

A Prospective and Observational Study on Thyroid Patients in Tiruvannamalai

Senthilkumar V¹, Abinesh A², Deepika S³, Dheena V⁴, Rajalingam D⁵, Gnanasekar N.⁶

^{1,2,3,4,5,6} Department of Pharmacy Practice, Kamalakshi Pandurangan College of Pharmacy, Tiruvannamalai. 606 603. Tamil Nadu, India. (Affiliated to The TN Dr. M.G.R Medical University, Chennai).

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Corresponding Author:

Senthilkumar V

Abstract:

Background: Thyroid disorders are common endocrine conditions requiring long-term pharmacological management. Drug use pattern studies help evaluate prescribing practices and promote rational drug use.

Objective: To assess the drug use pattern in patients with thyroid disorders and to analyze their demographic and laboratory characteristics.

Methods: A prospective observational study was carried out among patients diagnosed with thyroid disorders in a tertiary care hospital. Data regarding demographics, laboratory investigations, and prescribed medications were collected using a structured proforma and analyzed descriptively.

Results: Thyroid disorders were more prevalent among females and middle-aged individuals. Most patients showed laboratory features of hypothyroidism, including elevated TSH and reduced free thyroid hormone levels. Levothyroxine monotherapy was the most commonly prescribed treatment, while combination therapy was rarely used. Adjunct medications such as statins and nutritional supplements were prescribed based on associated comorbidities. Lifestyle and dietary advice was provided to all patients.

Conclusion: Levothyroxine monotherapy remains the cornerstone of thyroid disorder management. The observed prescribing pattern reflects rational and guideline-based therapy, emphasizing the importance of comprehensive patient care.

Keywords: Thyroid disorders, drug utilization, levothyroxine, hypothyroidism, prescription pattern

1. Introduction

Thyroid disorders constitute a major public health problem and are among the most frequently encountered endocrine disorders in clinical practice(1). The thyroid gland plays a crucial role in regulating metabolism, growth, and development by secreting thyroid hormones, namely thyroxine (T4) and triiodothyronine (T3) (2). Any imbalance in the production of these hormones can result in thyroid dysfunction (3).

Hypothyroidism and hyperthyroidism are the two major types of thyroid disorders, with hypothyroidism being more prevalent (4). Hypothyroidism occurs due to insufficient production of thyroid hormones and commonly affects women and elderly individuals (1,2). The management of thyroid disorders primarily involves pharmacological therapy, which often needs to be continued for a long duration or lifelong (3,4).

Drug utilization studies are systematic evaluations of drug prescribing, dispensing, and use (5). Such studies help in understanding current prescribing trends, identifying irrational drug use, and promoting rational therapy. Evaluating drug use patterns in thyroid disorders is important to ensure adherence to clinical guidelines and to optimize therapeutic outcomes (5,6).

2. Materials and Methods

Study Design: A prospective observational study is conducted in the private hospital, Tiruvannamalai, Tamil Nadu

Study Duration: The study was carried out for 6 months.

Study Population: Patients diagnosed with thyroid disorders attending the hospital during the study period.

Sample Size: A total of 85 patients were included in the study.

Inclusion Criteria

- Patients visiting the outpatient department, aged 18 years and above
- Diagnosed with thyroid disorders
- Receiving pharmacological treatment

Exclusion Criteria

- Pregnant and lactating women, pediatric patients
- Patients with severe systemic illnesses
- Patients unwilling to participate

Data Collection:

- Patient demographics (age, sex, socioeconomic status).
- Clinical profile (TSH, FT4, FT3 levels).
- Prescription details (drug, dose, formulation, frequency).
- Adherence assessed via patient interviews and pill counts.
- Follow-up every 8 weeks with thyroid function tests.

Statistical Analysis

- Data were analyzed using descriptive statistics and expressed as frequencies and percentages.

Table 1 : Socio-Demographic and Laboratory variables (N=85)

Variable	Categories	Frequency(n)	Percentage
Age	18- 30	10	11.8

	31- 40	18	21.2
	41- 50	25	29.4
	51 – 60	20	23.5
	>60	12	14.1
Gender	Female	65	76.5
	Male	20	23.5
Marital status	Married	70	82.4
	Single	10	11.8
	Widowed/ divorced	5	5.8
Education level	Illiterate	9	10.6
	Primary	15	17.6
	Secondary	27	31.8
	Graduate	34	40.0
Occupation	Homemaker	36	42.4
	Skilled worker	18	21.2
	Professional	13	15.3
	Unemployed	18	21.2
Socioeconomic status	Low	22	25.9
	Middle	45	52.9
	High	18	21.2
TSH(mIU/L)	Normal(0.4 – 4.0)	9	10.6
	Mildly elevated (4.5 -10)	32	37.6
	Markedly elevated (>10)	44	51.8
Free T4(ng/dL)	Normal (0.8- 1.8)	18	21.2
	Low (<0.8)	67	78.8
Free T4(pg/dL)	Normal (2.3- 4.2)	55	64.7

	Low (<2.3)	30	35.3
Anti-TPO Antibodies	Positive	60	70.6
	Negative	25	29.4
Lipid profile (total cholesterol)	<200 mg/dl	36	42.4
	>200mg/dl	49	57.6

Table 1: Presents the socio-demographic and laboratory characteristics of the 85 patients with thyroid disorders included in the study. The majority of patients belonged to the **41–50 years age group (29.4%)**, followed by those aged **51–60 years (23.5%)**, indicating a higher prevalence of thyroid disorders among middle-aged individuals. A marked **female predominance (76.5%)** was observed, which is consistent with the known epidemiology of thyroid diseases.

Most patients were **married (82.4%)** and had at least secondary or graduate-level education. Homemakers constituted the largest occupational group (42.4%), and more than half of the patients belonged to the **middle socioeconomic class (52.9%)**.

Laboratory findings showed that **51.8% of patients had markedly elevated TSH levels (>10 mIU/L)**, while **37.6%** had mildly elevated levels, suggesting that the majority of patients presented with overt hypothyroidism. Low **free T4 levels were observed in 78.8%** of patients, further supporting this finding. Reduced **free T3 levels** were seen in **35.3%** of patients.

Autoimmune etiology was evident, with **70.6% of patients testing positive for Anti-TPO antibodies**. Dyslipidemia was also common, as **57.6% of patients had total cholesterol levels ≥ 200 mg/dL**, highlighting the metabolic impact of thyroid dysfunction.

3. Discussion

The present study highlights a female predominance and a higher prevalence of thyroid disorders among middle-aged individuals, consistent with existing literature. The majority of patients presented with overt hypothyroidism, supported by elevated TSH and reduced free T4 levels. High Anti-TPO positivity indicates autoimmune thyroiditis as a major cause (2,3).

Levothyroxine monotherapy was the most commonly prescribed treatment, reflecting adherence to standard clinical guidelines (3,4). The limited use of combination therapy suggests cautious prescribing due to inconsistent evidence regarding its benefits (7). Dyslipidemia observed in more than half of the patients supports the association between hypothyroidism and lipid abnormalities, justifying statin use in selected patients. Supplementation with iron and calcium, though necessary, requires appropriate spacing to avoid interference with levothyroxine absorption.(5)

4. Conclusion

The study concludes that levothyroxine monotherapy is the most commonly prescribed and effective treatment for thyroid disorders. The drug use pattern observed indicates rational prescribing practices with appropriate use of adjunct therapies and emphasis on lifestyle modification.

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Conflict Of Interest

There is no conflict of interest for this review.

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