



## Subclinical Hypothyroidism in Obese South Indian Children

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*To the Editor:* Subclinical hypothyroidism is a not an uncommon condition and has an incidence of about 2% in pediatric age group [1]. It is increasingly recognized that obesity leads to rise in levels of thyroid stimulating hormone (TSH). Although the exact mechanism of TSH elevation in obesity is unclear, the role of leptin has been postulated. This TSH surge in obese children does not signify hypothyroidism in all cases [2]. Normograms based on two large population studies from India reported mean and 97th percentile for TSH as 3.17 and 7.5, respectively [3, 4]. However, in obese children, there is no such consensus on cut-off levels of TSH to diagnose subclinical hypothyroidism.

We studied the incidence and progression of subclinical hypothyroidism into overt hypothyroidism in obese children and correlation of fT4 and TSH with Body mass index (BMI). This prospective cross-sectional study included 102 children between 5 and 15 y of age with BMI equivalent to more than 28 kg/m<sup>2</sup> of an adult for age and sex, according to Body Mass Index Cut-offs for Screening for Childhood Overweight and Obesity [5]. Free T4 and TSH were estimated at inclusion and for those whose TSH was above 5 mIU/L, repeat TSH was performed at the end of one year follow-up. Among the participants, 87 (85.3%) had TSH: 0–5 mIU/L (euthyroid levels), 13 (12.7%) had TSH of 5–10 mIU/L and 2 (1.95%) had TSH of 10–15 mIU/L. There was no correlation between T4 and TSH with BMI. On follow up, among children with TSH between 5 and 15 mIU/L (13), 11 (84.6%) had become euthyroid. There was significant correlation between initial TSH and follow-up TSH ( $p = 0.036$ ) for those who had initial TSH between 5 and 15 mIU/L. It is concluded that TSH surge

is common in childhood obesity. There is no correlation between T4, TSH and BMI. For obese children with TSH 5–15 mIU/L, thyroxine treatment is not routinely required as most children became euthyroid without any intervention. Further large scale etiological studies are needed to understand pathophysiology of thyrotropinemia among obese children.

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### Compliance with Ethical Standards

**Conflict of Interest** None.

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