

Clinical Profile of Hypothyroid Adults of Reproductive Age Group- A Cross-Sectional Observational Study

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ABSTRACT

Objectives: To study the clinical profile and anthropometric parameters of hypothyroid adult patients of reproductive age group.

Methods: A cross-sectional observational study over a period of six months was carried in Khammam locality. A structured questionnaire was prepared and the data was collected.

Results: A total of 200 patients were included in the study, out of which 154 were female and 46 were male and their information was sampled. In females, Menorrhagia and Hair loss was found in 58.44% and 50.64% of patients respectively which was most common clinical presentation in our study. Slowness of activity and Dry skin was found in 40.25% and 28.57% of patients respectively. Weight gain and Constipation was found in 27.92% and 24.02% of the patients respectively. Lethargy, Cold intolerance and Hoarseness of voice were found 21.42%, 13.63% and 13.6% of patients respectively. In males, Hair loss and constipation was found in 85.41% and 82.60% of patients respectively. Slowness of activity and lethargy was found in 80% and 71.73% of patients respectively. Weight gain was found in 65.21% of patients. Cold intolerance, hoarseness of voice and Dry skin was found 39.13%, 39.13% 27.27% of patients respectively.

Conclusion: In our study we found a higher female preponderance of hypothyroidism. Most patients belonged to the age groups of 18-50 years. The most common of the symptoms included Weight gain, Hair loss, Dry skin, Hoarseness of voice, Lethargy, Cold intolerance and Constipation. In Females most common presentation was menstrual irregularities, Hair loss and Hypokinesia while in Males most common presentation was Hair loss, Constipation, Hypokinesia, Weight gain and Lethargy.

Keywords: Menorrhagia, Hypothyroid, Hypokinesia, Lethargy, Constipation, Cold intolerance, Hoarseness of voice.

INTRODUCTION

Reduced thyroid hormone production is the main feature of the clinical condition termed hypothyroidism. Permanent loss or destruction of the thyroid, through processes such as autoimmune destruction or injury, is described as Primary Hypothyroidism. Hypothyroidism is due to transient or progressive impairment of hormone biosynthesis which is typically associated with thyroid enlargement. Central or Secondary Hypothyroidism is caused by inadequate stimulation of a

normal gland, the result of hypothalamic or pituitary disease or defects in the thyroid-stimulating hormone (TSH). Transient or Temporary Hypothyroidism can be observed as a phase of subacute thyroiditis. This kind can be congenital. Primary hypothyroidism is the etiology in approximately 99% of cases of hypothyroidism. Reduced action of thyroid hormone at the tissue level in the phase of normal or increased thyroid hormone production from the thyroid gland can also be associated with clinical hypothyroidism.

Conditions associated with reduced thyroid hormone action are rare and include abnormalities of thyroid hormone metabolism and defects in nuclear signaling. Consumptive hypothyroidism, identified in an increasing number of clinical settings, is the result of accelerated inactivation of thyroid hormone by the type 3 iodothyronine deiodinase (D3). Defects of activation of the prohormone, thyroxine (T4), to the active form, triiodothyronine (T3), have also been identified. Polymorphisms in genes regulating thyroid hormone production and activation may influence thyroid hormone action in some tissues. Resistance to thyroid hormone (RTH), the result of defects in the thyroid hormone nuclear receptor or nuclear cofactors, is associated with elevated circulating levels of thyroid hormone (see later discussion). Some tissues, depending on the level of expression of the mutant receptor and other forms of local compensation, have evidence of reduced thyroid hormone action. Estimates of the incidence of hypothyroidism vary depending on the population studied. In the United States, 0.3% of the population have overt hypothyroidism, defined as an elevated serum TSH concentration and reduced free thyroxine concentration (fT4), and 4.3% have what has been described as subclinical or mild hypothyroidism. Although a number of clinical manifestations have been associated with this early or mild phase of hypothyroidism, the term subclinical is used here to describe this group, as in most clinical studies. Subclinical hypothyroidism is defined as an elevated serum TSH level with a normal serum fT4 concentration. Subclinical hypothyroidism can progress to overt hypothyroidism, and it can be associated with manifestations that, in some patients, can be improved with treatment. The incidence of hypothyroidism is higher among women, the elderly, and in some racial and ethnic groups.

