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A study of the clinical profile of Hypothyroidism in Government hospital of Gujarat.

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ABSTRACT

Background: Hypothyroidism is widely prevalent in overweight Indian women. many associated medical conditions and complications associated with patients with hypothyroidism compared to other population. Therefore prompt diagnosis and early treatment for hypothyroidism can avoid future complications in patients, especially for subclinical hypothyroidism.
Results: Hypothyroidism was found to be commoner in females as compared to males with female: male ratio of 9:1.Most common symptoms in overt hypothyroidism were breathlessness, fatigue and lethargy, while subclinical hypothyroidism patients have milder symptoms in nature. Serum total Cholesterol is borderline or slightly higher side in patients of hypothyroidism. Most of the hypothyroidism patient had positive anti tpo antibody suggestive of autoimmunity in aetiology.
Conclusion: Hypothyroidism was having in female preponderance with breathlessness, fatigue and lethargy as commonest presenting symptoms Most of the hypothyroidism patient had positive anti tpo antibody
Keyword: Hypothyroidism, lethargy, anti tpo antibody

INTRODUCTION:

Hypothyroidism is resulting from insufficient production or diminished action of thyroid hormone.[1]It is more common in females than male.[2]The prevalanceof hypothyroidism in developed countries is approx.4% to 5% and in India it is around 11%.[3]

It results from a variety of causes, from autoimmune thyroid disease to previous treatment for hyperthyroidism. Most common cause of hypothyroidism is iodine deficiency worldwide. Autoimmunity is responsible for over 90% of non-iatrogenic hypothyroidism in iodine sufficient areas.[2]

Symptoms of the disease are often too vague to confirm the diagnosis and it is confirmed by laboratory assessment of thyroid function. Because of the wide ranging effects of thyroid hormone, Hypothyroidism has profound detrimental effects on numerous organ systems. In majority of these effects can be prevented or reversed by treatment. The common symptoms and signs are fatigue, lethargy, constipation, weight gain, cold intolerance, loss of libido, dry skin, anemia, bradycardia and delayed ankle reflex, in young females in addition were menstrual irregularities, polycystic ovaries and infertility.[4] The likely complications of hypothyroidism like cardiac abnormality & dyslipidemia, systemic or neuropsychiatric menifestations.[5] In Indians, patients with asthma, obesity, diabetes, dyslipidemia, and hypertension had higher association of hypothyroidism.[6]Therefore, in order to recommend the most appropriate treatment, one should be knowledgeable about the physiology and aetiology of hypothyroidism and its most common clinical manifestations.

As thyroid hormone affects multiple systems of the body it's important is not just restricted to endocrinologist but its gaining its importance in general medical practice also. In the past, diagnosis of thyroid disease was possible only by indirect methods like BMR, S. Cholesterol, delayed relaxation of ankle jerk, ECG etc. therefore hypothyroidism was being under treated or over treated. But now, the development of thyroid hormone assays, tests for thyroid antibodies, radioactive iodine uptake and imaging modalities makes its accurate to certain extent.

As all investigations are not available at all levels, our aim in selecting this subject was to evaluate and study the clinical profile of hypothyroidism using minimal baseline investigations and treatment modalities available with its adverse effects and its role in supporting the coexisting morbidities.

MATERIALS AND METHODS:

This study was carried out on cases came to P.D.U Medical College and Hospital, Rajkot during the period of DECEMBER 2018 to NOVEMBER 2019.

The criteria for selection of patients for this clinical study was as under,

•Inclusion Criteria:

1. Age> 12 years
2. Patients having history and clinical features suggestive of hypothyroidism
3. Patients having diagnostic hormonal assay suggestive of hypothyroidism

•Exclusion Criteria:

1. Non compliant patient.
2. Patient having Inconclusive TFT report.

All the patients were clinically interrogated and examined in detail and confirmatory and necessary investigations available in government hospital premises were carried out. The clinical course was studied in detail.

All the patients included in the study were examined and evaluated according to structured clinical proforma.

RESULTS:

TABLE - 1

AGE WISE DISTRIBUTION OF HYPOTHYROIDISM

Age group(years)	**Number of Hypothyroid cases**	**Percentage**
13-20	7	14%
21-30	12	24%
31-40	13	26%
41-50	9	18%
51-60	5	10%
>60	4	8%
TOTAL	50	

Out of 50 patients, 25 patients are in the age group of 21- 40 years, that is 50% and maximum prevalence of hypothyroidism is in age group 31-40 years, that is 13 patient out of 50(26%), followed by age group 31-40 yrs., where there are 12 patient out of 50(24%) and least prevalence is in age group above 50-60yrs. that is 4 patient out of 50(8%).

