

To Study Prevalence and Pattern of Psychiatric Comorbidities among Thyroid Dysfunction Patients at Tertiary Care Hospital

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Abstract:

Thyroid hormones can directly or indirectly affect almost all systems in the body, therefore changes in their serum levels can have negative effect on human health. Various types of thyroid disorders have been observed in 5%–10% of the population. There is limited literature on the rates of thyroid dysfunction among patients with major psychiatric disorders in the Indian population. This study aims to study prevalence and pattern of psychiatric comorbidities among thyroid dysfunction patients at tertiary care hospital.

Methodology: The study was a observational study, which was conducted at R.D. Gardi Medical College, Ujjain. A sample size of 161 was calculated. Thyroid dysfunction patients attending the OPD and also those admitted in IPD of C. R. Gardi hospital were studied. Clinical information were obtained by interviewing. Brief Psychiatric Rating Scale (BPRS), Hamilton Anxiety Rating Scale (HAM-A), Hamilton Depression Rating Scale (HAM-D), Diagnostic and Statistical Manual of Mental Disorders 5th edition (DSM-5) based diagnostic criteria for clinical evaluation of psychiatric conditions was used.

Result: Among 161 study participants, 113 (70.2%) were females and 48 (29.8%) were males. Mean age of presentation was 40.81 years (SD 13.322). Hypothyroidism was present in 142 patients (88.2%) and hyperthyroidism was present in 19 patients (11.8%). In our study population it was found that 83 (51.6%) cases had psychiatric comorbidity. In the hypothyroid group, psychiatric comorbidity was present in 72 (50.7%) patients. In hyperthyroid group, psychiatric comorbidity was present in 11 (57.9%) patients

Conclusion: Thyroid dysfunction is commonly associated with comorbid psychiatric disorder. So timely detection and treatment of psychiatric comorbidities are very necessary while treating the patients of thyroid dysfunction. Our study identify high Psychiatric comorbidities in the thyroid dysfunction patients.

Keywords: Depression, anxiety, thyroid disorder.

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Introduction

Thyroid hormones can directly or indirectly affect almost all systems in the body, therefore changes in their serum levels can have negative effect on human health[1]. Various types of thyroid disorders have been observed in 5%–10% of the population. Hypothyroidism held for 60% of thyroid diseases and is up to ten times more frequent in women than in men. Hyperthyroidism is up to three times less frequent than hypothyroidism [2]. Countless studies have linked thyroid dysfunction with psychiatric disease [3]. Affective disorders are dominant, namely depression in 33%–43% and anxiety in 20%–39% [4]. There is a well-recognised association between thyroid dysfunction and mood disorders. Patients suffering from thyroid dysfunction show a higher prevalence of anxiety and mood disorders, and the response to the treatment of depressive episode and bipolar disorders is dependent on thyroid status [5].

Psychological and behavioral manifestation of hypothyroidism includes low mood, social withdrawal, impaired memory functions, apathy, and pronounced loss of interest in daily activities, poor concentration, low energy, changes in appetite and sleep disturbances. Symptoms co-occurring with hyperthyroidism include emotional lability inappropriate temper outburst, anxiety with impairment of recent memory accompanied by short attention span. In addition to this, patients may develop major depressive episodes and GAD [6]. It is important, then, to pay attention to the presence of these symptoms and assess and address them promptly and adequately, as they can have a clear impact on the person's well-being. There is limited literature on the rates of thyroid dysfunction among patients with major psychiatric disorders in the Indian population. This study aims to study prevalence and pattern of psychiatric comorbidities

among thyroid dysfunction patients at tertiary care hospital.

Methodology

The study was an observational study, which was conducted at R.D. Gardi Medical College, Ujjain. A sample size of 161 was calculated. Thyroid dysfunction patients attending the OPD and also those admitted in IPD of C. R. Gardi hospital were studied. Patients of either sex and aged 18 years or above, primarily diagnosed of having thyroid function disorder, were sequentially recruited for the study. Patients having chronic medical illnesses (such as diabetes, heart diseases, obstructive lung diseases, and renal diseases) and having depressive or anxiety disorders before diagnosis of thyroid disorder were excluded. Patients taking medicines other than to correct the thyroid hormone status (thyroxine, carbimazole) were also excluded.

