

Thyroid-Stimulating Hormone Reference Ranges in the First Trimester of Pregnancy in an Iodine-Sufficient Country

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Abstract

Background: Thyroid dysfunction is associated with negative neonatal and obstetric outcomes. Large differences in thyroid function reference intervals exist across different populations. These differences can be explained by population-specific factors, such as iodine status. Many countries in Latin America report iodine sufficiency, but relatively few countries have published up-to-date data on iodine levels and thyroid function in the overall population, and especially in pregnant women. We evaluated the iodine status of pregnant women in Chile and determined thyroid hormone reference ranges in this population. **Methods:** This was a prospective observational study of healthy Chilean women at their first prenatal visit before week 14. Thyroid-stimulating hormone (TSH), total thyroxine (T4), free T4, antithyroid peroxidase antibody (TPOAb), and iodine levels from spot urine samples were measured. Iodine status and the reference ranges for TSH were calculated. **Results:** A total of 1,022 pregnant women in the first trimester were selected. Urinary iodine levels were measured in 302 randomly-selected women. The median urinary iodine concentration was 173.45 µg/L (interquartile range, 108.11 to 249.35). The reference ranges of TSH were calculated in 670 patients selected according to the National Academy of Clinical Biochemistry guidelines. The median TSH level was 1.88 µIU/mL (2.5th percentile: 0.13 to 97.5th percentile: 5.37). Using the reference range in the 1,022 women, the prevalence of clinical hypothyroidism was 1.76%, and that of subclinical hypothyroidism was 3.92%. TPOAb positivity was more common in women with TSH levels above 3.5 µIU/mL. **Conclusion:** We found adequate iodine intake and a right-shifted distribution of serum TSH levels in pregnant women in Chile. The prevalence of hypothyroidism in our sample of pregnant women was higher than has been described in the literature..

Keywords

Pregnancy, Hypothyroidism, Thyroid, Iodine.