**Introduction:** 2020 ESPE guidelines recommend early reevaluation in primary congenital hypothyroidism (PCH) with thyroid in situ (TIS) and with levothyroxine dose lower than 3 mcg/kg/day.

**Objectives:** To consider infants percentage on levothyroxine treatment that could benefit from early reassessment in our population.

**Material and methods:**

Our Congenital Hypothyroidism (CH) screening program determine TSH and Total T4 (TT4) levels in dried blood spot (DBS) at 48 hours of life. A second DBS (DBS2) is indicated when the first is positive.

Multicenter retrospective study (05/2016-05/2020; 105,858 neonatal screenings) of all newborns ≥33 weeks and/or ≥1500 grams with TSH>10 mIU/L in DBS2 Serum TSH and FT4 were determined to make final diagnosis:

- **PCH:** TSH>20 mIU/L
- **Hyperthyrotropinemia (HT):** TSH 10-20 mIU/L.

Levothyroxine dose was assessed at diagnosis, at 6 and 12 months. Differences were related to phenotype.

**Results**

![Graph showing DBS2 TSH and Serum TSH correlation](image)

**Phenotypes differences**

<table>
<thead>
<tr>
<th></th>
<th>Dysgenesis/hypoplasias n=25</th>
<th>TIS n=7</th>
<th>Hyperthyrotropinemas n=5</th>
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</thead>
<tbody>
<tr>
<td>Serum TSH (mIU/L)</td>
<td>300 (73-779)*</td>
<td>82.9 (76.3-89.5)*</td>
<td>15.9 (9.5-1.6)*</td>
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<tr>
<td>Serum FT4 (ng/dL)</td>
<td>0.7 (0.2-1.2)**</td>
<td>1.7 (1.6-1.8)**</td>
<td>1.3 (1.2-1.5)</td>
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<tr>
<td>Gestational age (weeks)</td>
<td>40 (37-42)</td>
<td>39 (35-40)</td>
<td>40 (35-41)</td>
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<tr>
<td>SDS-newborn length</td>
<td>0.2 (-2.0-1.9)</td>
<td>0.0 (-1.1-2.5)</td>
<td>-0.5 (-3.4-1.3)</td>
</tr>
<tr>
<td>SDS-newborn weight</td>
<td>0.4 (-2.0-2.0)</td>
<td>0.1 (-1.3-0.5)</td>
<td>-0.2 (-1.8-0.7)</td>
</tr>
<tr>
<td>Levothyroxine start (days)</td>
<td>7.0 (4.0-16.0)*</td>
<td>7.0 (5.0-15.0)</td>
<td>18.0 (10.0-44.0)*</td>
</tr>
</tbody>
</table>

**Starting dose (µg/kg/day):**

- 6 month dose (µg/kg/day): 4.5 (2.0-10.0)*
- 12 month dose (µg/kg/day): 3.9 (1.3-6.0)*

**6 month dose (µg/kg/day):**

- TSH-DBS2 and serum TSH levels had a good correlation

**Conclusions**

**TSH-DBS2 and serum TSH levels had a good correlation**

Thyroid dysgenesis is the most common cause of PCH

At the 6th and 12th months of life, a quarter of TIS and HT had low levothyroxine dose and an early reassessment can be considered.