Relevant demographic, socio-economic, personal, and clinical information were obtained by interviewing. Brief Psychiatric Rating Scale (BPRS), Hamilton Anxiety Rating Scale (HAM-A), Hamilton Depression Rating Scale (HAM-D), Diagnostic and Statistical Manual of Mental Disorders 5th edition (DSM-5) based diagnostic criteria for clinical evaluation of psychiatric conditions was used.

Informed written consent was obtained from all participants. The study was approved by the Institutional ethical committee.

The data were tabulated in Microsoft Excel; the statistical analyses were performed using the SPSS Program, version 23. For the qualitative variables, absolute frequencies and percentages were used and, for the quantitative variables, averages and standard deviations; the confidence intervals were found to be 95%. To determine association, the Pearson χ^2 test was used, with a significance level of 0.05.

Result

General Characteristics

A total of 161 patients were recruited in the study, among 161 study participants, 113 (70.2%) were females and 48 (29.8%) were males. Mean age of presentation was 40.81 years (SD 13.322).

Highest number of cases belonged to 31-40 years age group 44 (27.3%) followed by 41-50 years age group 41 (25.5%), 21-30 years age group 32 (19.9%), 51-60 years age group 25 (15.5%), \leq 20 years age group 10 (6.2%) and least were there in age group more than 60 years 9 (5.6%) as seen in table 1.

Table 1: Showing age distribution among study participants

Age group	Frequency	Percent
\leq 20 years	10	6.2
21 - 30 years	32	19.9
31 - 40 years	44	27.3
41 - 50 years	41	25.5
51 - 60 years	25	15.5
> 60 years	9	5.6
Total	161	100

Among study participants distribution of cases according to the occupation it was seen that; 5 (3.1%) were doing semi-professional work, 10 (6.2%) were shop worker, 10 (6.2%) were farmers, 19 (11.8%) were skilled workers, 17 (10.6%) were semiskilled workers, 29 (18%) were unskilled workers and 71 (44.1%) were unemployed.

Majority of the patients 76.4% (123) belonged to rural area and 23.6% (38) belonged to urban area. Majority belonged to the Upper lower class 70 (43.5%), followed by lower middle class 53 (32.9%), 22 (13.7%) in lower class and least belonged to upper middle class 16 (9.9%). Majority of the patients were married 115 (71.4%), 30 (18.6%) were unmarried and 16 (9.9%) were other including divorced, widow.

Thyroid Disorder

Hypothyroidism was present in 142 patients (88.2%) and hyperthyroidism was present in 19 patients (11.8%). Majority of the cases were of subclinical hypothyroidism 104 (64.6%), followed by hypothyroid 38 (23.6%), subclinical hyperthyroid 10 (6.2%) and hyperthyroid were 9 (5.6%).

Psychiatry Comorbidity

In our study population it was found that 83 (51.6%) cases had psychiatric comorbidity and 78 (48.4%) didn't have psychiatric comorbidity. Among them depression was the most common psychiatric comorbidity found in 32 (19.9%) cases, followed by Generalized Anxiety Disorder (GAD) in 27 (16.8%) cases, panic disorder in 8 (5.0%), dysthymia 6 (3.7%), schizophrenia 4 (2.5%), Bipolar Mood Disorder (BMD) in 2 (1.2%),

Somatic Symptom Disorder (SSD) 2 (1.2%), and Obsessive compulsive Disorder in 2 (1.2%).

Comparison of psychiatric comorbidity with thyroid disorder

In the hypothyroid group, psychiatric comorbidity was present in 72 (50.7%) patients and was not

present in 70 (49.3%) patients. In hyperthyroid group, psychiatric comorbidity was present in 11 (57.9%) patients and was not present in 8 (42.1%) patients as seen in table 2. However there was not significant association seen between thyroid disorder and psychiatric comorbidities.

