Newborn Screening Program for Congenital Hypothyroidism: eighteen years of experience in Buenos Aires Province, Argentina.

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Introduction

- Screening neonatal programs show a wide variation in the incidence of congenital hypothyroidism (CH) along the years, particularly for patients with eutopic thyroid gland.
- Variable frecuencies of extratiroideal malformations have been reported.

Aims

➢ To up-to-date CH incidence and describe etiology, associated malformations and Down Syndrome (DS) in CH children detected by neonatal screening program in Buenos Aires province (PRODYTEC).

➢ To search differences between permanent CH (PCH) and transient forms (TCH) in patients with eutopic thyroid gland .

Methods

✓ Every newborn (NB) with positive screening results for CH was referred to our confirmation center between 1995 and 2013.

✓ CH was confirmed with TSH ≥25 uUI/ml and <T4 10 ug/dl.

✓ Two periods were analyzed: 1995-2004 (P1) and 2005-2013 (P2).

✓ Incidence was calculated in each period.

✓ We described associated malformations and DS.

✓ At three years of age CH children were reevaluated to distinguish between PCH and TCH. Etiologies were described.

✓ Sex; delivery; birth weight; age, TSH, T4, levotiroxine dose (LTd) at start of treatment; and LTd at reevaluation were compared between PCH and TCH patients with eutopic thyroid gland.

✓ Statistical analysis Student's and Mann Whitney tests were used for continuous variables and Kruskal Wallis test for comparison between groups.

Results

❖ Of 2.889.819 evaluated NB, 1331 were confirmed (F:M, 2:1).

❖ They were treated with a mean LTd of 12.43±2.12 ug/kg/day.

❖ Median age at diagnosis was 18 (14-26) days.

❖ Global CH incidence was 1:2.171 NB.

❖ CH incidence in each period was P1=1:2.425, P2=1:1.969.

❖ Twenty-three CH children had DS.

