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Original Research Article

To Study the Thyroid Dysfunction among Patients with First Episode Depression A Hospital Based Study

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Conflict of interest: Nil

Abstract

Background: Depression is a common, recurrent, clinically and biologically heterogeneous disorder. There has been established link between medical illnesses with depressive symptoms or depressive disorder. The lifetime prevalence of depression and anxiety is 11.8% to 36.8% in patients with previously known thyroid disorder. To study the prevalence of thyroid dysfunction in patients with first episode depression.

Results: In our study out of 126 participants, majority of the participants were females 83 i.e, (65.87), aged 40-49 years (46.03%), married were 48.4% (n=61), and majority were uneducated 46.8% (n=59) and Unemployed 47.6% (n=60). Out of 126 participants 44.44% (n=56) had mild depression, 37.30% (n=47) had moderate depression and 18.25% (n=23) had severe depression. Out of 126 participants 21.42% (n=27) had thyroid dysfunction. 15.07 (n=19) participants had thyroid levels in hypothyroid range while as 6.34% (n=8) participants had thyroid levels in subclinical range.

Conclusions: In conclusion, we would like to emphasize that high prevalence of thyroid disorder among depressive patients and routine evaluation of thyroid hormone in depressive patients. It is concluded that we should also evaluate thyroid functioning in all dimensions of depression.

Keywords: Depression, Thyroid, Antidepressants, Endogenous.

Introduction

There has been established link between medical illnesses with depressive symptoms or depressive disorder. Endocrine disorders should be routinely ruled out in patients with depression as it has been observed that many psychiatric patients have shown pathological changes in neuroendocrine function.[1-4] Thyroid abnormalities are associated with psychiatric manifestations ranging from mild affective disorders, emotional lability, anxiety disorders and even psychosis may be frequently associated with primary hyper and hypothyroidism.[5-9] Mood disorders are commonly seen in thyroid dysfunction.[10] The lifetime prevalence of depression and anxiety is 11.8% to 36.8% in patients with previously known thyroid disorder.[11] The pathogenesis of endogenous depression is multifactorial

but lack of serotonin in the brain has a central role.[12] It has been seen that antidepressants like tricyclic antidepressants (TCAs) and serotonin re-uptake inhibitors (SSRIs) also have profound effect on thyroid hormone levels and TSH levels.[13] In a study it was found patients with normal thyroid function, who were treated with escitalopram, are susceptible to minor insignificant changes which also demonstrate the safety of administering escitalopram in euthyroid patients with depression.[14]

The aim of the study is to find out the prevalence of thyroid dysfunction in patients with first episode depression.

Methods and Materials

The study was conducted in the department of Psychiatry Government Medical College Srinagar Jammu and Kashmir. The present study was conducted on the patients attending psychiatric outpatient department and diagnosed with first episode depression.

The study sample comprised of 126 patients attending psychiatric outpatient department and diagnosed with first episode depression using DSM-5 criterion. The severity of the depression was assessed by HAM-D scale. Patients attending psychiatric outpatient were screened and those satisfying the inclusion and exclusion criteria and who gave written informed consent were enrolled in the study.

Inclusion Criteria:

1. Patients above 18 years of age.
2. Patients with first episode depression.
3. Those willing to participate and give informed consent.

Exclusion Criteria:

1. Patients < 18 years of age.
2. Current or recent treatment with an antidepressant.
3. History of thyroid disease or current treatment with thyroid hormones.
4. History of treatment with lithium.
5. Those not willing to participate or give informed consent.

After taking ethical approval from institutional ethical committee, the purpose of the study was explained to the patients. After taking written informed consent each patient was individually interviewed along the special proforma prepared for the study. The details about medical and psychiatric complaints were taken and other aspects of clinical profile taken. DSM-5 criterion was used to diagnose the depression.[15] The rating scale HAM -D was administered to assess the severity.[16]

At baseline, thyroid indices were measured using standard venepuncture techniques. Venous blood samples were drawn for measurements of serum TSH, thyroxin (T4) and triiodothyronine (T3) among other routine laboratory tests Serum TSH, T4, and T3 levels were analyzed by Ultrasensitive Sandwich Chemiluminescence Immunoassay. Normal ranges were defined as 0.50-6.50 uIU/ml for serum TSH, 0.70-2.50 ng/ml for T3, and 4-13 ug/dl for T4.

Instruments Used:

Semi-Structured Proforma: Special proforma was prepared for the study which included social-demographic profile, Clinical profile.

DSM-5: Diagnostic and Statistical Manual of Mental Disorders Fifth Edition was used for the diagnosis of depression.[15]

Hamilton Depression Rating Scale-: Hamilton Depression Rating scale (HAM-D) has been used for assessing the severity of depression.[16]

Thyroid Profile Test: Serum TSH, thyroxin (T4) and triiodothyronine (T3) among other routine laboratory tests Serum TSH, T4, and T3 levels were

analyzed by Ultrasensitive Sandwich Chemiluminescence Immunoassay.

At baseline, thyroid indices were measured using standard venepuncture techniques. Care was also taken that no harm came to the patients, by ensuring privacy whilst completing the interview. All data thus collected was tabulated and analyzed statistically using SSPS software version 20.0 and conclusions were drawn.