Table 2: Comparison of Thyroid disorder with psychiatry comorbidity

Thyroid Diagnosis	Psychiatric Comorbidities +/-		Total
	Present	Absent	
Hypothyroid	72	70	142
	50.70%	49.30%	100%
Hyperthyroid	11	8	19
	57.90%	42.10%	100%
Total	83	78	
	51.60%	48.40%	100%

Chi-Square = 0.347, p = 0.556, Not significant

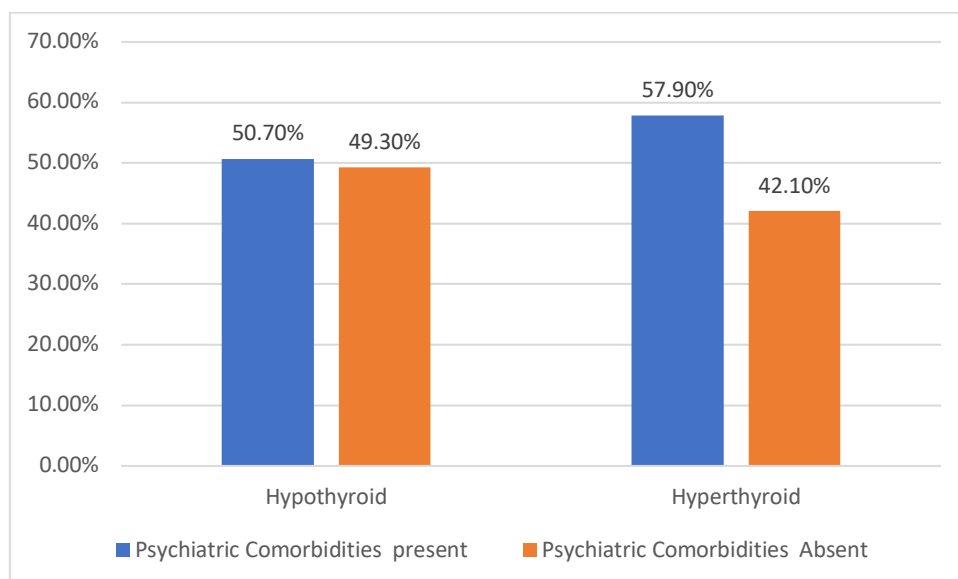


Figure 1: distribution of psychiatric comorbidities in hypothyroid and hyperthyroid group

GAD was found in 22 (15.5%) in hypothyroid group and in 5 (26.3%) in hyperthyroid group. Depression was found in 28 (19.7%) in hypothyroid group and in 4 (21.1%) in hyperthyroid group. Schizophrenia was found in 3 (2.1%) in hypothyroid group and in 1 (5.3%) in

hyperthyroid group. Dysthymia was found in 6 (4.2%) in hypothyroid group. Somatic symptom disorder was found in 2 (1.4%) in hypothyroid group. OCD was found in 2 (1.4%) in hypothyroid group. BMD was found in 2 (1.4%) in hypothyroid group as seen in table 3.

Table 3: Distribution of types of psychiatric comorbidities among hypothyroid and hyperthyroid group

Psychiatric comorbidities	Thyroid Diagnosis				p- value
	Hypothyroid group		Hyperthyroid group		
	n	%	n	%	
GAD	22	15.70%	5	26.30%	0.238
Depression	28	19.70%	4	21.10%	0.891
Dysthymia	6	4.20%	0	0.00%	0.381
Schizophrenia	3	2.10%	1	5.30%	0.407
SSD	2	1.40%	0	0.00%	0.603
OCD	2	1.40%	0	0.00%	0.271
BMD	2	1.40%	0	0.00%	0.271