METHODOLOGY

A cross-sectional observational study carried in and around the areas of Khammam town over a duration of 6 months with a study population of 200 patients newly diagnosed with Hypothyroidism. The patients were enrolled based on the inclusion criteria. The study material was patient data profiles (or) case sheet and through interaction with patient. They were asked to answer questions in the questionnaire form regarding the symptomology. The inclusion and exclusion criteria includes the following,

Inclusion criteria:

- Adult male and female patients of age group 18-50 years
- Biochemical history connected to hypothyroidism.
- Treatment naive.

Exclusion criteria:

- Central hypothyroidism.
- Other associated combinations (comorbidities) and hormonal disorders.

RESULTS

The results were categorized based on the age distribution. A total of 200 patients were included in the study, out of which 154 were female and 46 were male.

Table.1: Age and sex wise distribution of the study subjects

Age in years	Male	Female	Total
18-28	9(4.5%)	51(25.5%)	60(30%)
29-39	20(10%)	55(27.5%)	75(37.5%)
40-50	17(8.5%)	48(24%)	65(32.5%)
Total	46(23%)	154(77%)	200(100%)

Most commonly females with hypothyroidism were at the age groups of 18-28 and 29-39, whereas males with hypothyroidism were at the age groups of 29-39. Females had a higher prevalence rate than men. The female population constituted about 77% of total study population.

Distribution of study subjects based on symptoms as per age groups:

In females irrespective of age groups the most common symptom was menstrual irregularities (or) problems.

Table 2: Age group of 18-28.

Symptom	Number		Percentage	
	Female (51)	Male (9)	Female	Male
Cold intolerance	8	2	15%	22.2%
Weight gain	11	6	21.5%	66.6%
Lethargy	9	7	17.6%	77.7%
Dry skin	17	7	33.3%	77.7%
Hoarseness of voice	7	6	13.7%	66.6%
Constipation	12	8	23.5%	88.8%
Depression	0	0	0	0
Hair loss	14	8	27.4%	88.8%
Menstrual problems	34	0	66.6%	0
Hypokinesia	15	6	29.4%	66.6%
Forgetfulness	2	0	3.9%	11.1%
Dyspnoea	3	2	5.8 %	22.2%

Table 3: Age group of 29-39.

Symptom	Number		Percentage	
	Female (55)	Male (20)	Female	Male
Cold intolerance	5	6	9.09%	30%
Weight gain	20	11	36.6%	55%
Lethargy	13	15	23.63%	75%
Dry skin	14	16	25.45%	80%
Hoarseness of voice	6	5	10.9%	25%
Constipation	11	14	20%	70%
Depression	4	5	7.2%	25%
Hair loss	32	18	58.18%	90%
Menstrual problems	30	0	54.54%	0
Hypokinesia	25	16	45.45%	80%
Forgetfulness	2	3	3.63%	15%
dyspnoea	11	12	20 %	60%

Females with age group of 18-28 commonly has Dry skin, Hypokinesia, Hair loss, constipation whereas males with age

group of 18-28 commonly has Constipation, Hair loss, lethargy and Dry skin.

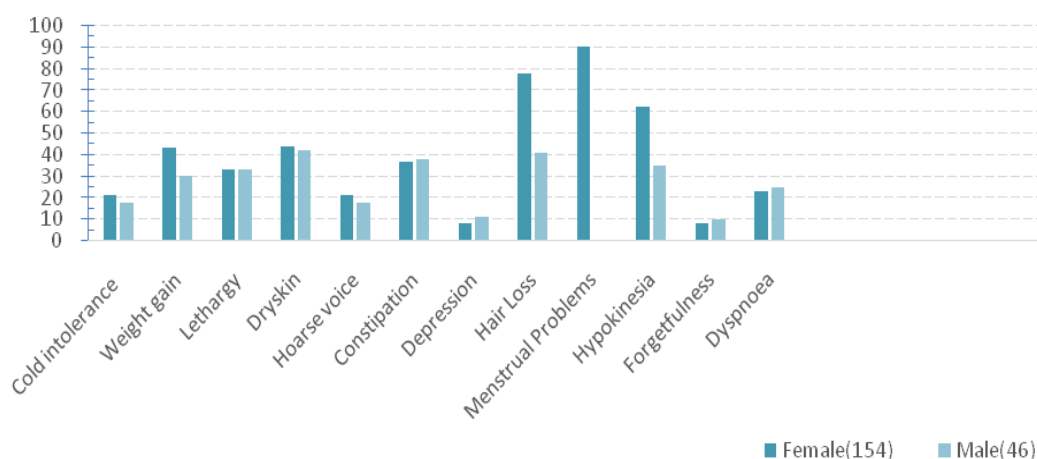
Table 4: Age group of 40-50.

