

The Effect of Gestational Stage on Pregnancy-Related Urinary Iodine Excretion

Samira Akdader- Oudahmane

Faculty of Biological Sciences of university of Mouloud Mammeri of Tizi Ouzou, Algeria

Laboratory BPO/Endocrinology Team, Faculty of Biological Sciences, USTHB, Algeria

Assia Kamel

Laboratory BPO/Endocrinology Team, Faculty of Biological Sciences, USTHB, Algeria

Lynda Lakabi

Faculty of Biological Sciences of university of Mouloud Mammeri of Tizi Ouzou, Algeria

Hanane Kherrab

Endocrinology Department, Hôpital Bologhine, Algiers, Algeria

Michael Bruce Zimmermann

ETH Zurich and Iodine Global Network, Zurich, Switzerland

Abstract

Iodine is a trace mineral that must be consumed in sufficient amounts during pregnancy in order to support the fetus's proper development. A number of conditions associated to an increased risk of miscarriage or premature birth are caused by iodine excess or inadequate supply. The aim of our research was to evaluate the thyroid function and urine iodine concentration (UIC) of pregnant women (PW) in northern Algeria.

Three groups of healthy pregnant women ($n = 174$) were selected from the gynecology-obstetrics service. Urinary iodine concentration, serum thyroid hormone, and thyroid peroxidase antibody concentrations were measured in spot urine and venous blood samples to determine iodine status. Correlation analysis was used to examine the relationship between thyroid measures and UIC. The median UIC values were $246.74 \mu\text{g/L}$, $244.68 \mu\text{g/L}$ and $220.63 \mu\text{g/L}$, in the first, second and third trimester respectively. Median TSH and FT4 concentrations were within reference ranges. Among pregnant women, More than 70% of PW, were TPO-Ab positive and 18.7%, 13% and 10.3% of pregnant women had subclinical hypothyroidism. Analysis of linear regression conducted during the third trimester, revealed an important negative association between urine iodine concentrations and levels of TPO antibodies ($r = -0.247$; $p = 0.042$). In northern Algeria, median UICs indicate iodine sufficiency. Monitoring of iodine fortification programs is vital to avoid both iodine deficiency and excess in pregnant women.

Keywords

Thyroid, pregnant women, UIC, association.