF and WHO
- The survey acquired demographic and food consumption information along with collection of food and venous blood samples for various micronutrient testing.

Objectives

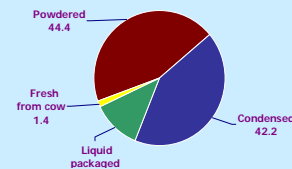
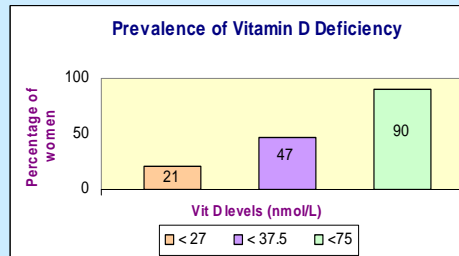
To estimate Vitamin D deficiency prevalence among non-pregnant Omani Women of child bearing age

Methods

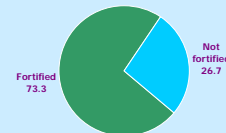
- Cross-Sectional Household Survey: Fifty four clusters selected using proportion to population size (PPS) with 16 households per cluster.
- Only Omani households with a woman of reproductive age or a preschool child were included.
- Household questionnaire included age, income, work status, marital status, family size, food habits and practices, use of milk, cooking oil, ghee etc.
- Venous blood was collected and serum was stored at -70°C.
- 25-OH Vitamin D₃ was analysed by HPLC with UV detection.
- Vitamin D deficiency was defined as serum level <27 nmol/L)

Results

- Analysis limited to 48 clusters with information on 298 women.
- 21% of the women had vitamin D deficiency(Level < 27nmol/L).
- Almost half of the women tested had serum vitamin D level below 37.5nmol/L while only 10% had level above 75nmol/L.
- No significant difference of prevalence of deficiency among different groups by age, marital status, education, occupation or income.
- There were Regional differences in the prevalence rate.
- Most of the households (95%) are using cooking oil.
- There are some milk and oil products in the Omani Market labelled as fortified with Vitamin A and D.



Proportion of households by type of milk, Oman 2004



Proportion of households with milk fortified by vitamins

Conclusion & Recommendations

- There is a Public Health Problem of Vitamin D Deficiency among Omani Women of Childbearing Age.
- Vitamin D status of other segments of the Omani population need to be assessed.
- More studies are required to find relationship of the deficiency with diet and sun exposure
- Public Health Measures should be implemented to improve the vitamin D status of the population.
- Supplementation and/or fortification of food with vitamin D should be considered. Oil and milk are very commonly used and would be appropriate food for fortification.
- Communication campaign to improve awareness on sunshine exposure are recommended.
- Vitamin D content and population coverage of the products fortified with vitamin D should be assessed.

References

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Collaborators

- Department of Nutrition, Ministry of Health, Sultanate of Oman
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- U.S. Centers for Disease Control and Prevention
- UNICEF – Oman
- World Health Organization – Eastern Mediterranean Regional Office

The findings and conclusions in the poster are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention or of the other organizations involved.