

Maternal iodine status and the thyroid function of pregnant mothers and their neonates in Jaffna District of Sri Lanka

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Abstract

Introduction:

Iodine status of pregnant women and their newborns have not been studied in Jaffna District, Sri Lanka. This study was planned to assess the maternal iodine status and thyroid function at the third trimester of gestation and the thyrotrophin level of their neonate.

Methods:

Four hundred and seventy-seven pregnant women and their newborns were randomly selected among six Medical Officers of Health Divisions out of 12 in Jaffna District, Sri Lanka. Maternal thyroid stimulating hormone (TSH), free thyroxine (fT4), thyroglobulin (Tg), urinary iodine levels, and the neonatal thyrotrophin (nTSH) level were assessed.

Results:

In this study, mean age, weight, height, and gestational age of the mothers were 28.95 (± 5.46) years, 63.02 (± 11.56) kg, 154.39 (± 6.00) cm, and 39.33 (± 1.37) weeks, respectively. Maternal median urinary iodine concentration (UIC) was 140.0 $\mu\text{g/L}$ (inter-quartile range 126.0–268.0 $\mu\text{g/L}$). Median values of the maternal serum TSH, fT4, and Tg were 1.9 mIU/L, 12.6 pmol/L, and 21.4 IU/L, respectively. Among the 477 newborns, 50.5% ($n = 239$) were males. Mean birth weight of newborn was 3.03 (± 0.43) kg, while the mean length was 51.1 (± 2.1) cm. Among the newborns, 18% ($n = 86$) had nTSH level $> \text{mIU/L}$ and 37.7% ($n = 180$) within TSH level $> \text{mIU/L}$. nTSH level had positive but very weak correlations with maternal thyroid parameters, that is, UIC ($r = 0.06$, $P = 0.13$), fT4 ($r = 0.01$, $P = 0.05$), TSH ($r = 0.09$, $P = 0.05$), and Tg ($r = 0.12$, $P = 0.03$).

Conclusion:

On the basis of the World Health Organization criteria, the iodine status of pregnant women was inadequate in this region and also nTSH levels indicate moderate iodine deficiency during pregnancy. Therefore, the continuous education on adequate iodine intake during pregnancy and monitoring of iodine status are useful.

Keywords: Iodine status, maternal thyroglobulin, maternal thyrotrophin, neonatal thyrotrophin, pregnant mothers, urinary iodine concentration