



Serum Thyroid Stimulating Hormone Screening and Influence of Perinatal Factors

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To the Editor: Congenital hypothyroidism (CH) screening using thyroid stimulating hormone (TSH) is being done worldwide but the cutoff values vary widely in different countries and is influenced by perinatal factors [1–3]. We aimed to analyze the TSH value distribution in venous blood sampled for newborn screening and to identify the perinatal factors influencing it.

This retrospective observational study was done between January 2014 and June 2019 in south India. Newborns with their TSH screening value available were included. Babies who were < 33 wk and < 1500 g were excluded. Venous blood TSH cut-off < 10 mIU/L was considered screen negative. Institutional ethical committee approved the study.

Among a total of 15,586 babies born, analysis was done with 14,738 babies. Median gestational age and birth weight were 38 wk (37–39) and 2950 g (2670–3230), respectively. There were 51.5% male, 89.2% term babies, and 61.5% vaginally born. Median TSH value was 2.81 mIU/L with 95th percentile of 11.33 mIU/L. A higher median TSH value was seen in term babies ($p < 0.001$), vaginal birth ($p < 0.001$), male gender ($p < 0.001$), birth weight ≥ 2500 g ($p < 0.004$) and babies sampled at 24–47 h of life ($p < 0.001$). Majority of population (88%) was represented by term babies between 48 and 96 h of life and this subset of population had a median TSH value of 2.85 mIU/L (1.42, 5.41) with 95th percentile being 11.33 mIU/L.

1072 (7.2%) babies were screen positive and 19 were confirmed to have CH. Since our TSH screening cutoff was < 10 mIU/L but 95th percentile in our study was 11.33 mIU/L, we followed up babies with TSH value between 10 and 11.33 mIU/L. Among 339 babies with TSH between 10 and 11.33 mIU/L, follow-up was available for 305 (90%). Repeat TSH at 2 wk of age was normal for 118 babies (34.8%). Parents were contacted for 187 babies (55.2%), aged 1–6 y and were reported to be normal.

A TSH screening cutoff of >11.33 mIU/L may be considered as an appropriate threshold for babies screened with venous blood between 48 and 96 h of age. In our study population this would have resulted in 31.6% reduction in recall rate without missing a case of CH. However a large-scale prospective population-based study is needed.

Compliance with Ethical Standards

Conflict of Interest None.

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