

Study of hypothyroidism in adult population

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Abstract

Background: Hypothyroidism is the most frequently encountered health problem in India, especially among women population. **Aims and Objectives:** To study the occurrence of hypothyroidism in adults with male to female ratio, its age of onset, to see for drug induced hypothyroidism. To see for co-morbid conditions associated with hypothyroidism. **Material and Methods:** Total 100 patients were included in this study. All adults attending medicine OPD/IPD who fulfill the criteria for suspect hypothyroidism were included in the study. **Results:** A female preponderance with an alarming ratio of 24:5 (female: male) was observed. Average age of onset of hypothyroidism was 33 years. Subclinical hypothyroidism was observed in 37% cases. Hypertension was present as a comorbid state in 70 % cases. Hypertension and Diabetes mellitus coexisted in 17 % of the cases.

Keywords: Diabetes Mellitus (DM), Hypertension (HTN), T3-triiodothyronine, T4-thyroxine, Thyroid Stimulating Hormone (TSH).

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NORMAL VALUES OF T3, T4 and TSH.

T3----1 -2.6 nmol /litre

T4----8 -27 pmol/litre

TSH ----0.15 -3.5 mu/litre

According to the available data 2-4% of subclinical hypothyroid patients can progress to manifest hypothyroid every year. Over all incidence of hypothyroidism is 1 in 100 population. If we include subclinical hypothyroidism the ratio goes up to 5 in 100 population. On the contrary secondary hypothyroidism can account for 1 in 20,000 population. Also it is common experience and observation that male to female ratio is alarmingly high (1:6). The average age at diagnosis is reported to be 60 years. The risk of having hypothyroidism is more in certain clinical situations and categories. These are as follows

- Patients with psychiatric illness
- Patients on anti-psychiatric drugs
- Strong family history of hypothyroidism
- Peripartum women
- Neck radiation for malignancy
- Patients on amiodarone therapy
- Hyper cholesterolaemia
- Patients who have underwent thyroidectomy
- Panhypopituitarism.

Our aim in this study was to focus on the occurrence of hypothyroidism and to see for other co-morbid conditions which could simultaneously exist with hypothyroidism

INTRODUCTION

Hypothyroidism means that thyroid gland cannot make enough thyroid hormone to keep the body running normally. It is the most common endocrine disease apart from diabetes mellitus. Many patients have manifest hypothyroidism which can be easily suspected and diagnosed on clinical basis. The real challenge is to pick up subclinical cases of hypothyroidism which may account up to 6 to 8% in women. If not detected at early stages these patients may manifest with frank hypothyroidism and its complications. For easy understanding of the readers, we have provided the internationally accepted standard values of thyroid function test.

MATERIALS AND METHODS

- 1 Study design- observational study
- 2 Study period -3 months
- 3 Study sampling method –all adults attending medicine OPD/IPD who fulfilled the criteria for suspect hypothyroidism were included in the study.
- 4 Patients were enrolled with their written consent according to the inclusion criteria.
- 5 Sample size –all suspected cases of hypothyroidism coming to OPD/ IPD during the period of study were included.

Inclusion Criteria

- 1 All suspected cases of hypothyroidism above the age of 18 years.
- 2 Suspected hypothyroid cases with comorbid conditions like diabetes mellitus, hypertension, IHD, etc.
- 3 All patients on drugs known to cause hypothyroidism.

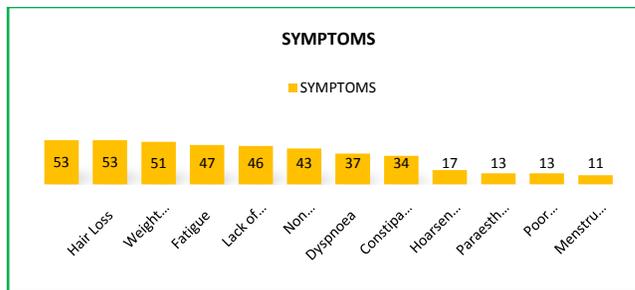
Exclusion Criteria

- 1 Diagnosed cases of hypothyroidism
- 2 Pregnant women
- 3 Age below 18 years
- 4 Patients who have underwent thyroidectomy/ thyroid radiation