TABLE - 2

GENDER WISE DISTRIBUTION OF HYPOTHYROIDISM

Sex	Number of cases	Percentage
Male	05	10%
Female	45	90%
Total	50	

Out of 50 patients of hypothyroidism, majority of patients (90%) 45 patients is female and only (10%) 5 patients are male. Ratio of female to male patient is 9:1. Hypothyroidism is mainly present in female gender.

TABLE - 3

SYMPTOMATOLOGY IN HYPOTHYROIDISM

Sr. No.	Symptoms	Number of patients (n=50)	Percentage
1	Breathlessness	33	66%
2	Fatigue and lethargy	22	44%
3	Weight gain	17	34%
4	Hoarseness of voice	14	28%
5	Neck swelling	13	26%
6	Menstrual disturbances	11	22%

7	Sleep disturbances	03	06%
8	Depression	O3	06%
9	Dry skin	03	06%
10	Hair loss	03	06%

As the table shows,out of 50 patients of hypothyroidism, most common symptomwith patient present is breathlessness that is33 out of 50 patients (66%) followed by fatigue and lethargy 22 out of 50 patients(44%). Patients present with usually more than one symptomand least symptomsare hair loss, sleep disturbance and other minor symptoms.

Breathlessness is more common among the overt hypothyroidism (30 out of 40 patients) as compared to subclinical hypothyroidism (3 out of 10).P value for this difference is calculated by Chi-square with yates correction is 0.0207 that is statically significant.

TABLE – 4

PULSE RATE IN HYPOTHYROIDISM

Sr. No.	Pulse rate	Number of patients	Percentage
1	< 60	12	24%

2	61 – 70	14	28%
3	71 – 80	16	32%
4	81 – 90	03	06%
5	91 – 100	02	04%
6	> 100	03	06%
Total		100	

As table shows out of 50 patients, majority of patients with hypothyroidism, 30 out of 50 show pulse rate between 60-80 per min that is 60 percent and maximum 16 out of 50 patients (32%) showing in-between 71-80 per min followed by 61-70 per minute that is 14 out of 50 (28%). And 12 out of 50 (24%) patient showing bradycardia that is below 60 per minute

TABLE -5

DIABETES MELLITUS AND HYPOTHYROIDISM

DIABETES MELLITUS	NUMBER OF PATIENTS	PERCENTAGE

POSITIVE	14	28%
NEGATIVE	36	72%
TOTAL	50	

As shown in table, out of 50 patients 14 patients have history of diabetes mellitus that is 28 percent and 36 patients have no history of diabetes associated with hypothyroidism.

TABLE -6

FAMILIAL PREDISPOSITION IN HYPOTHYROIDISM

FAMILY HISTORY	**NUMBER OF PATIENTS**	**TOTAL**	**PERCENTAGE**
POSITIVE	7	50	14%
NEGATIVE	43	50	86%

As shown in table out of 50 hypothyroidism patient there is only 7 patients have family history of first degree relative of hypothyroidism ,that is 14 percent and rest all 43 patients have no family history of hypothyroidism.

TABLE - 7

SERUM CHOLESTEROL LEVEL IN HYPOTHYROIDISM

S. Cholesterol level (mg/dl)	**Number of patients**	**Percentage**
Below 200	18	36%

200-250	24	48%
251-300	03	06%
Above 300	05	10%
TOTAL	50	

As, the table shows out of 50 patients , 24 patients have S.Cholesterol is in range 200-250 that is 46% and only 5 out of 50 patients shows cholesterol above 300.Mean S.cholesterol level of patient with subclinical hypothyroidism is 184.8 mg/dl and patients having overt hypothyroidism have mean S.cholesterol level of 226.4 mg/dl.

P value for association of high serum cholesterol in overt hypothyroid patient as compared to subclinical hypothyroid patient is 0.0194 (calculated by unpaired t test) which is statistically significant.

TABLE - 8

PREVALANCE OF SUBCLINICAL HYPOTHYROIDISM

PATIENT WITH SUBCLINICAL HYPOTHYROIDISM	**TOTAL NO. OF PATIENTS**	**PERCENTAGE**

10	50	20%

As shown in table, out of 50 patients only 10 patients have subclinical hypothyroidism that is 20 %. In this study Subclinical hypothyroidism is defined as an elevated serum TSH level with a normal serum fT4 concentration.[14] and patient having few clinical symptoms which are mild in nature.

