

Assessment of thyroid function during pregnancy: first-trimester (weeks 9–13) reference intervals derived from Western Australian women

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TO THE EDITOR: Gilbert and colleagues¹ report thyroid function test results in a large number of pregnant women in Western Australia during the first trimester. While assessment of thyroid status is increasingly important in pregnancy, they do not present a strong enough argument for their reference ranges to be adopted. Their controls consisted of only 100 blood donors, and it is not clear whether these were age-matched with patients. Differences between pregnant and non-pregnant thyroid hormone ranges were too small to justify use of separate ranges. We assume from the article that the controls were not screened for thyroid antibodies. Prevalence of thyroid autoimmunity is high in women of reproductive age, whether or not they are pregnant.²

Serum thyrotropin (TSH) concentration is reduced in up to 20% of women during their first trimester, often with modestly increased thyroid hormones. The thyroid-stimulatory effect of human chorionic gonadotropin may help ensure adequate thyroxine delivery to the fetus. It is surely more important for clinicians to understand this than to have reference ranges that conceal normal physiological changes.

Gilbert et al do not state whether patients with multiple or assisted-conception pregnancies were included — both are more likely to have abnormal thyroid test results.² Their detection limit for TSH and the lower limit of normal differed by only 0.01 mU/L — they could therefore not reliably distinguish low TSH from suppressed TSH. They screened only 61% of pregnant women in WA. It is inconceivable that there was not a selection bias, as current guidelines³ advocate only screening high-risk groups such as those with a history of thyroid disease or previous poor obstetric outcome.

Ethnic differences in TSH levels have been reported. However, data from the United States National Health and Nutrition Examination Survey (NHANES) suggest that TSH levels in Hispanics are no different to those of white people,⁴ contrary to what is suggested by Gilbert et al.¹ Increased miscarriage risk may relate to autoimmunity

itself, rather than altered thyroid function. The study by Negro et al⁵ is, to date, the only one showing a decrease in miscarriages when thyroxine is given to thyroid antibody-positive women. However, the TSH level before thyroxine was given was comfortably within the normal range reported by Gilbert et al.

Publications in this complex area are only informative if they tell us something about thyroid physiology or about diagnosis and management of thyroid disorders. While laboratories must validate their reference ranges, it is unlikely that those reported by Gilbert et al could be generalised to the ethnically diverse and geographically dispersed Australian population. Also, as described,¹ patients would have to be screened routinely for thyroid antibodies to ensure that the quoted ranges were applicable.

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