

IRON DEFICIENCY ANEMIA IN REFUGEES FROM BURMA: A POLICY PROPOSAL

Teresa Kemmer, Nutritional Sciences Program, School of Public Health and Community Medicine, University of Washington, Seattle, WA, USA; Wantanee Kongsomboon, Thai Red Cross Society, Bangkok, Thailand; Maria Bovill, U.S. Army Research Institute of Environmental Health, Natick, MA, USA; Steven Hansch, Center for Disaster and Humanitarian Assistance Medicine, USUHS, Bethesda, MD, USA.

Introduction

More than 1.1 million refugees from Burma have sought refuge in camps along its borders. Burma has been affected by civil war for more than 40 years, during which time large minority groups, including the Karen, Karenni and Mon, have fled the country to escape armed aggression and persecution by the State Peace and Development Council (SPDC). An estimated 135,000 refugees from Burma are located within 10 camps along the Thailand/Burma border. In refugee camps worldwide, iron deficiency anemia (IDA) is routinely reported among the top medical problems. It is debilitating, increases the risk of death in childbirth, decreases the work capacity of adults, harms children's growth potential, and impairs children's ability to learn. Food rations are typically inadequate in iron and long-term reliance on rations is a key predictor of anemia among displaced people. This population of displaced persons is at high nutritional risk for micronutrient deficiencies and to date there have been no comprehensive nutritional assessments completed within this population. Nutrition evaluations were conducted within children 6-59 months of age within Tham Hin, Ban Don Yang, Ma La, Ban Mai Nai Soi and Ban Kwai refugee camps.

Objectives

In a survey of refugee children 6-59 months of age, the objectives were to determine:

- 1) Prevalence of IDA as assessed by a zinc protoporphyrin heme ratio (ZPP:H) >80 mmol/mol and hemoglobin <11 g/dL
- 2) Prevalence of anemia assessed with a hemoglobin <11 g/dL
- 3) Prevalence of severe anemia assessed with a hemoglobin <8 g/dL
- 4) Iron deficient erythropoiesis (IDE), identified as elevated ZPP:H levels in non-anemic individuals
- 5) Prevalence of malnutrition as assessed by weight-for-height Z-Scores and middle upper arm circumference (MUAC):
 - W/H Z-scores: < -2
 - MUAC Moderate: 11-12.5 cm
 - MUAC Severe: <11 cm
- 6) Feasible methods to decrease the prevalence of micronutrient deficiencies within the refugee camps

Methods

Using cluster sampling, 909 children (52% male) were selected from 5 refugee camps.

- 1) Biochemical analysis was completed using finger prick blood samples:
 - Hemoglobin was obtained at the time of blood collection using the HemoCue machine

- ZPP:H was analyzed within a laboratory using the ProtoFlour-Z hematofluorometer.

- 2) Weight was measured using a Seca scale
- 3) Height/Length were measured with a Shorr Board
- 4) MUAC measurements were completed on the left arm and one individual completed all MUAC measurements throughout data collection.

Results

Prevalence within this population of refugee children was:

- 1) IDA: 64.9 %
- 2) Anemia: 71%
- 3) Severe anemia: 10.1%
- 4) IDE: 20.6%
- 5) Global Acute Malnutrition (W/H Z-score: <-2): 5.7%
- 6) Moderate malnutrition (MUAC: 11-12.5 cm): 0.7% (7 individuals)
- 7) Severe malnutrition (MUAC: <11 cm): 0.1% (1 individual)

Conclusion

These results confirm that anemia and IDA are major health risks among refugee children age 6-59 months from Burma provided a standard ration and living within the Thai/Burma border camps. These findings also point out the importance of evaluating micronutrient malnutrition or “hidden hunger” in populations where malnutrition is not a major problem. A policy proposal to decrease the prevalence of anemia and promote improved nutrition status within this refugee population is being forwarded through the Thai Red Cross Society to the Ministry of Interior, Burmese Border Consortium (BBC) and Coordinating Committee for Services to Displaced Persons in Thailand (CCSDPT). The recommendation is to explore the options of a combination of programs previously shown to help decrease the prevalence of IDA: 1) use of micronutrient sprinkles, iron tablets or syrup supplements, 2) incorporation of micronutrient fortified foods into the general ration, 3) family distribution of cast iron cooking pots, and 4) provide seeds and land for gardens, poultry projects, and fish ponds in all camps to promote dietary diversity.

The study was conducted in collaboration with the Thai Red Cross Society with permission from the Thai Ministry of Interior. This program was developed in partnership with the Uniformed Services University of the Health Sciences (USUHS), the Center for Disaster and Humanitarian Assistance Medicine (CDHAM), and the Henry M. Jackson Foundation for the Advancement of Military Medicine. Additional funding was provided by International Life Sciences Institute Center for Health Promotion’s (ILSI CHP’S) Project IDEA; The Wimpfheimer-Guggenheim Fund for International Exchange in Nutrition, Dietetics and Management; U.S. Army Research Institute of Environmental Medicine (USARIEM); and Lady of the Mountain Catholic Parish.