TABLE - 9

ANTI TPO ANTIBODY IN HYPOTHYROIDISM

ANTI TPO ANTIBODY	**NUMBER OF PATIENTS**	**PERCENTAGE**
POSITIVE	17	85
NEGATIVE	3	15
TOTAL	20	

As shown in table out of 20 patients 17 patients have anti tpo antibody positive and 3 are negative that is 85 percent patient have antitpo antibody positive in hypothyroidism.

Due toavailability and affordability issue 20 patients are tested for anti tpo antibody testing. In which there are 6 patients of subclinical hypothyroidism in which 5patients are anti tpo antibody positive and started on levothyroxine treatment and 1 is negative.

DISCUSSION:

In the present study, highest number of cases of hypothyroidism were inbetween 31 - 60 years. Which correlated with studies done by Jain H. K et al[7] , D bania et al[8], Barauh mp et al[9], in which highest number of cases of hypothyroidism were in between 36 - 45 , 40-64, 40-60 respectively.
In Jain H. K et al[7] study weakness(85.8%) and weight gain (69.2%) were commonest symptoms and in Vairamanikandan et al[10] weight gain(52%) and lethargy (48%) were common symptoms of hypothyroidism but in present study, most common symptoms with which patient present were breathlessness and lethargy and this can be due to the late presentation of the patient in our society. Breathlessness was more common among the overt hypothyroidism (30 out of 40 patients) as compared to subclinical hypothyroidism (3 out of 10).P value for this difference is calculated by Chi-square with Yates correction is 0.0207 which is statically significant.

In D.Bania[8] study there was male to female ratio is 1.7:1 in Arindam Bose[11] it was 3.15 and Vairamanikandan[10] study it was around 1.94:1. The present study showed the female to male ratio of 9:1 which was similar to comparison study stating that Hypothyroidism is more common in females than males.

In Bhupendar Tayal[12] study, Barauh MP[9] and Vairamanikandan[10] study all showing average pulse rate around 70-90 beats per minute. and in our present study also average pulse rate was in-between 71-80 beats per minute.

In comparison to Ashrafuzzaman SM[13] study which showed the 7.01 percent incidence of diabetes in hypothyroidism in 442 cases our present study shows 28 % presence of diabetes hypothyroidism.Average age of all patients having Diabetes mellitus is 53.71 years and of all are having type 2 Diabetes mellitus.

In Barauh MP[9] study there is 11.59 percent hypothyroid have positive family history which is similar to present study that is 14 percent patient having positive family history.

In comparison to Ambika Gopalkrishnan Unnikrishnan[14] study which showed 8.02% prevalence of sub clinical hypothyroidism in 5376 patients, present study showed 20 % prevalence of subclinical hypothyroidism.In this study Subclinical hypothyroidism is defined as an elevated serum TSH level with a normal serum fT4 concentration.[14] and patient having few clinical symptoms which are mild in nature.

In comparison to Jayashankar CA[15] study there was 80 percent prevalence of anti tpo antibodies in hypothyroid patient; our present study also showed the 85 percent prevalence of anti tpo antibody.

CONCLUSION:

Majority of patients of Hypothyroidism were from the age group of 21- 40 years.Hypothyroidism was found to be commoner in females as compared to males with female: male ratio of 9:1.Most common symptoms in presenting symptoms in hypothyroidism were breathlessness, fatigue and lethargy and least common symptoms are dry skin, depression and hair loss.Overt hypothyroidism patients mainly presented with breathlessness and fatigue, lethargy while subclinical hypothyroidism patients had milder symptoms in nature. Serum total Cholesterol is borderline or slightly higher side in patients of hypothyroidism as compared to normal people and significantly high in patients with high TSH. While most of the patient having subclinical hypothyroidism have s. cholesterol in normal range.Mean s.cholesterol level in subclinical hypothyroidism is 184.8mg/dl (n=10) while in overt hypothyroidism it is around 226.4 mg/dl(n=40).In Hypothyroidism, risk of diabetes or prevalence of diabetes is slightly higher side as compare to normal people. Hypothyroid patient are higher risk for diabetes mellitus.Family history of hypothyroidism, show only little significance as only small number of patient shows positive family history in first degree relative. There can be association of genetic factors and hypothyroidism but not of much significance.Most of the hypothyroidism patient have positive anti tpo antibody and this shows the significant role of autoimmunity in aetiology and pathophysiology of hypothyroidism.Hypothyroidism symptoms can be due to subclinical hypothyroidism and there is 20 % prevalence of subclinical hypothyroidism and they should be treated if anti tpo are positive in those patients.

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