Symptom	Number		Percentage	
	Female (48)	Male (17)	Female	Male
Cold intolerance	8	10	16.6%	58.8%
Weight gain	12	13	25%	76.47%
Lethargy	11	11	22.91%	64.70%
Dry skin	20	12	41.6%	70.58%
Hoarseness of voice	8	7	14.5%	41.17%
Constipation	14	16	33.3%	94.1%
Depression	4	6	12.5%	35.29%
Hair loss	32	15	66.6%	88.23%
Menstrual problems	26	0	54.1%	0
Hypokinesia	22	13	45.83%	76.47%
Forgetfulness	4	6	8.33%	35%
Dyspnoea	9	11	18.75 %	64.7%

Females with age groups of 29-39 commonly has Menstrual problems, Hair loss, Hypokinesia and weight gain whereas males with age of 29-39 commonly has Hair loss, Dry skin, Hypokinesia, lethargy and constipation.

Females with age groups of 40-50 commonly has Hair loss, Menstrual problems, Hypokinesia, and Constipation whereas males with age of 40-50 commonly has Constipation, Hair loss, Weight gain and Hypokinesia.

Fig 1: Schematic Representation of Symptomatic distribution of Total Study Subjects.



General Examination:

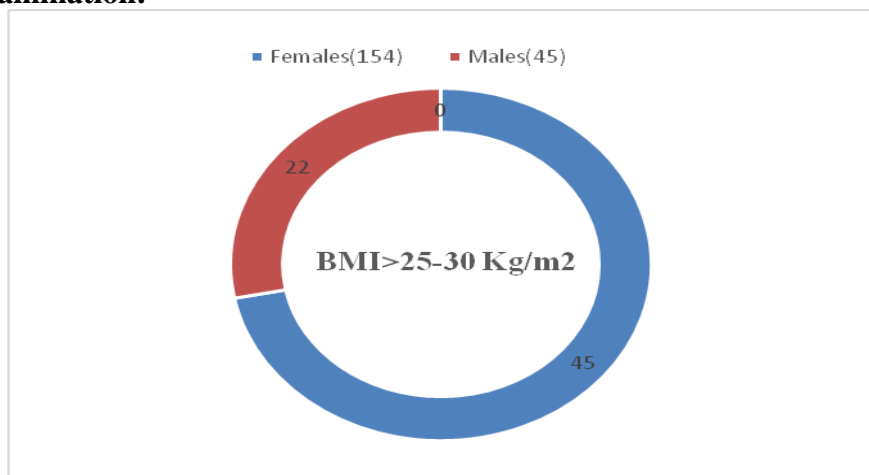
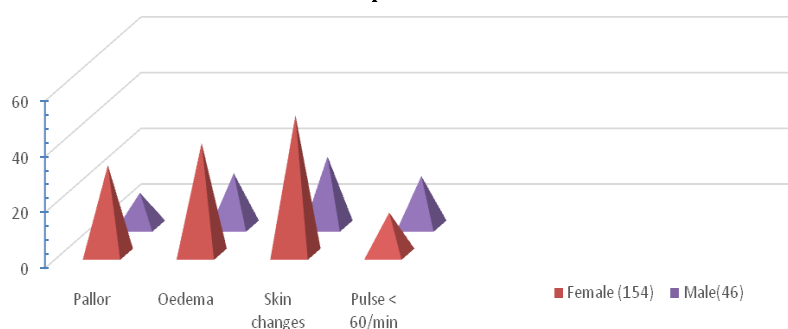


Fig 2: Anthropometric parameters of total study subjects.

In females almost 29.2% of total female study subjects has more BMI whereas in Males 47.8% of their respective total study subjects.

Fig 4: Schematic Representation of General Examination of Total Study Population.



On general examination Females and Males has almost 32.4% and 54.3% respectively then stands Oedema with 25% and 41.3% respectively later comes Pallor with 20.7% and 26% followed by Pulse < 60/min with 9.74% and 39.1% respectively of their total populations.

