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CLINICAL SPECTRUM OF AUTOIMMUNE THYROIDITIS IN PAEDIATRIC AGE GROUP IN A TERTIARY CARE INSTITUTE

Paediatrics

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ABSTRACT

This is cross sectional study including 49 children diagnosed with Autoimmune thyroiditis treated on OPD basis..There was female preponderance with an overall female to male ratio of 3.5:1, mean age of presentation was 9.85 + 0.69 yrs. 51% patients had strong family history of thyroid dysfunction .Goitre was a most frequent sign seen in AITD. Other common findings were eye signs and tachycardia in hyperthyroidism while dry skin, short stature, bradycardia were common feature in hypothyroidism. Hypothyroidism 42 [86%] was the most common presenting feature for of AITD amongst children. Delayed bone age by 2 years was observed in patients suffering from hypothyroidism.

KEYWORDS

Autoimmune Thyroiditis, Hypothyroidism, Hyperthyroidism, Goiter,

INTRODUCTION

The prevalence of mild sub-clinical hypothyroidism in children and adolescents ranges between 1.7% and 2.9%, [1, 2].Autoimmune thyroid disease (AITD) is an important cause of thyroid dysfunction beyond mid childhood and adolescent. Increasing prevalence of autoimmune thyroiditis is being reported in pediatrics and adolescent age group (3).

The three major clinical forms of AITD are Hypothyroidism, Goitre without any functional disturbances or less commonly hyperthyroidism. The incidence, presentation, growth and clinical consequences differ from that in adults (4).

It affects scholastic performance, behaviour and higher functional abilities markedly differ markedly. Hashimoto Thyroiditis is the most common cause of acquired hypothyroidism with female to male ratio being 4:1. Long-term morbidity is known but mortality from thyroiditis is uncommon. The clinical spectrum of auto immune thyroiditis is quite variable more often in childhood. It occurs in isolation but it can be associated with other endocrinopathies (5,6)

MATERIALS AND METHODS:

This is cross sectional study including 49 children diagnosed to have autoimmune thyroiditis treated on OPD basis in Maharashtra state, Western India during November-December 2020..The purpose of the study was explained to the prospective participants; they were assured that confidentiality and anonymity would be maintained and their informed consent was obtained.. Patient with confirmed diagnosed case of AITD between age group of 0-18 years will be selected. Patient with acute and subacute thyroiditis were excluded. Detail History, family history and examination was carried out in a patients.

WHO grading system was used for grading goiter size, with a rating from Ia to III. Bone age was assessed according to Greulich and Pyle's atlas for skeletal maturation. The data were entered in Microsoft Excel spreadsheet (Microsoft Corporation, Redmond, WA, USA) and analyzed using SPSS statistical software Windows Version 25.0 (IBM Corporation, Armonk, NY, USA). The mean and standard deviation were calculated for continuous data. 95% confidence interval was represented as: [Mean–(1.96*Standard Error)] – [Mean + (1.96*Standard Error)]. Percentage distribution was computed for discrete data.

RESULTS

A total of 49 patients (females: 37[76%] males: 12[24%]participated in the study Out of all 49 patient analysed 7 [14%] patients were hyperthyroid and 42 [86%] were hypothyroid. there was female preponderance in both the form of AITD with overall female to male ratio of 4:1.

Table 1 :Age and Sex wise distribution of cases.

	Hyperthyroid			Hypothyroid			Total		
Age& Sex distribution	Total [%]	Male	Female	Total [%]	Male	Female	Total [%]	Male	Female
0-5 yrs	0	0	0	2[22%]	2[22%]	0	2[4%]	2[4%]	0
6-10 yrs	2[28%]	0	2[28%]	23[55%]	4[44%]	19[58%]	25[51%]	4[8%]	21[43%]
11-15yrs	3[43%]	2[28%]	1[14%]	16[38%]	3[33%]	13[39%]	19[39%]	5[10%]	14[28%]
>15 yrs	2[28%]	1[14%]	1[14%]	1 [2%]	0	1[3%]	3[6%]	1[2%]	2[4%]
Total	7[100%]	3[43%]	4[57%]	42[100%]	9[21%]	33[79%]	49[100%]	12[24%]	37[76%]

Table 2: Major Symptoms of presentation of AITD

Major Complaints	No.of patients [Percentage] 7[100%]	Major Complaints	No.of patients [Percentage] 42[100%]
Hyperthyroid		Hypothyroid	
Weight gain	1[14%]	Growth retardation	13[31%]
Prominent eyes	2[28%]	Weight gain	19[45%]
Tremor	2[28%]	Cold intolerance	6[14%]
Increased bowel movement	1[14%]	Dry skin	6[14%]
weight loss	3[42%]	Puffiness	4[9%]
heat intolerance	2[28%]	Lethargy	17[40%]
Goitre	2[28%]	Constipation	8[19%]
Poor scholastic performance	1[14%]	Schooling	7[16%]
Nervousness	3[42%]	Goitre	9[21%]
Irritability	2[28%]	Hair loss	2[5%]
Sleep difficulty	1[14%]		

Weight loss, Nervousness, tremors , goitre were the common presenting complaint in Hyperthyroid form of AITD where as weight gain & growth retardation were the common symptom in Hypothyroid form of AITD. Goitre was a most frequent sign seen in AITD. Other common findings were eye signs and tachycardia in hyperthyroidism and dry skin, short stature, bradycardia in hypothyroidism.

