# EARLY REASSESSMENT IN CONGENITAL HYPOTHYROIDISM

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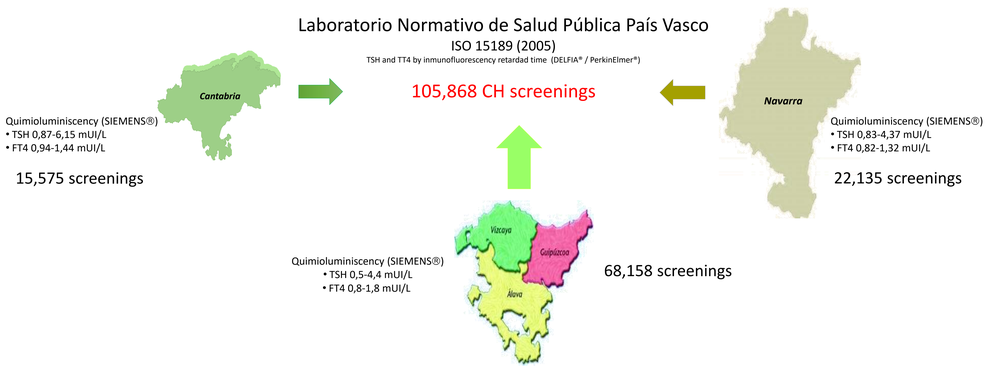
**Introduction:** 2020 ESPE guidelines recommend early reevaluation in primary congenital hypothyroidism (PCH) with thyroid in situ (TIS) and with levothyroxine dose lower than 3 mcg/kg/day.

**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)

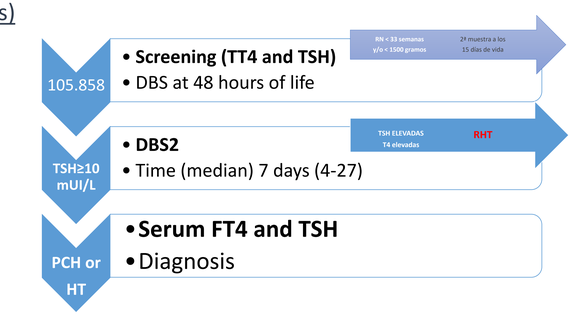
of all newborns **≥33 weeks and/or ≥1500 grams with TSH≥10 mIU/L in DBS2**

Serum TSH and FT4 were determined to make final diagnosis:

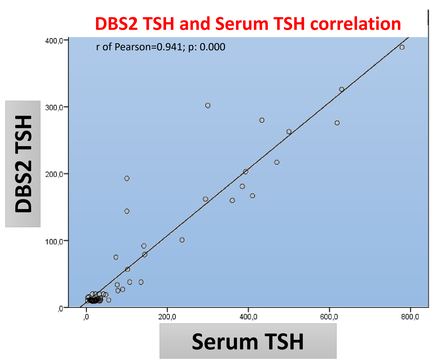
- **PCH:** TSH>20 mIU/L
- **Hyperthyrotropinemia (HT):** TSH 10-20 mIU/L.

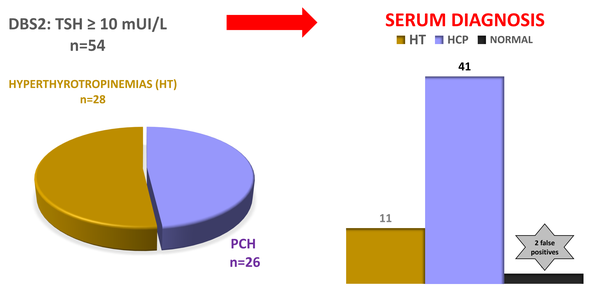
Levothyroxine dose was assessed at diagnosis, at 6 and 12 months.

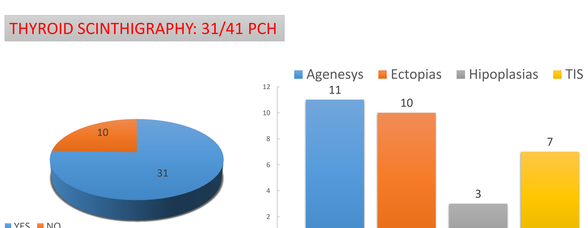
Differences were related to phenotype.

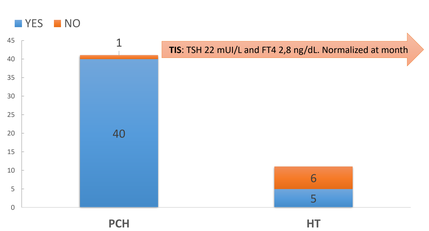



# Results




| Phenotypes differences<br>Values: median (range) | Dysgenesis/hypoplasias<br>n=25 | TIS<br>n=7 | Hyperthyrotropinemias<br>n=5 |
|---|---|---|---|
| **Serum TSH (mIU/L)** | 300 (73–779)[a] | 82.9 (76.3–89.5)[a] | 15.9 (9.5–1.6)[a] |
| **Serum FT4 (ng/dL)** | 0.7 (0.2–1.2)[a,c] | 1.7 (1.6–1.8)[c] | 1.3 (1.2–1.5) |
| **Gestacional age (weeks)** | 40 (37–42) | 39 (35–40) | 40 (35–41) |
| **SDS-newborn lenght** | 0.2 (-2.0–1.9) | 0.0 (-1,1–2.5) | -0.5 (-3.4–1.3) |
| **SDS-newborn weight** | 0.4 (-2.0–2.0) | 0.1 (-1.3–0.5) | -0.2 (-1.8–0.7) |
| **Levothyroxine start (days)** | 7.0 (4.0–16.0)[b] | 7.0 (5.0–15.0) | 18.0 (10.0–44.0)[b] |
| **Starting dose (µg/kg/day)** | 12.5 (2.9–17.0)[b,e] | 6.5 (3.5–13.0)[e] | 3.5 (3.0–6.0)[b] |
| **6 month dose (µg/kg/day)** | 4.5 (2.0–10.0)[a,d] | 3.0 (1.6–3.8)[d] | 1.6 (1.1–2.7)[a] |
| **12 month dose (µg/kg/day)** | 3.9 (1.3– 6.0)[a] | 2.5 (1.3–3.1)[a] | 2.0 (1.2–2.0)[a] |

U Mann-Whitney:[a] p:0.000;[b] p:0.001;[c] p:0.002;[d] p:0.003;[e]p:0.004

## 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 could be consider**