Preparing for Iodization of Salt in Israel – Do We Have the Data?

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The term iodine deficiency disorders is used to describe multiple conditions of the effects of iodine deficiency on growth and development [1]. These range from mild developmental delays to severe forms such as endemic goiter, brain damage, increased rate of congenital anomalies, miscarriage, increased infant mortality, and endemic cretinism [2]. Populations living in areas affected by IDD have mean IQs below the expected [3].

Prevention of IDD is easy, effective and cheap. Primary prevention of IDD has been accomplished by the introduction of iodine prophylaxis. The most efficient method is iodine fortification of salt or water. The first successful intervention trial with iodized salt was in the United States and was published in 1922 by Marine and Kimball [4]. In 1924, iodine-enriched table salt (Morton's Iodized Salt) became the North American standard for salt used at the table and in food production.

The daily requirement for a non-pregnant non-lactating adult is 150 μg [1]. This should be reflected in a population median urinary iodine excretion of 100–200 μg/L. To achieve this, 20–40 mg iodine, or 34–66 mg potassium iodate, should be added to one kilogram of salt. The recommendation is based on an average salt intake of 5 mg a day [5]. It is also recommended that urinary secretion of iodine be monitored, as well as the iodine content of salt and water. Where median urinary iodine excretion from a representative sample of the population at risk is not within the recommended range, salt iodization levels should be adjusted [1].

In this issue of *IMAJ*, Benbassat et al. [6] evaluate the iodine status of pregnant women in Israel's coastal area. This question is important, because in early pregnancy the thyroid gland is stimulated by human chorionic gonadotropin and results in an increased loss of iodine in maternal urine [7]. Thus, borderline iodine deficiency deteriorates to a more serious deficiency during pregnancy and could lead to a chronic hyperstimulated thyroid state with a decrease in serum thyroxine levels [7]. The fetus might be exposed to a lack of thyroxine during the period where it is most needed for brain development. Moreover, lack of iodine blocks the infant's ability to produce adequate amounts of thyroxine.

Benbassat et al. show that the median of all three groups of pregnant women studied was 143 μg/L, with 27% of the study population having less than 100 μg/L and 7.8% less than 50 μg/L. Based on WHO/UNICEF/ICCIDD recommendations that the median urinary concentration be at least 100 μg/L with less than 20% of values below 50 μg/L, their findings do not show evidence of IDD in that group [1]. This study contributes important data on the iodine status of pregnant women in Israel. However, the small sample size and the non-representative nature of the sample limit generalization of the finding to the Israeli population. It is important to note that the WHO, UNICEF and ICCIDD recommendations for the assessment of IDD prevalence, prior to a national fortification program, should focus on schoolchildren [1]. Thus, while I agree with the authors that a national survey is needed, it should be conducted among schoolchildren.

An interesting question is where these women get iodine in their diet. In Israel, only a minor portion of the salt used has been iodized during the past 3 years. The food industry does not use iodized salt. In some countries adequate iodine has been found in the diet, even without salt iodization. For example, in the United Kingdom, dairy products may contain extra iodine as a result of adding iodine to cow feed to increase the animals' reproductive performance, or of using iodine-containing cleansing agents in the dairy industry [8]. In the U.S., London and colleagues [8] encountered cases of very high iodine intakes (1,100–1,300 μg/L per day), which was explained by the use of iodine-containing conditioners in bread.

It could well be that Israel's food chain contains adequate amounts of iodine. However, there has never been a national survey on IDD prevalence in Israel. Thus, we cannot exclude the possibility that IDD prevalence is high in certain regions or sectors of the population. It is important that such a survey be carried out prior to the implementation of the proposed mandatory universal salt iodization act.

IDD = iodine deficiency disorders

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