Outcomes of persistent hyperthyrotropinaemia in well term infants

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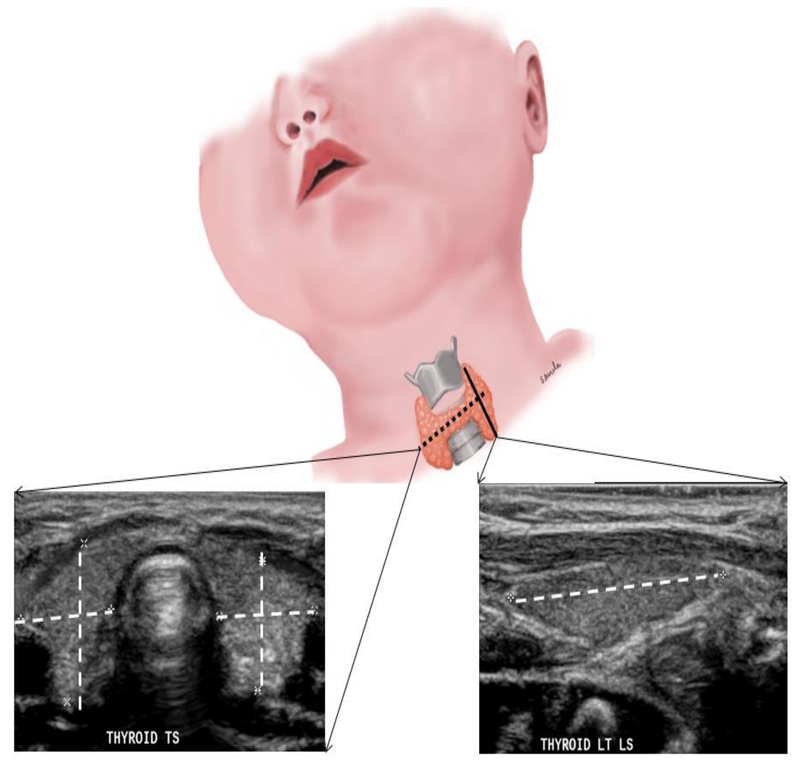
BACKGROUND

Neonatal hyperthyrotropinaemia (HT) is defined by elevated thyroid stimulating hormone (TSH) and normal free-thyroxine (FT4) level. Persistent HT in the neonatal period is often a diagnostic dilemma for clinicians to either treat to prevent subclinical hypothyroidism or to wait and monitor thyroid function tests (TFTs).

AIM

To evaluate the thyroid function outcomes of well, term infants presenting with persistent hyperthyrotropinaemia (HT).



PATIENTS AND METHODS

As part of an audit, 2115 term infants who had TFTs undertaken as part of a prolonged jaundice screen from 2012-2018 were reviewed. Infants with HT (defined by TSH>5mU/L) were followed up in clinic with regular monitoring. We evaluated perinatal factors and TFTs were monitored in 2-4 weeks, then regularly 2-4 monthly until 2 years of age or until HT was resolved.

RESULTS

There were 59 term infants (41 males) with a raised TSH (>5mU/L) and normal FT4 level over the 7-year period. This represents 2.7% of the 2,115 term infants found to have HT. All infants with HT were born in good condition. Mean gestation was 38.4 weeks (±1.9 SD, range 37.1-42.0). Mean birth weight was 3.3kg ± 0.6 SD. Demographics are shown in Table 1.

Table 1: Demographics and baseline characteristics

Gender (males)	41 (69%)
Birth weight (kilograms)	3.33 (0.6)
Gestational age (weeks)	38.4 (1.5)
C-reactive protein	1.08 (0.2)
Mode of delivery (normal vaginal delivery)	48 (81%)
Infant baseline FT4 (pmol/L)	20.2 (4.6)
Infant baseline TSH (IU/L)	8.45 (3.4)
Ethnicity Caucasian Asian Other	 55 (93%) 2 (3.5%) 2 (3.5%)

Data expressed as mean (SD) for continuous outcomes and n (%) for dichotomous variables

Four infants had Trisomy 21 and 3 infants had a maternal history of hypothyroidism. In 2 (3%) infants, we started levothyroxine treatment due to rising TSH > 10mU/L and falling FT4 levels. 10 (17%) infants had TSH normalised to < 5 mU/L in 4 weeks without treatment, 16 (27%) infants normalised their TSH to < 5 mU/L in 8 weeks, 48 (81%) infants normalised their TSH to < 5 mU/L in 3 months, 53 (90%) infants normalised their TSH to < 5 mU/L in 6 months, 56 (95%) of infants normalised in 12-18 months and 1 patient had persistent TSH >5mU/L which did not require treatment at 24 months as FT4 levels remained normal and was in the upper quartile range (>15pmol/L) without treatment.

CONCLUSIONS

In 95% of all the cases of HT in well term infants, the natural course was that TSH resolved to < 5mU/L by 18 months of age without treatment. Risk of decompensation was low in 2 cases (3%) and treatment was indicated for infants with rising TSH >10mU/L and falling FT4 levels.

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