

Graves' Disease in a Pediatric Population: results from the last 17 years at a Pediatric Endocrinology Unit



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INTRODUCTION AND OBJECTIVES

Graves' disease (GD), the main cause of hyperthyroidism in children, is caused by thyrotropin receptor stimulating autoantibodies (TRABs) that activate thyroid hormone synthesis, secretion and thyroid growth. Therapeutic options are anti-thyroid drugs (ATD), 131-I or thyroidectomy and they are still a matter of controversy specially in pediatric age. This study reports a Tertiary Hospital Pediatric Endocrinology Unit experience from the past 17 years.

METHODS

Review of the 25 GD patients diagnosed from January/2001 to October/2017

Inclusion criteria:

- Age under 18 years old
- Follow-up time in the unit over 6 months

Exclusion criteria:

- Lost of follow-up in the Unit



21 patients selected

Remission: disease-free time, without therapy, for 12 or more months.

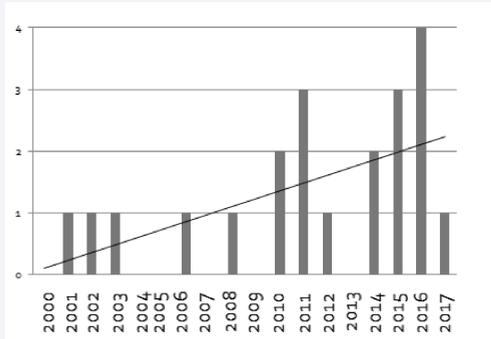
Relapse: recurrence of disease after 12 months of ATD withdrawal.

Statistical significance at <0.05.

RESULTS

PATIENTS CHARACTERIZATION

- 19♀ e 2♂ - (ratio 9,5:1)
- Mean age - 14,6±2,6 (10,4-17,2) yrs
- Median age at diagnosis - 11,9±3,5 yrs (4,0-16,0) (n=15 pubertal)
- Family history of thyroid disease (n=5)
- Ophthalmopathy (n=6)
- 38% of diagnosis in the last 2yrs (fig.1)



- Remission rate: 23,8% (n=5)
- Median time in remission : 20,0 months (1,0-58,0)
- Relapse rate: 25,0% (n=1)
- Follow-up time after discharge: 6,0±4,5 yr

TREATMENT WITH ANTI-THYROID DRUGS

- First option treatment
- PTU (n=5, all before 2010), MMI (n=15), carbimazole (n=1)
- PTU mean dose: 3,8±4,77mg/kg (range 0,12-10,9)
- MMI mean dose: 0,32±0,11mg/kg (range 0,18-0,50)
- No adverse effects with MMI. One case of *severe hepatitis with PTU*
- Remission and relapse rates were similar for both ATD ($p=0,217$)
- Maintain ATD (n=7) (22,9±9,0 months) (14,0-36,0)
- Comparing PTU and MMI results:

Variable	MMI	PTU	P value
Time until normal TSH (months)	4,4±2,9 (0,8-10,0)	6,5±0,7 (6,0-7,0)	0,049
Time until normal T3 and T4 (months)	3,3±2,9 (0,4-10,0)	3,0±1,4 (2,0-4,0)	0,844
Mean treatment duration (months)	28,9±13,2 (14,0-56,0)	40,6±35,5 (4,0-98,0)	0,280
Maintenance time of ATD after TSH normalization (months)	24,5±14,0 (6,0-54,0)	20,5±2,1 (19,0-22,0)	0,323
TRAb titre after normalization of thyroid hormones (xN)	5,2±9,3 (0,0-24,7)	18,7	0,199

ANALYTIC AND ULTRASONOGRAPHY EVALUATION

- T4 levels 7,7 xN (range 0,0-35)
- T3 levels 2,1 xN (range 0,0-5,7)
- TRABs at diagnosis: 27,5 xN (range 0,0-188,0) (n=14)
- Anti-TG and anti-TPO Ab: positive (n=16 and n=19 respectively)
- Thyroid volumes: >97th percentile in all patients (median volume of 24,1±9,1mL – range 9,2-41,5)

DEFINITIVE TREATMENT

RAI (n=6; two doses (n=1))

- No adverse reactions except hypothyroidism
- Mean age at RAI: 15,8±2,3 (11,9-18,3) years
- Median thyroid volume estimated (scintigraphy): 36g (20-80)
- Median 131-I dose per thyroid volume: 12,9 mBq/g (5,6-27,9)
- Time until hypothyroidism: 4,0±1,9 months (2,0-6,0)

Surgery (n=2)

- Total and subtotal thyroidectomy; definitive hypoparathyroidism (n=1)

DISCUSSION AND CONCLUSIONS

As recommended by 2010 international Guidelines, Tiamazole was the first treatment. Only 23,8% of patients entered remission despite a rapid achievement of euthyroidism and a long treatment duration. High TRABs titre persisted after normalization of thyroid hormones and long course ATD. Surgery and 131-I were second line treatment options, with high rate of success and without adverse effects. For the past 14 years there are no reported cases of thyroid neoplasia or other tumors after 131-I. Authors also emphasize the increasing number of cases diagnosed in the last decade.



8. Thyroid; Poster Number: P3-P362

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