

PEDIATRIC GRAVES' DISEASE IN SOUTHERN TUNISIA

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INTRODUCTION

Hyperthyroidism is uncommon in children. Graves' disease is the most common cause in pediatric population. The diagnosis is based on the presence of anti-TSH receptor antibodies. Pediatric Graves' disease has some peculiarities mainly in term of treatment and evolution, since its prognostic is different than adults.

AIM

The aim of this study is to describe the epidemiological, clinical and biological features of pediatric Graves' disease. We also evaluated the effectiveness of treatment and determining the risk factors of remission and relapse.

METHOD

- A retrospective chart review of all Pediatric Graves' cases referred to our department during 23 years (from January 1st 1997 to December 31st 2019).
- We included in our study all cases of Graves' Disease in children under 18 years of age..
- The diagnosis of Graves Disease was confirmed by a set of clinical, biological, immunological and radiological criteria.
- We did not include in the study children with insufficient or impossible data collection and children with an unconfirmed diagnosis of Graves' Disease.

RESULTS

- A total of 25 children met diagnostic criteria (16 girls and 9 boys; sex ratio: 0.56). Annual incidence rate was 1,08 case per year.
- The average age was 9,02 +/- 3,96 years (**figure 1**). According to the age groups, the children in our study were divided into 2 groups:
 - Group 1: including children under 10 years old (<10 years old). This group included 13 children (52%)
 - Group 2: including children aged 10 or over. This group included 12 children (48%).
- At diagnosis, weight was decreased with median weight -0,52 +/- 1,03 SD, height was increased with median height 0,36 +/- 1,36 SD, 18 children had goiter, 16 had exophthalmos, 14 had tachycardia and 4 children were hypertensive (**figure 2**).
- Free T4 levels were elevated in 96% cases. TSH was suppressed in all cases (**figure 3, figure 4**).
- TRAK results were available in 8 cases and were positive in all of them (**table 1**).

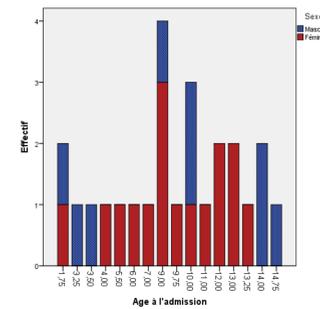


Figure 1: Distribution of children by age at admission and by sex

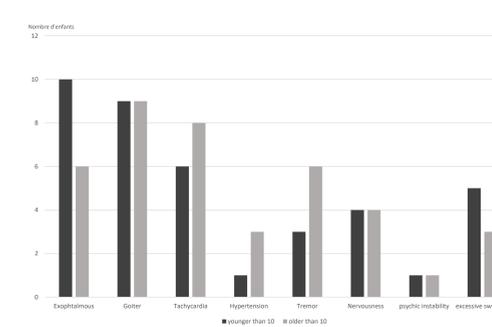


Figure 2: Distribution of children according to the main clinical signs and according to age groups

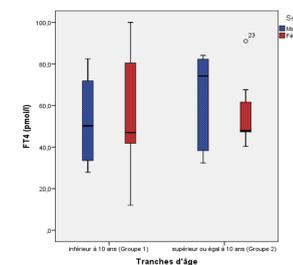


Figure 3: The average FT4 values according to age groups and according to sex

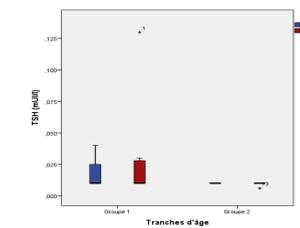


Figure 4: Average TSH values by age group and by sex

	Group 1 (younger than 10 years old)	Group 2 (older than 10 years old)	p
Age (years)	6,03 +/- 2,96	12,25 +/- 1,68	
Sex (M/F)	4 / 9	5 / 7	0,44
Time between onset of symptoms and diagnosis	0,99 +/- 1,34	0,68 +/- 1,17	0,28
Goiter	9/13	9/12	0,55
Exophthalmos	10/13	6/12	0,16
Tachycardia	6/13	8/12	0,26
Mean FT4 (pmol/l)	54,66 +/- 26,95	59,02 +/- 19,99	0,58
FT4 ≥ 50 pmol/l	5	6	0,5
Mean TSH (mU/l)	0,25 +/- 0,33	0,01	0,01
TRAK > 4* upper limit	3	3	
TRAK ≤ 4* upper limit	1	1	0,78

Table 1: Clinico-biological correlations according to the severity of the initial clinical presentation

	Benzylthiouracile	Thiamazole	Total
Group 1	7 (58,3%)	5 (41,7%)	12
Group 2	7 (63,6%)	4 (36,4%)	11
Total	14 (61%)	9 (39%)	23

Table 2: Distribution of children according to the antithyroid drug molecules used and according to groups

	Number of children	Percentage
Long term remission	3	13%
Short term remission	2	8,7%
Relapse	2	8,7%
Undergoing medical treatment	2	8,7%
Treatment resistance	1	4,3%
Lost to follow-up	12	52,2%
Death	1	4,3%

Table 3: Clinico-biological correlations according to the severity of the initial clinical presentation

- Initial treatment was with antithyroid medication and it was started in 23 cases. We used Benzylthiouracile (BZU) in 14 cases and Thiamazole (Thi) in 9 cases (**table 2**). Initial mean BZU dose was 256,43 +/- 46 mg/1,73m²/j and mean Thi dose was 0,6 +/- 0,34 mg/Kg/j. Block and replace method was used in 4 cases. Eight children presented side effects from treatment.
- The total duration of treatment with BZU averaged 35.33 +/- 26.4 months; the total duration of thi treatment averaged 22 +/- 22.54 months.
- Radical treatment was proposed for one girl, it consisted of surgery (total thyroidectomy).
- After a mean duration of follow-up of 37,81 +/- 38,79 months, long term remission was obtained in 3 cases, short term remission in 2 cases. Two children have relapsed and 12 were lost to follow up (**table 3**).

CONCLUSIONS

- we insist on the need for a better knowledge of Graves' Disease in children, allowing an earlier diagnosis in order to avoid the mainly cardiac and neuropsychiatric complications of this disease and on the importance of orienting these children at a specialized center in order to optimize the therapeutic management which remains burdensome despite the various treatment options.
- Graves' disease medical treatment is cheap and safe but requires prolonged follow up.

CONTACT INFORMATION

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