Table 3 : Major Signs reported in patients of AITD

Major Complaints Hyperthyroidism	No.of patients [Percentage] 7[100%]	MajorComplaints Hypthyroidism	No.of patients [Percentage] 7[100%]
Eye Signs	3 [43%]	Goiter	23 [55%]
Goiter	6 [85%]	Dry skin	13 [31%]
Tachycardia	2 [28%]	Puffiness	4 [10%]
Brisk reflex	1 [14%]	Pallor	9 [21%]
Tremors	1 [14%]	Hypertrichosis	5 [12%]
		Delayed dentition	2 [5%]
		Bradycardia	6 [6%]
		Delayed reflex	3 [7%]

Growth was affected markedly in Hypothyroid group which was not seen in Hyperthyroid group. Bone age was delayed by 2 years in hypothyroid group

Table 4: Height distribution in AITD

Percentile	<3	03-10	10-25	25-50	50-75	75-97	>97
Hyperthyroidism				1	3	2	1
Hypothyroisim	12	7	3	6	6	7	1
Total	12	7	3	7	9	9	2

Table 5 :Bone age orresponding to Chronological age and Height Age.

	Chronological Age	Height Age	Bone age
Hyperthyroidism	6.4	6.8	7.10
Hypothyroidism	9.35 + 3.01	8.18 + 3.55	6.59 + 2.68

DISCUSSION

The study included 49 children diagnosed as a case of autoimmune thyroiditis in the age group up to 18 years.Detail history, family history and clinical examination were carried out for each child. Laboratory investigations were planned based on clinical data. The diagnosis of AITD was based on the clinical features supported by laboratory evidence of altered thyroid function with the detection of thyroid antibodies ATG and APO

In this study there was female preponderance with female to male ratio of 3.5:1 which was similar as compared to other studies 2.9:1 Desai et al (7) and 2.8: 1 J Maenppa et al (8) and 6:1 in Ayca Torel Ergur et al (9)and 5.7:1 in Samim Ozen et al (10). The high female to male ratio observed at all ages suggests the inheritance of dominant mutant genes on the X chromosome in women, with incomplete penetrance in men (11,12). 7 (14%) children were having feature of hyperthyroidism and rest 42 (86%)were having features of hypothyroidism whereas in other study by Desai et al 77% had hypothyroidism 13% were euthyroid and 10% had thyrotoxicosis (7), and in study by Ayca Torel Ergur et al 14.1% hyperthyroidism, 43.1% had hypothyroidism and 40.8% were euthyroid (9), and in study Samim Ozen et al 49.5% were hypothyroidism and 36.7% were euthyroid and 13.8% were hyperthyroid (10).

In the present series, mean age of presentation was 9.85 + 0.69 yrs. The mean age at presentation in other studies were 10.1 + 2.9 yrs (5), 11.6±2.7 years (7) and 12.3 ± 2.9 years (10). Duration of symptoms ranged from a period of 3months to 4 years with a mean duration of 19 months. It was noted that nearly 51% (n=25) between 5 to 19 years and rest 39% (n=19) were presented between 11-15 years.

Family history of thyroid disorder among the family members was noted in 25 cases (51%). In other study family history was positive in 38% of children (7), 61% in Segni M et al (13). Mothers were more affected as compared to father and other relatives.

In Hyperthyroid children On examination goiter was the most common finding in this study 85% of children as well as in other two studies. In this study the bone age was more than chronological age and height age which was comparable with other study (7).

In Hypothyrod Children As seen above, Goiter presenting complaint in 21% of cases where as it was 60% and 58% in other two studies. Second common symptom weight gain was 45% which was comparable to 54% in other study. Growth retardation was seen in 31% of case as compared to 20% in other study (7). On examination goitre was the commonest finding in this study as well as in other two studies 74% and 58% respectively. Short stature was 29% in present study which was comparable to 20% in other study. In Hypothyroid children the mean bone age was lag behind the chronological age by 2 years, a finding similar to one reported earlier (7).

CONCLUSION:

From this study of 49 children it is concluded that autoimmune thyroididtis present mostly in age group of 5 to 15 years, with a marked female predominance and hypothyroid form being more common than hyperthyroid form of disease. Goitre is the most common clinical finding in both forms of AITD.

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