Short Communication

Maternal Postpartum Vitamin A Supplementation Programme: Is there a need in Pakistan?

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Abstract

Maternal postpartum vitamin A supplementation is a safe and effective practice to replenish maternal vitamin A stores after delivery and in addition to provide the breastfeeding newborn with sufficient vitamin A. This strategy has been implemented in many countries around the world where Vitamin A deficiency (VAD) is prevalent. Recently, this supplementation has also been suggested by the Ministry of Health, Pakistan. In the light of literature available to date on VAD, we have attempted to appraise the need for this supplementation in Pakistan.

Introduction

Maternal vitamin A supplementation, in mega doses of 200,000-400,000 IU, in the postpartum period provides both the mother and her breastfeeding infant sufficient vitamin A to last the initial six months of life. Since high doses of vitamin A in early pregnancy can be potentially teratogenic, it should be administered as early after delivery as possible.[1]

World Health Organization classifies Pakistan as having 'Serious sub-clinical vitamin A deficiency'. In published literature, some information exists on vitamin A status of Pakistani children but there is a dearth of information on the status of Pakistani women, especially the pregnant and lactating women.

Methodology and Results

We found about a dozen relevant articles on 'pub med' by using key words 'Pakistan', 'VAD', 'Vitamin A' and 'Vitamin A supplementation'. After reviewing these articles we have attempted to answer the question whether postpartum vitamin A supplementation is needed in Pakistan or not?

Vitamin A Assessment Studies in Children

Vitamin A deficiency (VAD) is a widespread public health problem among children in developing countries. The National Nutrition Survey of Pakistan, (2001-02) identified 10.9% of the urban and 13.5% of the rural population as being vitamin A deficient, giving an overall prevalence of 12.5%. Children under 5 years and residents of urban slums were found to be particularly vulnerable.[2-7]

A study conducted by Molla et al in 1993[5] assessed the Vitamin A status of children in Karachi urban slums (6-60 months, n=532) by utilizing clinical eye examinations, dietary information and serum Retinol levels. They categorized serum retinol levels of the children as, adequate (20 µg/dl), low (10-19 µg/dl) or deficient (< 10 µg/dl). About 51% of the children had adequate serum retinol levels, whereas low and deficient levels were found in 46% and 2%, respectively. Out of the twelve children with deficient levels two had healed corneal scars, depicting a clinically apparent prior deficiency.[5] Khan I. et al in another study reported VAD prevalence of 18% in 4-8 year old anemic primary school children residing in Karachi slums.[6]

In a hospital based case series in Peshawar, 154 children up to 15 years of age were suffering from clinical vitamin A deficiency. Among them 94 (61%) children also

had blinding Xerophthalmia.[7]

Evidence of VAD in women

Plasma vitamin A and ß carotene levels in maternal and cord blood were analyzed by Ibrahim K. et al in 200 term women in Karachi. Sixty-four percent had vitamin A levels at lower limits of normal (< 33 µg %) and 26% had deficient and low levels of ß carotene. Cord blood values of plasma vitamin A and ß carotene were 13.7 µg% and 16.5 µg%, respectively. Mothers who had adequate levels of vitamin A (> 33 µg %) reported significantly higher intake of vitamin A and their newborns had significantly higher levels of vitamin A in cord blood as compared to mothers with inadequate levels.[8]

The existence of a local term for 'night blindness' in a community has been identified by WHO as an indicator of vitamin A deficiency.[9] Presence of a local word, facilitates in collecting information about night blindness during pregnancy by utilizing standard questionnaires, thereby helping in estimating the burden of vitamin A deficiency in the community.

A qualitative study conducted in Gadap town Karachi, observed night blindness during pregnancy, which is an indicator of low vitamin A levels, in three out of four communities surveyed. Furthermore, various local terms have been coined for 'night blindness' in communities residing in Gadap town. One ethnic group uses the term 'Chaya' or 'shadow' while another group calls it 'Shafkoor' or the 'inability to see at night'.[10]

Conclusion

Vitamin A has a significant role in proper regulation of immunity. VAD in the mother makes her more susceptible to common infections due to low immunity. Repeated infections lower serum vitamin A and further accentuate the deficiency.

Furthermore, a deficient mother cannot provide sufficient vitamin A to the baby during pregnancy and lactation.[9] Even in well nourished mothers newborn's own vitamin A supplies last for only about two weeks.[11]

VAD in children makes them more susceptible to repeated infections. Infections lead to a transient depression in plasma retinol levels, thus operating in a vicious circle.[2] In severe deficiency, clinically apparent eye signs like Xerophthalmia, corneal ulcerations and opacities etc. are observed. These eye complications, if left untreated can lead to permanent blindness.[9] In short, VAD makes children more vulnerable to infections, thus contributing to infant morbidity and mortality.

Postpartum vitamin A supplementation, when implemented, can help improve the vitamin A status of both the mother and the infant. But before a supplementation program is implemented, more comprehensive assessment of current vitamin A status of the mothers, both pregnant and lactating is necessary. The articles discussed above provide evidence that deficiency exists, but most of these studies depict the vitamin A status of children and women residing in the peri-urban areas. Since nutritional and socio-economic factors influence vitamin A status, additional studies that look at maternal vitamin A levels, both in rural and urban areas are needed, before embarking upon a program that attempts to deliver mass supplementations to postpartum mothers all over the country.

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