Development and risk factors of thyroid dysfunction in patients with positive TPO antibodies

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Background

Autoimmune thyroid disease (AITD) is the most common thyroid disorder in the paediatric age range. However, the development of thyroid dysfunction in biochemically euthyroid children with positive TPOAbs and associated risk factors is unclear.

Objectives and hypotheses

To evaluate the evolution of children with positive TPOAbs and normal thyroid function and identify predictive factors for the development of thyroid dysfunction.

Method

A retrospective study analysing a database of 250 children with positive TPOAbs in 2010 and the development of thyroid dysfunction and levothyroxine treatment over 5 years. Clinical features and risk factors for hypothyroidism were recorded (such as diabetes, goitre and gender).

Results

- Median age: 11 years (0-18 years).
- Of the 46 positive patients, 32 (69.5%) were associated with normal thyroid function. On the abnormal thyroid function, 78.57% had high TSH with normal T4.
- We excluded 12 patients with normal thyroid function (10: previous treatment; 2: did not have further bloods test done):
  - 20 Patients: Females 90%; Males 10%; Median age: 10 years (5-14 years); diabetic patients (50%); goitre (20%).

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<tr>
<th>Remained Euthyroid</th>
<th>Became Hypothyroid</th>
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<td>16 patients (80%), 87.5% female</td>
<td>4 patients (20%), 100% female</td>
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- Time to hypothyroidism: MEDIAN: 2.44 years (1.96 – 3.68 years)

Conclusion

- Paediatric patients with increased thyroid autoantibodies need careful monitoring because no clear criteria exist to predict the evolution.
- Hypothyroidism developed in 20% of our patients with positive antibodies. The median time was 2.44 years.
- No clear differences in age or gender were seen but the presence of goitre (50% : 12.5%) and TPOAb >1000 (50% : 6.25%) seems to be higher in those who develop hypothyroidism.
- More studies with a higher number of patients are needed to be done.

References

- Subclinical Hypothyroidism in Children. M SHIRRAAM AND M SIRIDHAR. From Department of Pediatrics, Apollo Children’s Hospital, Chennai.