



The Status of Iodine Nutrition and Iodine Deficiency Disorders among School Children in Metekel Zone, Northwest Ethiopia

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Abstract

A cross-sectional school based descriptive study on iodine nutrition and Iodine Deficiency Disorders among school children was conducted in Metekel Zone with the ICCIDD recommended Methods. The total goiter prevalence was 39.5 %; 60 % of salt samples from households to which the sampled children brought for test contained no iodine. The median urinary iodine concentration was found to range 20.54 – 62.2 (39.9 µg/L). The study demonstrated that iodine deficiency is still a severe public health problem in the district.

Introduction

Iodine deficiency disorders (IDDs) are serious public health problems in Ethiopia. According to the International Council for the Control of Iodine Deficiency Disorders (ICCIDD) estimate in 2011, about 12 million school age children in Ethiopia live with inadequate iodine; about 66 million people are prone to the risk of iodine deficiency disorders; and Ethiopia is the 1st of the top iodine deficient countries in the world based on national median Urinary Iodine Concentration < 100 µg/L .

Objective

The aim of this study was to measure the status of Iodine nutrition and the prevalence and severity of iodine deficiency disorders among school children in Metekel Zone.

Methods

A cross-sectional school based descriptive study was conducted in one school in Metekel Zone. Physical examination was made according to WHO goiter classification system; salt samples were tested for iodine using rapid field test kits and titration; a casual urine sample was taken to measure urinary iodine spectrophotometrically and blood sample were collected to measure thyroid relevant blood constituents using ELISA.

Table 1 Iodine Content of salt samples (n=50), Amuma, 2011

Iodine content	Sample No.s	Proportion (%)
Non-iodated (< 5ppm)	30	60%
Insufficiently-iodated (5-15 ppm)	15	30%
Adequately-Iodated (15-45 ppm)	5	10%
Over-iodated (> 45 ppm)	-	-

Table 2 Iodine status using UIC (n=30), Amuma, 2011

Iodine Status (UIC)	Freq.	Proportion (%)
Sever Deficiency (< 20 µg/L)	-	-
Moderate Deficiency (20 – 49 µg/L)	24	80%
Mild Deficiency (50 – 99 µg/L)	6	20%
Optimal status (100 – 199 µg/L)	-	-
More than adequate (200 – 299 µg/L)	-	-
Excessive (>= 300 µg/L)	-	-

Results

The total goiter prevalence was 39.5 %; 60 % of the salt samples contained no iodine. The median urinary iodine concentration was found to range 20.54 – 62.2 (39.9 µg/L). School children who were assessed for thyroid hormones showed 18.92 % elevated and 27.03 % suppressed TSH levels.

Conclusion

The study demonstrated that iodine deficiency is still a severe public health problem in the district. The prevention and control of IDD in community require a multi-faceted set of policy intervention, research and development activities in areas such as nutrition education, improved method of food preparation and food diversification, supplementation and mineral fortification. There is a need to further strengthen the existing social protection system for provision, controlling and monitoring in the use and distribution of iodized salts for all in order to achieve proper elimination of IDD in the community.

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