UNDER-FIVES RICKETS IN A TROPICAL DAIRY FARMING REGION, KIAMBU COUNTY, KENYA

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Abstract

The objective of this study was to determine under-fives feeding patterns on calcium and vitamin D rich foods as well as care practices in relation to rickets in an area dominated by dairy farming and sunlight, Kiambu County, Kenya. An unmatched case-control study design was used. The case group comprised of 200 children with rickets while the comparison group were a similar number of children without rickets. Study participants were selected during their visit to Kiambu Level Four Hospital. Data collection was performed using a pretested questionnaire. Dietary calcium, phosphorus and vitamin D intake were determined by single 24 hour dietary recall method and nutrient intakes computed using NutriSurvey software. Inadequate intake of calcium and vitamin D rich foods was observed. The mean (± standard deviation) intake of calcium and vitamin D was 190.7±114.1 mg/day and 0.02±0.05 μg/day, respectively, all below Recommended Daily Allowances. Significant risk factors towards rickets detected were consumption of breakfast cereals (Odds ratio (OR) 3.8) and porridge made with multiple cereal/legume composite flours (OR 6.7). Protective factors were daily child exposure to sunlight (OR 0.035), consumption of meat (OR 0.34) and living in open residential houses (OR 0.42). Therefore, by simply sunbathing and feeding children with cereal gruels of high bio-available micronutrients, addition of meat in child’s diet and supplementation with cod liver oil are effective ways of eradicating rickets in low income economies. Policy makers should explore under-fives supplementation with vitamin D and fortification of baby breakfast cereals with calcium.

Key words: Rickets, Vitamin D supplementation, Dietary Calcium, Sun bathing

Introduction

Rickets remains a major public health problem in many developing countries where it seems to be re-emerging (Welch et al. 2000; Allgrove 2004; Bereket 2010; Melamed & Kumar 2010). Overall, one billion people in the world have rickets and majority of the affected are children suffering from severe malnutrition associated with famine or starvation during the early stages of childhood (Taylor 2008). Although cases of rickets have declined since