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THE REFERENCE AND FOLLOW-UP SIGNS AND SYMPTOMS OF THE CASES WHO ARE DIAGNOSED AS HYPERTHYROIDISM

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OBJECTIVE: Hyperthyroidism is rarely seen in the childhood. Graves disease is the most common cause of the hyperthyroidism. Although the treatment of hyperthyroidism in the childhood is contraversial, antithyroid drugs are often chosen as initial treatment option. In this study, we evaluated the reference sign and symptoms and the following laboratory and treatment results of the hyperthroidism cases who were followed up in our pediatric endocrinology clinic.

METHOD: Datas of the 78 patients who were followed in our pediatric endocrinology clinic were extracted from hospital records retrospectively. Patients' height, weight, body mass index(BMI) and their standard deviations, laboratory results at the time of diagnosis are recorded. Laboratory findings of the patients in 15 days, 2 months, 6 months, 12 months after the diagnosis and height, weight, body mass index and their standard deviations of the patients in 6 months and 12 months after diagnosis are compared. Antithyroid drug doses at the 2 months, 6 months, 12 months after the diagnosis are compared to initial treatment doses. The first six months and the second six month growth rate are calculated and compared.

RESULTS: Sixty-four of patients weere female and 14 of patients were male. Sicty-one of patients were older than 11-year-old age., 12 of the patients were in the 6-11 age range, and 5 of the patients are younger than 6-year-old age. Etiology of hyperthyroidism is detected in 62 of the patients as Graves disease, in nine of the patients as hashimoto tiroiditis, in five patients as subclinical hyperthyroidism, in two of the patients as neonatal hyperthyroidism. Antithyroid drugs are the initial treatment option in all patients: Prophylthiouracil(PTU) to 25 patients and methimazole(MTZ) to 41 patients. Also propranolol was added to treatment of 41 patients. According to ethiology of hyperthyroidism, the anthropometric and hormone measurements, antithyroid drug doses were given on the Table 1.

Table 1: Anthropometric and hormone measurements, antithyroid drug doses of patients at diagnosis

		Graves Disease	Hashimoto Thyroiditis	Subcinical Hyperthyroidism
Height (cm)		153,9±16	156,7±7	157,9±10
Weight (kg)		47,1±17	22,7±10	49,8±10
BMI		19,3±4,1	17,02±1,6	19,7± 2,3
Guatr	**Grade 0 (n (%)**	15 (24,2)	2 (22,1)	3 (60,0)
	Grade 1	10 (16,1)	1 (11,1)	1 (20,0)
	Grade 2	30 (48,4)	5 (55,6)	1 (20,0)
	Grade 3	7 (11,3)	1 (11,1)	-

Remission is seen in 37 patients. Patients are followed up mean 65±3.7 months. The antithyroid therapy was cut mean 30.4±14 months later in 22 patients. Hypothyroidism with antithyroid therapy was performed in 46 patients median 2(6) months later and L-thyroxin (L-T4) was added their therapy. Side effects of the antithyroid drugs are seen in two patients as urticeria due to the methimazole in one patient and the elevation of the liver function tests due to propylthiouracil in one patient. Seven patients who had remission before had relapse. Two patients who have the failure to achieve remission clinically and in laboratory findings and one patient who has follicular neoplasia suspicion underwent to the total thyroidectomy.

The thyroid function measurements of patients at the time of diagnosis were compared with the thyroid function measurements of 15th day, second month, sixth month and 12th month. There was detected increasing in TSH, and decreasing in fT3 and fT4 masurements ($p<0.05$). These changes were statistically significant (Table 2).
Methimazole dosage was diminishing and L-T4 dosage was steadily increasing during the follow-up and these changes was statistically significant ($p<0.05$). PTU dosage changes was not statistically significant (Table 3).

Table 2: Labratory findings of patients at the diagnosis and during follow-up

		Graves Disease	Hashimoto Thyroiditis	Subcinical Hyperthyroidism
At the diagnosis	TSH (uIU/mL)	0.01(0.05)*	0.02±0.008	0.4±0.1
	fT3 (pg/mL)	10.9 (18.5)*	7.4±1.9	3.6±0.1
	fT4 (ng/mL)	3.5 (3.8)*	2.1 (29.3)*	1.01±0.05
15th day	TSH	0,03 (0,08)*	1,3±2,2	1,2±1,45
	fT3	4,7 (2,5)*	4,9±3,1	3,2±0,17
	fT4	1,1 (2,2)*	1,23±0,7	1,13±0,18
2nd month	TSH	2,7 (20,8)*	17,1±32,1	0,56±0,5
	fT3	3,3 (1,18)*	4,4±3,8	3,34±0,24
	fT4	0,6 (0,4)*	0,95±0,9	1,11±0,06
6th month	TSH	3,8 (8,7)*	5,6±9,7	3,14±0,17
	fT3	3,3 (0,5)*	3,9±1,6	3,14±0,24
	fT4	0,8 (0,5)*	1,02±0,46	1,06±0,17
12th month	TSH	2,04 (2,2)*	15,4±30,4	0,89±0,22
	fT3	3,2 (0,87)*	3,4±0,6	3,3±0,21
	fT4	0,9 (0,3)*	0,8±0,3	1,4±0,5
*Median				

Table 3: Antithyroid drug doses of paeitns at the diagnosis and during follow-up

		Graves Disease	Hashimoto Thyroiditis	Subcinical Hyperthyroidism
At the diagnosis	Prophylthiouracil (mg/kg/d)	6.3±3	4.1±2	1.7
	Methimazole (mg/kg/d)	0.44±0.2	0.39±0.2	-
	Propranolol (mg/kg/d)	1.1±0.7	1.11±0.1	0,5
2nd month	Prophylthiouracil	5,1±2,8	5,5±0,6	-
	Methimazole	0,38±0,19	0,35±0,13	0,22
	Propranolol	0,82±0,32	-	0,43
	L-thyroxin	1,01±0,58	1,18±0,32	-
6th month	Prophylthiouracil	4,5±2,06	2,9±1,6	-
	Methimazole	0,27±0,14	0,2±0,07	0,17
	L-thyroxin	1,1±0,6	1,2±0,7	-
12th month	Prophylthiouracil	4,3±3,3	1,7	-
	Methimazole	0,28±0,12	0,21±0,02	-
	L-tiroksin	1,4±0,7	1,1±0,83	-
Final admission	Prophylthiouracil	6,3±5,2	3,2±1,08	-
	Methimazole	0,3±0,15	0,59±0,36	0,19±0,03
	Propranolol	0,69±0,14	0,43	-
	L-thyroxin	1,4±0,79	1,22±0,73	-
*Median				

CONCLUSION:

The most common cause of the hyperthyroidism is Graves disease and the older than 11-year-old female patients are made the majority in this study. Also it is detected that one third of the patients are diagnosed incidentally. Also almost half of the patients achieve remission with antithyroid drug therapy.