OBSERVATIONS AND RESULTS

Total 100 patients were included in this study. These patients were suspected to have hypothyroidism on clinical grounds. A questionnaire was prepared and information was directly collected from the patient. Following were the symptoms reported by the patient with decreasing order

- 1 Dry coarse skin 53%
- 2 Hair loss 53%
- 3 Weight gain 51%
- 4 Fatigue 47%
- 5 Lack of concentration 46%
- 6 Nonpitting oedema 43%
- 7 Dyspnoea 37%
- 8 Constipation 34%
- 9 Hoarseness of voice 17%
- 10 paraesthesia 13%
- 11 Poor hearing 13%
- 12 Menstrual abnormalities 11%



Our study of 100 patients clearly demonstrated a female preponderance with an alarming ratio of 24:5 (female: male). Average age of onset of hypothyroidism was 33 years. Subclinical hypothyroidism was observed in 37 % cases (normal T4 levels but elevated TSH). Hypertension was present as a comorbid state in 70 % cases. Hypertension and diabetes mellitus coexisted in 17 % of cases. Lithium was noted as an offending agent in 3 % of cases. Obesity was significantly observed in 36% of cases.

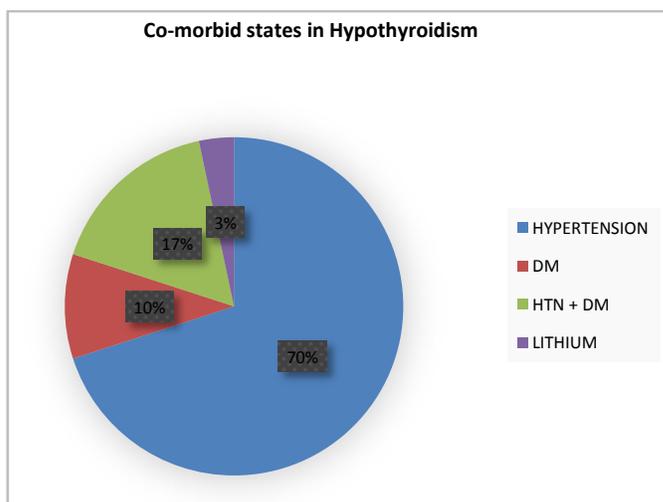


Figure 1: Co-morbid states in Hypothyroidism

Table 1: Grading based on TSH values

Sr. No.	Details
1	TSH above 100 10 cases
2	TSH between 50 -100 4cases
3	TSH between 10 -50 6 cases
4	TSH between 3.6 - 10 37cases

Above observations clearly demonstrate that at any given situation severe hypothyroidism can be noted in about 20% hypothyroid population. Also subclinical hypothyroidism can exist in about 37% of suspected hypothyroid group. The observations were solely based on the TSH values. Literature does not consider T3 values as a biochemical tool in the evaluation of hypothyroidism (quote Davidson).

CONCLUSION

Hypothyroidism is the most frequently encountered endocrine disease in Indians and our study clearly demonstrated this fact. 57 out of 100 suspected cases turned out to be hypothyroid. Our study also overwhelmingly endorsed the fact that females are more affected by hypothyroidism. Almost 95% cases in our study were females. As other studies demonstrate we too concluded that subclinical hypothyroidism is 5 times more than manifest hypothyroidism which needs attention by physicians so that we can arrest the progression to florid hypothyroidism which is associated with Multi organ dysfunctioning including cardiac disease, arrhythmias, sudden death, carpal tunnel syndrome and myxoedema. amongst the associated comorbid states in hypothyroidism we could observe hypertension and diabetes mellitus –type II as common accompaniments with hypothyroidism. Drug induced hypothyroidism was also noted in 3% of cases. Our study did not reveal any secondary hypothyroid cases. We conclude by saying that hypothyroidism is much prevalent than we suspect. Also

subclinical hypothyroidism exists much earlier than manifest hypothyroidism. Like pre diabetes and prehypertensive states we need to focus on subclinical hypothyroidism because earlier we pick up the cases earlier will be the treatment benefit to the subject which will avoid life threatening complications which would be otherwise noted in untreated individuals.

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