Figure 1. *Associated malformations in all patients with CH*

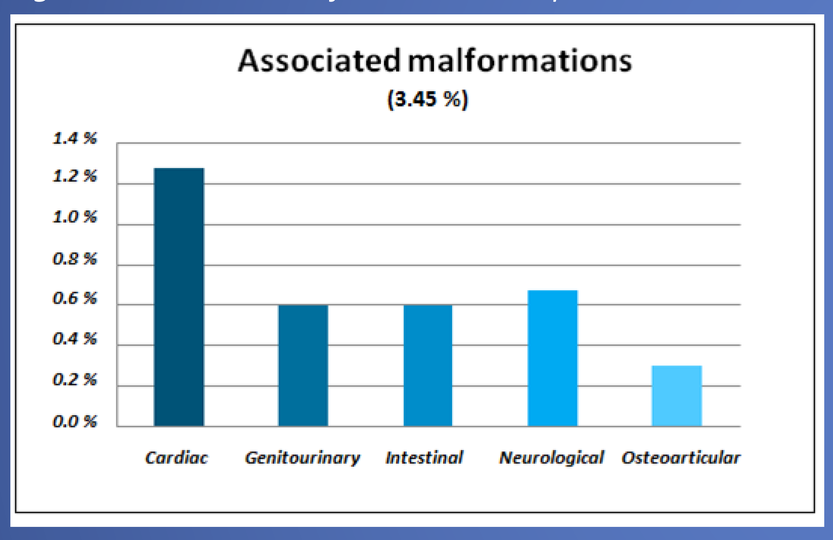


Figure 2. *Congenital hypothyroidism etiologies*

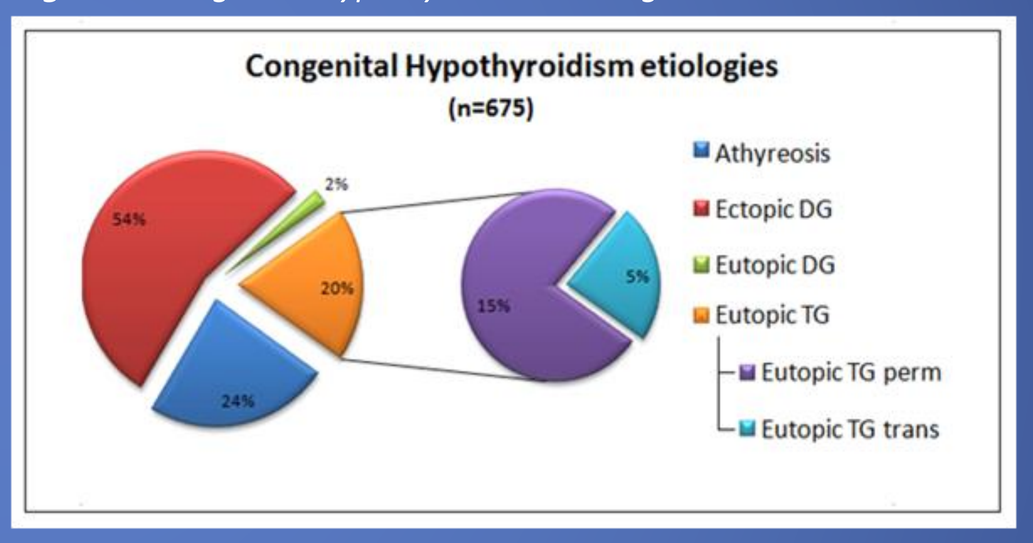
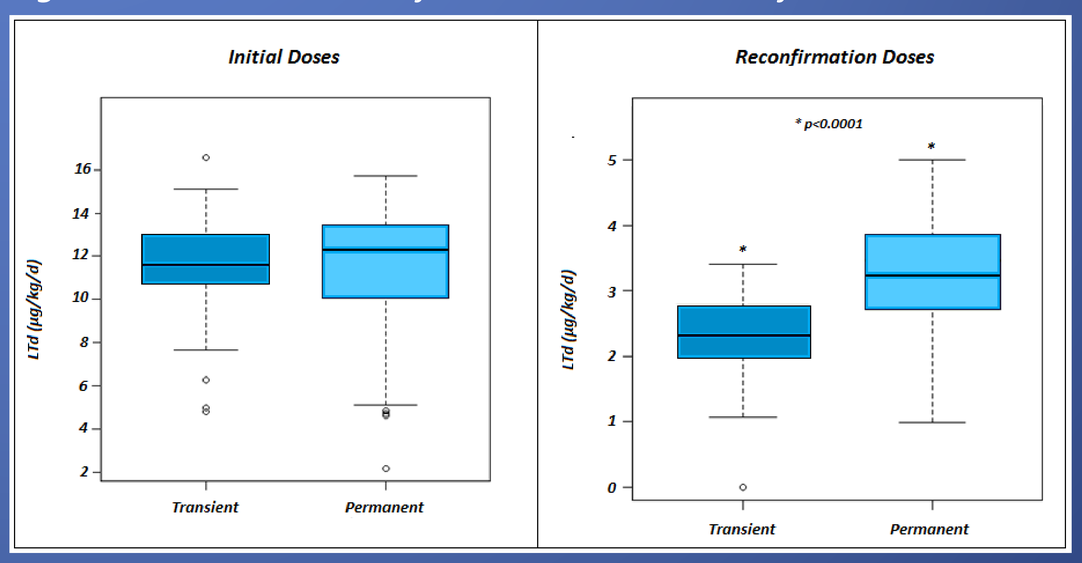


Table 1. *Variables comparison between PCH and TCH*

	Permanent (n=101)	Transit (n=31)	p-value
Masculine	56 (54.9%)	11 (36.7%)	0.079
Delivery	34 (46.6%)	10 (50%)	0.786
TSH (uUI/ml)	79.5 (24.9 , 299.9)	77.2 (25.4, 192.5)	0.660
T4 (ug/dl)	3.7 (1.2, 7.6)	5 (2.1, 7.5)	0.359
Age at start of treatment (days)	23.5 (16, 34.3)	24 (19, 35)	0.464
Age at reconfirmation (years)	3.29 (3.05, 3.66)	3.15 (3.03, 3.57)	0.288
Birth weight (grams)	3200 (2765, 3585)	2940 (2658, 3398)	0.106
Weight at reconfirmation (grams)	15050 (13725, 16175)	14500 (13500, 15900)	0.413
Doses at start of treatment (ug/kg/day)	11.44 ± 2.8	11.50 ± 2.71	0.924
Doses at reconfirmation (ug/kg/day)	3.22 ± 0.89	2.29 ± 0.74	<0.0001

Figure 3. *LT Doses at start of treatment and at reconfirmation*



Conclusions

1- Last years' CH incidence has increased in this program.

2- Associated malformations were found in 3.45% of these CH patients.

3- Transient CH forms showed a low frequency (5%).

4- CH patients who required lower LTd at reevaluation were likely to have TCH forms.

The authors declare that there is no conflict of interest.

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