DISCUSSION

Age and Sex Distribution of total study subjects:

A total of 200 patients were included in the study, out of which 154 were females and 46 were male. Females had a higher prevalence of Hypothyroidism than male. The ratio between females and males are about 3.3:1.

Out of 154 females, 51 are between age group of 18-28, 55 females are between 29-39 and 48 females were between 40-50

age groups, whereas out of 46 males, 9 are between 18-28, 20 are between 29-39, 17 are between 40-50 age groups respectively.

Symptom scrutiny:

Most common symptoms are of Dry skin, Hair loss, Weight gain, Cold intolerance, Lethargy, Constipation, Menorrhagia, Hoarseness of voice and Slowness of activity.

In Females Menorrhagia and Hair loss was found in 58.44% and 50.64% of patients respectively. Slowness of activity and Dry skin was found in 40.25% and 28.57% of patients respectively. Weight gain and Constipation was found in 27.92% and 24.02% of the patients respectively. Lethargy, Cold intolerance and Hoarseness of voice was found 21.42%, 13.63% and 13.6% of patients respectively.

In Males hair loss was found in 85.41% of patients. Constipation and Slowness of activity was found in 82.60% and 72.91% and of patients respectively. Weight gain and Lethargy was found in 65.21% and 71.73% of the patients respectively. Cold intolerance, Hoarseness of voice and Dry skin was found 39.13%, 39.13% and 27.27% of the patients respectively.

General examination:

On general examination Females and males has almost 32.4% and 54.3% respectively then stands Oedema with 25% and 41.3% respectively later comes Pallor with 20.7% and 26% followed by Pulse < 60/min with 9.74% and 39.1% respectively of their total populations. In Females almost 29.2% of total Female study subjects has more BMI whereas in males 47.8% of their respective total study subjects.

CONCLUSION

In our study we found a higher Female preponderance a finding which echoed in the previous literatures. Most patients belonged to the age groups of 18-50 years. The most common of the symptoms included Weight gain, Hair loss, Dry skin, Hoarseness of voice, Lethargy, Cold intolerance, Hypokinesia and Constipation.

In Females most common presentation was menstrual irregularities, Hair loss and Hypokinesia while in Males most common presentation was Hair loss, Constipation, Hypokinesia, Weight gain and Lethargy.

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APPENDIX

APPROACH TO THYROID CASE

1. Name
2. Age
3. Sex
4. Occupation
5. Place of residence – Goiter belt of India/UP or not
6. History of neck swelling front aspect of neck
 - a. Onset, duration, progression, rate of growth
 - b. Unilateral or both sides
 - c. Any recent rapid growth
 - d. Associated pain/ discomfort – neck, ears, jaw/ discomfort/ fever
 - e. Temporal correlation of goiter with thyrotoxicosis if present
 - f. Other swellings – Neck LN swellings, bony swellings/ back ache
7. Pressure symptoms
 - a. Difficulty in breathing
 - b. Stridor
 - c. Dysphagia to solids/ liquids
 - d. Dry cough on lying down
 - e. Hoarseness of voice
 - f. Face and neck swelling/ prominent veins
8. Thyroid function
 - a. Hypothyroidism –

- Weight gain despite poor appetite
 - cold intolerance
 - constipation
 - puffiness of face, around eyes
 - lethargy
 - slowness of activities
 - change in voice
 - excess sleepiness
 - proximal myopathy
 - menstrual issues
 - coarse dry skin
 - loss of hair
 - reduced memory
 - academic deterioration
9. MTC – diarrhea, wheeze, flushing
 10. Skin – Dermopathy – plaques, hyperpigmentation
 11. Iodized salt
 12. Drugs – RAI ablation, amiodarone, Li, IFN
 13. Iodine belt or not – goiter/ cretinism in community, flooding and leaching of soil
 14. Family history of thyroid illness/ history of cretinism

15. Smoking

Examination:

General appearance

1. Puffiness of face especially around eyes
2. Skin changes
3. Wt
4. Ht
5. BMI

Thyroid function

1. Pulse
2. Tremors – fine distal, outstretched hands
3. Sweating - Palms
4. Delayed relaxation of ankle jerks
5. Voice -hoarse
6. Coarse dry skin

How to cite this article: Rallabandi S, Kumar A, Challa S. Clinical profile of hypothyroid adults of reproductive age group- a cross-sectional observational study. Int J Health Sci Res. 2020; 10(9):138-143.