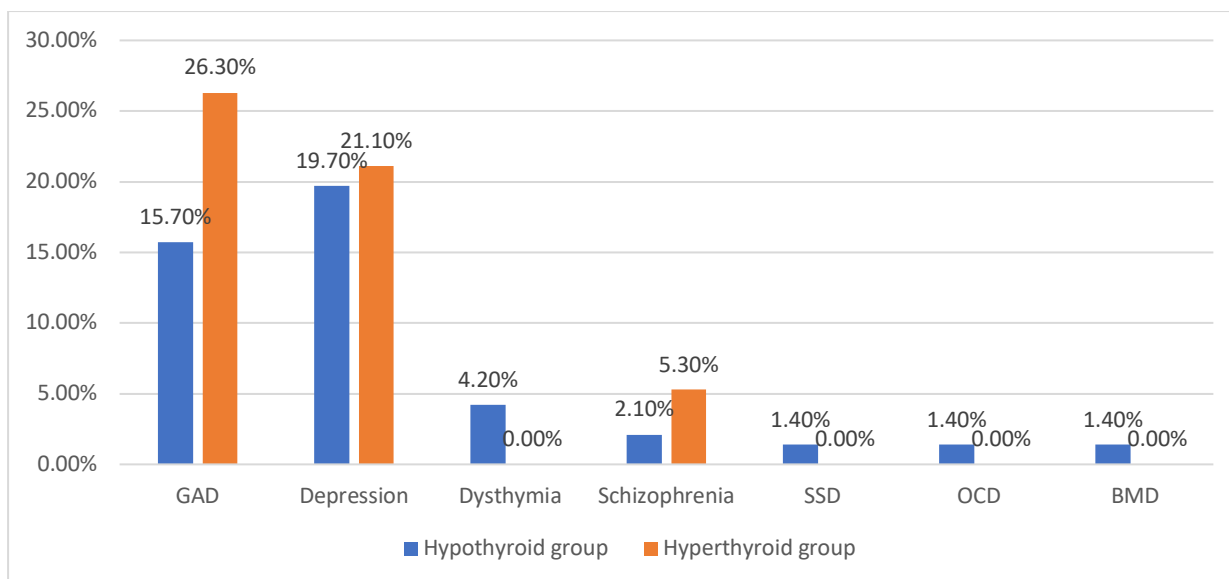


Figure 2: Distribution of types of psychiatric comorbidities among hypothyroid and hyperthyroid group

Discussion

This was an observational study conducted among thyroid dysfunction patients attending R.D. Gardi Medical College and associated hospital, Ujjain. The aim of the study was to find prevalence of psychiatric comorbidities in thyroid dysfunction patients and to find the various types of comorbidities found in them. Prevalence of psychiatric disorder among patient having thyroid disease was found to be 51.6%.

The study was completed in 161 patients comprising mostly of females and younger age (less than 40 years). Most of the patients had hypothyroidism (88.2%). It was observed that The female preponderance for the prevalence of thyroid disorders is globally recognized. Regarding age distribution, Yadav et al (2012) have reported highest prevalence of thyroid dysfunctions in 21-40 years age group, followed by 41-60 years age group in Far Western Region of Nepal. [7]Some studies have reported higher thyroid disorder prevalence in older population, with age more than 40 years.[8-9]In the current study mean age of presentation was 40.81 year (SD 13.322) Mean age of our study was in accordance with study done by Thapa et al, 39.62 ± 12.85 years was the mean age in their study[10].In study done by Bali K et al similar mean age of sample population was seen, in their study mean age was 38.7 years[11].

Our study found most common psychiatric disorder having thyroid dysfunction to be depressive episode when compared to Krishna Bannad et al.[12], who found schizophrenia and schizophrenia spectrum disorder patients most commonly had thyroid dysfunction. In our study we found that GAD was found in 22 (15.5%) in hypothyroid group and in 5 (26.3%) in hyperthyroid group.

Depression was found in 28 (19.7%) in hypothyroid group and in 4 (21.1%) in hyperthyroid group. In Bali K et al 56.2% of hyperthyroid patients while 47.1% of hypothyroid patients had moderate to severe anxiety and depression in 47.1% of hypothyroid patients while the corresponding figure for hyperthyroid patients was 31.3%[11].

Previous authors have also pointed out that endocrinological treatment may be accompanied by an improvement of the mental health symptoms Still, it could be necessary to provide further pharmacological and psychosocial support when this is not the case [13-15].

Limitation

The limitations of our study are that ours was a small sample size and thus, the results cannot be generalised. There was lack of data on medication status of the patients and other comorbidities. Additionally, our finding does not reflect causality, i.e. the thyroid dysfunction is a cause or due to psychiatric disorder and its treatment.

Recommendation: Population based meta-analytical study should be conducted to find out exact prevalence of psychiatric comorbidities in thyroid dysfunction patients. Identification of symptoms and early diagnosis of psychiatric comorbidities in thyroid dysfunction patients may provide considerable benefit to the patients.

Conclusion

Thyroid dysfunction is commonly associated with comorbid psychiatric disorder. So timely detection and treatment of psychiatric comorbidities are very necessary while treating the patients of thyroid dysfunction. Our study identify high Psychiatric comorbidities in the thyroid dysfunction patients.

Depression was most common in hypothyroid group while anxiety was common in hyperthyroid group.

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