Assessment of Iodine Deficiency in School Children in Aligarh District, India

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RESEARCH LETTER

ABSTRACT

We carried out the study to assess iodine deficiency disorders among school children of 6-12 years age group in Aligarh district of India. The prevalence of goiter was 5.2%. Modern Urinary Iodine Excretion level was 150 µg/l, 22.5% of students had biochemical iodine deficiency. 50.4% households were consuming adequately iodized salt.

Keywords: Goiter, Iodine deficiency disorders (IDD), Median Urinary Iodine Excretion, Prevalence.

Iodine deficiency disorders (IDDs) affect all age groups [1]. In India, 263 districts are endemic for IDD [2]. Apart from goiter, WHO has also recommended the Median Urinary Iodine Concentration (MUIC) in school children as the main indicator for assessing IDD [3]. Very few studies have been carried out in the Aligarh for assessment of IDD. In view of this, a study was planned to find out the Goiter prevalence in school children aged 6–12 years in Aligarh, to determine MUIE in children, and to assess the level of iodine in salt samples at household levels.

The ‘EPI-30 cluster’ sampling method as recommended by WHO/UNICEF/ICCIDD was followed [3]. The study was done in field practice areas of Department of Community Medicine, JNMC, AMU, Aligarh. The study spanned over a period of one year in 2012. A sample size of 790 was selected assuming goiter prevalence of 30.2% (as seen previously in Aligarh) at confidence level at 95%, margin of error at 15% and design effect of 2 [4]. Twenty seven students of each school were studied using random sampling. On-spot urine samples were collected from 132 children using systematic random sampling. Samples were tested in Department of Gastroenterology and Human Nutrition, AIIMS, New Delhi. UIE levels were analyzed using wet digestion method of the Sandell-Kolthoff [5]. One hundred twenty-one salt samples were checked in school with a MIB kit provided by UNICEF, and iodine concentration was recorded as 0, <15 and ≥15 ppm [3].

Only 40 children were having Grade I goiter (thyroid palpable but not visible) giving prevalence rate of 5.2%. Not a single student had Grade 2 goiter (thyroid visible with neck in normal position) (Table I). The prevalence of goiter was significantly higher in females than in males (6.9% vs 3.4%) and higher in 10 to 12-year-old children than in younger children. The MUIE was 150 µg/L. The proportion of students having normal range of UIE (≥100 µg/l) was 77.5% (Table II). 22.5% of students had biochemical iodine deficiency (<100 µg/l) as defined by WHO [3].

Only 50.4% households were consuming adequately iodized salt (≥15 ppm). Nearly 55% of households consume powdered salt, rest consumed crystalline salt. 91% samples of the powdered salt had adequate iodine (≥15 ppm) while iodine level was nil in all samples of crystalline salt.

Our result is similar to goiter prevalence of 4.78% reported by Toteja et al. [6] in 15 districts of 10 states. Like NFHS-3, higher goiter prevalence was observed in girls and older children [7]. The MUIC was 150 µg/L suggesting adequate iodine intake (>100 µg/L) [3]. The studies elsewhere have also shown similar results [8,9]. A recent study done by Kapil et al. [10] had shown that in India 86% of districts had a MUIC above 100 µg/L.

INFORMATION FOR THE READER

The Editor would like to invite interested readers to submit their views and comments on this Research Letter. Please address them to the Corresponding Author: Dr. A. K. Pandey, Department of Community Medicine, JN Medical College, AMU, Aligarh 202002, India. E-mail: a.k.pandey@amu.ac.in
Only 50.4% households were consuming adequately iodized salt (≥15 ppm). According to NFHS-3, 51% households were using sufficiently iodized salt [10].

Our area is far from the goal of 90% in terms of proportion of household using adequately iodized salt. This may pose a future risk of iodine deficiency. We should create awareness among community to consume only powdered packeted iodized salt.

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REFERENCES