PREVALENCE OF RIBOFLAVIN DEFICIENCY AMONG FILIPINO PREGNANT WOMEN

MICHAEL E. SERAFICO, REVELITA L. CHEONG (MS PUB HEALTH), MA. ISABEL Z. CABRERA (MS NUTR), LEAH A. PERLAS (MS HUMAN NUTR) AND JUANITA R. MADRIAGA

Background: Studies of riboflavin requirements have focused primarily on the occurrence of signs of clinical deficiency. Food consumption data consistently showed that among the nutrients, the RNI for riboflavin was the least adequately met. The 1993 4th National Nutrition Survey biochemical assessment of riboflavin status using the erythrocyte glutathione reductase activity coefficient (EGR-AC) criterion indicated a prevalence of 22.6% among pregnant women, the highest compared to other population groups. No biochemical riboflavin assessment has since been done, so that the 2003 6th NNS included such a study.

Objectives: (1) To assess the prevalence of riboflavin deficiency among Filipino pregnant women, (2) To assess the riboflavin intake of women with normal EGR-AC, and (3) To determine the relationships of factors such as dietary intakes, age, parity, gestational age, and education with riboflavin status. Methods: Packed red blood cells drawn from 578 Filipino pregnant women covered by the 2003 6th NNS were evaluated for EGR-AC using the method of Sauberlich et al. The criterion was used whereby an EGR-AC > 1.3 was considered deficient as recognized by past local studies. Dietary intake data were culled out from the Food Consumption Survey. Gynecological data and other health-related information were derived from the Biochemical Survey. Statistical analyses were performed using STATA and SPSS softwares.

Results: Prevalence of riboflavin deficiency among Filipino pregnant women was 49.1%. This rate was alarmingly more than twice the prevalence in the last riboflavin status assessment conducted 14 years ago (1993). Classified by trimester, the prevalences were 37.4%, 44.0% and 58.6% for the 1st, 2nd and 3rd trimester, respectively. The increase of prevalence from 37.4% in the 1st trimester to 58.6% in the 3rd trimester could be attributed to an increasing demand for riboflavin for fetal growth when dietary intake was inadequate. Based on a 2-day 24-hr recall, the mean dietary intake of riboflavin from food for all participants was 0.82 mg/day, representing only 48.0% of the requirement. Riboflavin intake from food was inadequate, even among pregnant women with normal EGR-AC (55.6%). Among pregnant women with normal EGR-AC, use of supplements containing riboflavin improved the total riboflavin intake of pregnant women from 0.94 mg/day (food only) to an average intake of 1.9 mg/day (food plus supplement), exceeding the RNI level of 1.7 mg/day. For predictors, aside from supplements, education is likely to have a positive effect on riboflavin status, while gestational age, and parity are likely to have a negative effect. Conclusion: A high and increasing prevalence of riboflavin deficiency among pregnant women based on EGR-AC was observed. The use of supplements considerably improved the total riboflavin intake to adequate levels.

Recommendation: It is recommended that: (1) Filipino pregnant women be encouraged to take riboflavin supplements because present dietary intakes do not meet the levels recommended by the 2002 RNI, and (2) policy-makers, clinicians, and nutritionists be challenged to plan and implement intervention programs addressing the riboflavin nutriture of pregnant women (e.g. in conjunction with iron supplementation).