Results:

Table 1: Demographic profile of the patients (N=126)

Demographic variables		Frequency	Percent
Gender	Male	43	34.12
	Female	83	65.87
Residence	Urban	59	46.8
	Rural	67	53.2
Age	20-29 years	16	12.69
	30-39 years	25	19.84
	40-49 years	58	46.03
	50 years & Above	27	21.42
Marital Status	Married	61	48.4
	Unmarried	52	41.3
	Divorced	7	5.6
	Widower	6	4.8
Occupation	Student	13	10.3
	Employed	53	42.1
	Unemployed	60	47.6
Education Level	Uneducated	59	46.8
	Primary	7	5.6
	Middle	7	5.6
	Matric	23	18.3
	Graduate	24	19.0
	Postgraduate	6	4.8
Socioeconomic Status	Lower Class	42	33.3
	Middle Class	70	55.6
	Upper Class	14	11.1

Table 2: Description of frequency and percentage of family history of psychiatric and thyroid disorders (N=126)

Family History		Frequency	Percentage
Psychiatric Illness	Yes	25	19.8
	No	101	80.2
Thyroid Disorder	Yes	14	11.1
	No	112	88.9

Table 3: shows the severity of Depression

Severity of Depression	No. of Patients	%age
Mild	56	44.44
Moderate	47	37.30
Severe	23	18.25

Table 4: Shows the prevalence of Hypothyroid among the Depressed Patients (N=126)

Variables		Thyroid Status		
		Hypo	**Subclinical**	**Normal**
Depression severity	Mild	5	3	48
	Moderate	13	1	33
	Severe	1	4	18

Table 1 shows the description of frequency and percentage regarding the demographic profile the patients. In our study out of 126 participants, majority of the participants were females 83 i.e, (65.87) and males were 43 (34.12). Majority of them belonged to rural setting 53.2% (n=67). The majority of participants were aged 40-49 years (46.03%), married 48.4% (n=61), and majority were uneducated 46.8% (n=59) and Unemployed 47.6% (n=60). Majority of the patients in our study 55.6% (n=70) belonged to middle class of socioeconomic status.

The results of the table 2 reported that majority of the studied patients 80.2% (n=101) had no family history of psychiatric illness and 19.8% (n=25) had family history of psychiatric illness. Moreover majority of the study patients 88.9% (n=112) had no family history of thyroid disorder and 11.1% (n=14) had family history of thyroid disorder. The results of the table no. 3 shows that out of 126 participants 44.44% (n=56) had mild depression, 37.30% (n=47) had moderate depression and 18.25% (n=23) had severe depression. Table 4 shows the prevalence of thyroid dysfunction in depressive patients among participated population. Out of 126 participants 21.42% (n=27) had thyroid dysfunction. 15.07 (n=19) participants had thyroid levels in hypothyroid range while as 6.34% (n=8) participants had thyroid levels in subclinical range.

Discussion

The aim of the current study was to assess the thyroid dysfunction in patients with first episode depression. In our study among 126 patients with first episode depression, 27 patients (21.42%) had abnormal thyroid status. This findings of our study is in accordance with the study conducted by Charnsil, Ojha, Das and Loosen which showed 22.1%, 21%, and 19.34% respectively.[17-19]

In our study 15.07% (n=19) participants had thyroid levels in hypothyroid range while as 6.34% (n=8) participants had thyroid levels in subclinical range. Our findings are consistent with the findings from other studies which showed lower prevalence of subclinical hypothyroidism than hypothyroidism.[20] Other studies which showed contrasted resulted with our results where they found subclinical hypothyroidism more than hypothyroidism.[17,18]

In our study out of 126 participants majority of the patients 44.44% (n=56) had mild depression, 37.30% (n=47) had moderate depression and 18.25% (n=23) had severe depression, which is in contrast with the study conducted by Kafle et al. where they found that moderate depression is the most common type of depression with 78.3% of patients, while 18.3% patients had severe depression and 3.4% were found to suffer from mild depression [21]. Even though there is a slight difference in participants suffering from mild and moderate depression our results were consistent with the study conducted by Kohli et al., where they also found mild depression in majority of the patients.[22] In our study we found that majority of the participants had mild depression but the prevalence of thyroid dysfunction was found more in patients with moderate depression i.e, 11.11% (n=14) as compared to patients with mild depression

6.34% (n=8). None of our participants had hyperthyroidism.

In our study common age group for depression was 40-49 years (46.03%), majority were females 65.87% (n=83), married were 48.4% (n=61), majority were uneducated 46.8% (n=59) and Unemployed 47.6% (n=60). Majority of the patients in our study 55.6% (n=70) belonged to middle class of socioeconomic status.

Conclusion

We would like to emphasize that high prevalence of thyroid disorder among depressive patients and routine evaluation of thyroid hormone in depressive patients. It is concluded that we should also evaluate thyroid functioning in all dimensions of depression. Further follow up studies will help in understanding the possible association of thyroid abnormalities in depressive disorder, their possible relationship with prognosis, treatment implications and treatment resistant depression. There is a need to continue the research efforts in this field to further clarify the significance of altered thyroid functioning in depressive illness which will help in understanding the possible association of thyroid abnormalities in depressive disorder, their possible relationship with prognosis, treatment implications and treatment resistant depression.

Availability of data and materials: All data generated or analyzed during this study are available on request.

Abbreviations:

HAM-D: Hamilton Depression Rating Scale,

DSM: Diagnostic and Statistical Manual of Mental.

TSH: Thyroid Stimulating Hormone.

TCAs: Tricyclic antidepressants

SSRIs: serotonin re-uptake inhibitors.

Ethics approval and consent to participate: Ethical approval was from institutional ethical committee, Government Medical College Srinagar.

Written informed consent was taken from each patient and was explained about the anonymity about personal data.

Availability of data and materials: The datasets used during the current study are available from the corresponding author upon request.

Contributions

Conception and design of the study were done by AS, MD, and BT. Acquisition of data was done by AS and JN, analysis and/or interpretation of data was done by BT and AS, drafting the manuscript was done by AS, revising the manuscript critically for important intellectual content was done by AS and MD, and approval of the version of the manuscript to be published was done by AS,MD, BT. The authors read and approved the final manuscript.

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