ASSOCIATION BETWEEN THYROID STIMULATING HORMONE AND HEMOGLOBINE A1C IN TYPE 1 DIABETES MELLITUS CHILDREN

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Background:
Type 1 Diabetes Mellitus children are at risk to suffer from thyroid dysfunction. The association between thyroid stimulating hormone and hemoglobin A1c is still controversy.

Objective:
To determine the association between thyroid stimulating hormone and hemoglobin A1c in type 1 Diabetes Mellitus children.

Methods:
Study design: cross sectional
Time: January - June 2017
Place: Pediatric endocrine OPC dr Soetomo Hospital
Inclusion criteria: T1 DM children, aged 7 until <18yo.
Exclusion criteria: diabetes ketoasidosis, previously diagnosed thyroid problems and patients hospitalized in PICU.

Results:
34 patients included in the study. Nineteen (54.3%) were male, mean of age was 11.3 years old. Mean of duration of diabetes was 3 years, mean of thyroid stimulating hormone was 3.76 mIU/L (SD: 8.48), and mean A1c was 9.97 (2.24). Two male patients with high TSH level, 25 and 45 mIU/L, suffered from subclinical hypothyroidism. Association of duration of diabetes and thyroid stimulating hormone was $r_s = -0.068; p=0.703$ ($p>0.05$) and association of thyroid stimulating hormone and hemoglobin A1c was $r_s = -0.017; p=0.925$ ($p>0.05$).

Conclusion:
There wasn’t any association between thyroid stimulating hormone and hemoglobin A1c in T1DM children.

Keywords: Thyroid stimulating hormone, hemoglobin A1c, type 1 diabetes mellitus children.

Table 1. Distribution of HbA1c and TSH level in T1DM children

<table>
<thead>
<tr>
<th>TSH (mIU/L)</th>
<th>HbA1c &lt; 9.0</th>
<th>HbA1c ≥ 9.0</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2.2</td>
<td>9 (39.1%)</td>
<td>14 (60.9%)</td>
<td>23 (100.0%)</td>
</tr>
<tr>
<td>≥2.2</td>
<td>4 (36.4%)</td>
<td>7 (63.6%)</td>
<td>11 (100.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>13 (38.2%)</td>
<td>21 (61.8%)</td>
<td>34 (100.0%)</td>
</tr>
</tbody>
</table>

Figure 1. Association between TSH and HbA1c level

Figure 2. Association between Hb A1c and duration of illness(year)

REFERENCES