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ORIGINAL ARTICLE

Iodine nutrition in pregnant women in the Oviedo area. Is iodine supplementation required?☆

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KEYWORDS
Iodine;
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Abstract
Background and objective: In Asturias, where iodine deficiency was eradicated in school children by the year 2000, iodine deficiency persisted in pregnant women, who were recommended to use of iodine supplementation. The aim of this study was to determine the iodine nutrition of pregnant women in our area and whether or not iodine supplements are needed.
Material and methods: Throughout May and June 2013 we studied the iodine nutrition and thyroid function during the first trimester of pregnancy in 173 women in the health area of Oviedo.
Results: The median urinary iodine was 197 μg/L. Iodinated supplements were used by 47% of women, which had a yoduria median higher than those not taking iodinated supplements (247 vs 138 μg/L; $p < 0.001$), and also a higher TSH (2.30 vs 1.94 mU/L) although not significantly different. Yoduria was also higher in women who took more than two servings of dairy products (median: 230 μg/L) than those who took less (median: 191 μg/L). Within the group of women who were not taking iodine supplements, those regularly using iodized salt in the kitchen (47%) had a median urinary iodine concentration of 190 μg/L indicating iodine sufficiency.
Conclusions: Iodinated supplements seem unnecessary nowadays in pregnant women of Oviedo who regularly take iodized salt and our recommendation in these cases should be to continue the use of iodized salt in the recommended amounts during pregnancy and consume at least two daily servings of milk or dairy products.

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PALABRAS CLAVE
Yodo;
Embarazo;
Función tiroidea

Nutrición de yodo en mujeres embarazadas del área de Oviedo. ¿Es necesaria la suplementación con yodo?

Resumen
Introducción y objetivo: En Asturias, donde la deficiencia de yodo fue erradicada en los escolares en el año 2000, persistía una deficiencia de yodo en las mujeres embarazadas, por lo que se les recomendaba la utilización de suplementos yodados. El objetivo de este estudio es conocer la nutrición de yodo de las mujeres embarazadas de nuestra área y la necesidad o no de suplementos yodados.
Material y métodos: Durante mayo y junio de 2013 hemos estudiado la nutrición de yodo y la función tiroidea en el primer trimestre del embarazo de 173 mujeres del área sanitaria de Oviedo.
Resultados: La mediana de la yoduria fue 197 μg/L. Tomaban suplementos yodados el 47% de las mujeres, con una mediana de yoduria superior a la de las que no tomaban suplementos yodados (247 vs 138 μg/L; < 0,001) y también una TSH superior (2,30 vs 1,94 mU/L), aunque no significativamente diferente. La yoduria fue también superior en las mujeres que tomaban más de 2 raciones de productos lácteos (mediana: 230 μg/L) que en aquellas que tomaban menos de 2 raciones (mediana: 191 μg/L). Dentro del grupo de mujeres que no tomaban suplementos yodados, aquellas que utilizaban habitualmente sal yodada en la cocina (47%), tenían una mediana de yoduria de 190 μg/L, indicativa de suficiencia de yodo.
Conclusión: En la actualidad los suplementos yodados serían innecesarios en las mujeres embarazadas de nuestra entorno que consumen de forma habitual sal yodada y la recomendación en estos casos debería ser la de continuar utilizando la sal yodada en la cantidad recomendada en la gestación, así como consumir al menos dos raciones diarias de leche o productos lácteos.

Introduction

Iodine deficiency (ID) was documented in Asturias in the school population in the 1980s of the past century.[1] After marketing of iodinated salt[2] and continuous work by the Department of Endocrinology and Nutrition of Hospital Universitario Central de Asturias and the Department of Health of the Asturias government, iodine deficiency was eradicated from the school population in 2000 as the result of a high consumption rate of iodinated salt.[3] However, as in other Spanish regions,[4,5] iodine intake was inadequate to cover the increased iodine requirements during pregnancy due to the combination of greater renal loss, placental deiodination, and additional thyroxine requirements by the fetus.[6] This is the reason why iodide supplementation is recommended in Spain to all women during pregnancy and lactation.

In recent years, however, increased urinary iodine levels have been found in both schoolchildren and adults.[7] These are attributed to increased iodine concentrations in milk.[8] On the other hand, administration of iodide supplements to pregnant women has not shown a consistent impact on development of their children.[9,10] Because of this, some organizations[11] have advised against universal iodine supplementation in pregnant and breast-feeding women, and only recommend use of supplements in those at high risk of inadequate iodine intake or thyroid dysfunction development at these stages. Moreover, some studies have found higher TSH levels and lower thyroid hormone levels in women receiving iodine supplements during pregnancy,[12,13] and it has therefore been postulated that supplementation with iodine salts may have an effect contrary to the expected in some women.

In order to ascertain the current nutritional status of pregnant women in our healthcare area, we conducted a study of urinary iodine levels and thyroid function in a sample of women enrolled in their first visit to the healthcare system for pregnancy.

Patients and methods

The sample consisted of 173 pregnant women from the healthcare area IV of Asturias consecutively enrolled at their first visit to the midwife of their healthcare center on May and June 2013 and who gave their consent to participate in the study.

All women were collected on the following day a random urine sample to measure urinary iodine levels, and were drawn a blood sample to test TSH, free thyroxine (T4), and thyroid peroxidase antibodies (anti-TPO Ab).

Urinary iodine levels were measured using HPLC-ECD (high-performance ion-pair chromatography coupled to electrochemical detection). TSH (normal range [NR], 0.17–4.15 mU/L and coefficient of variation [CV], 0.8–2.9%),[14] FT4 (NR, 0.99–1.67 ng/mL, and CV, 1.8–3.2%) and anti-TPO antibodies (NR, <20 U/L) using a chemiluminescence immunoassay of Roche Diagnostics.

A survey was also conducted on use of iodine supplements, iodinated salt, and dairy products. Iodinated salt