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The study on thyroid status among newborns in Jaffna District in Sri Lanka

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Abstract

Iodine is an essential nutrient for the production of thyroid hormones triiodothyronine (T₃) and thyroxine (T₄). A woman needs more iodine during pregnancy to maintain normal metabolism as well as to meet the requirements of T₄ and iodide transfer to the fetus. Objective of this study was to assess the thyroid status among newborns in Jaffna District, because similar studies conducted nationally, but not in Jaffna and no data is available about the thyroid status of the neonates. Randomly selected 477 newborns in six Medical Officers of Health (MOH) Divisions out of twelve were studied. Blood spots were taken from the neonates within the one week of delivery on specified filter paper and thyroid stimulating hormone (TSH) was assayed by using enzyme-linked immunosorbent assay (ELISA)/Radioimmunoassay (RIA) technique depending on availability of the kits in the laboratory. Among the total newborns, 239 were males (50.5%). Mean birth weight (BW) of them was 3031.5(±432.6) g, while the mean length was 51.1 (±2.1) cm. BW of males ranged from 1.7 to 5.0 Kg and of females from 1.5 to 4.35 Kg. Length of the newborns ranged from 45.0 to 58.0 cm for males and from 44.0 to 57.0 cm for females. The low birth weight (LBW), normal birth weight (NBW) and higher birth weight (HBW) were 11.3 (n=54), 88.5 (n=422) and 0.2 % (n=1) respectively. Mean neonatal blood spot TSH concentration was 9.8 (±2.1) mIU/L, and ranged from 1.00 to 53.46 mIU/L. Neonatal TSH level of the entire blood spot was categorized as > 20 mIU/L and < 20 mIU/L and the blood spot TSH > 20 mIU/L was considered as positive for congenital hypothyroidism. Among the newborns, 18% (n=86) of them were identified as positive with 10 % males and 8% females. Only one newborn was diagnosed as being congenitally hypothyroid (serum TSH >9.8 mIU/L and free T₄ < 10 pmol/L) with very high blood spot TSH value of 360.91 mIU/L. Further, a higher prevalence (37.7%) of neonates with blood spot TSH >5 mIU/L was observed in this study.

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