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Profesional paper

EVALUATED DEPRESSIVE SYMPTOMS IN PATIENTS WITH HYPOTHYROIDISM

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ABSTRACT

Some studies show that a varying degree of psychiatric disorders is common in patients with Thyroid dysfunction. Both hypo and hyperthyroidism can cause mood abnormalities such as emotions and cognition . Depression can also go with thyroid dysfunction . Thyroid hormone has important actions in the adult brain they effect the site of raphe nuclei which probably results in an reduction the release of serotonin from raphe neurons . So assessment of the thyroid function test can be a good predictor in the treatment of depression disorders .

The AIM of this study is to fine the prevalence of depressive symptoms among patients with hypothyroidism.

Materials and methods: This cross-section present study included groups of 50 patients of either sex between 26-55 years with diagnosis hypothyroidism evaluated in Private Psychiatric Institution Zora Mitic, Skopje and Psychiatric Hospital Skopje. The study was conducted for 6 month. All the patients was written informed consent. Exclusion criteria was exist depressive disorders before being diagnosed as hypothyroidism , patients with another psychiatric disorders and another organic disorders. The patients were assess using the sociodemographic information by semi-structured questionnaire specially designed for the study. Depression in patients was assess by Back Depression Inventory scale: 21 items graded ranging 0-4 . The results obtained were compared using the Chi-square test and Spearman's coefficient correlation . The quantitative data were expressed in number and percentage.

Results: In this study only 20% of patients with hyperthyroidism have score of BDI >10. The total group of observations had significantly higher number of patients older then 36, unmarried, higher educated with increased BDI over 10, but there were no significant difference in patient's location of living. Also we got that the BDI score were not statistically significant when compare males and females p=0,474.

Conclusion: The correlation between psychiatry disorders and thyroid status is a major area of concern. So the patients mast be monitored and treating by both endocrinologist and a psychiatrist.

Key words : Hypothyroidism, depression, patients

INTRODUCTION

Some psychiatric disorders is common in patients with thyroid dysfunction. Both increase and decrease in thyroid function can cause mood abnormalities (1). Depression can also go with thyroid dysfunction . Many studies have relieved that there are significantly deranged levels of T3,T4 and thyroid stimulations hormone(TSH) in patients of depression (2,3). Another study showed a prevalence of depression in 20,5% of the patients with hypothyroidism (4). Patients with subclinical hypothyroidism can present , irritability, poor concentration, slow information processing and poor learning in comparison to normal

subjects. (5,6) So assessment of the thyroid function test can be a good predictor in the treatment of depression (7).

Path mechanism:

Thyroid hormone (TH) has an affect on central nervous system (CNS) . THS play a role in normal neurological development, stimulates the development of neural process, axons and dendrites , increases the rate of neural proliferation. It's also affect on serotonin (5HT) which probably results in an increase in the release of serotonin from raphe neurons (8,9,10). One hypothesis studies reported that TH modulates of 5-HT and it's receptors is responsible which happens due to inhibition caused by the TH et raphe causing reduction in 5HT level. So multiple data suggest that hypothalamic-pituitary-thyroid (HPT) axis is involved in the pathogeneses of depression. Also some studies show changes in different hormones of HPT axis, but another studies show normal TH range during depression (3,11). Figure1,2.

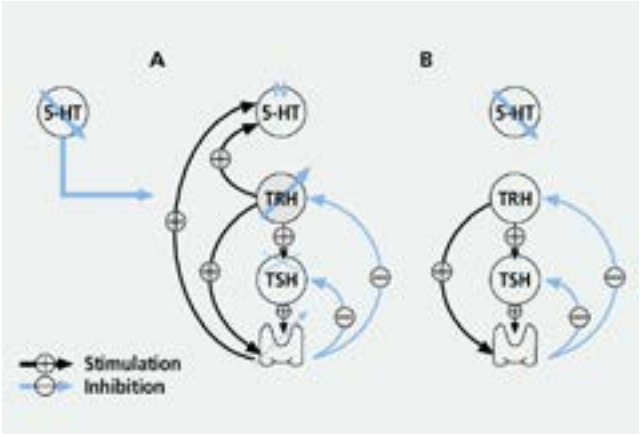


Figure 1. TSH effect on serotonin (5HT) relishing

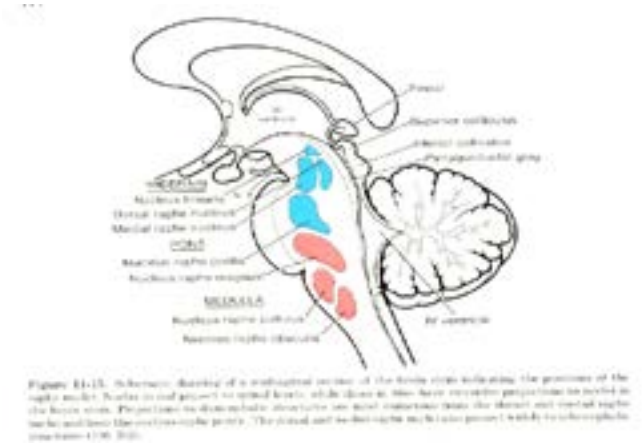


Figure2. Schematic drawing of a midsagittal section of the brain stem indicating the positions of the raphe nuclei

AIM

The AIM of this study is to fine the prevalence of depressive symptoms among patients with hypothyroidism.

MATERIALS AND METHODS

The cross-section present study included groups of 50 patients of either sex between 26-55 years with diagnosis hypothyroidism evaluated in Private Psychiatric Institution Zora Mitic and Psychiatric hospital Skopje. The study was conducted for 6 months. All the patients was written informed consent . Exclusion criteria was exist depressive disorders before being diagnosis of hypothyroidism , patients with another psychiatric disorders and another organic disorders.

The patients were assess using the sociodemographic information by semi-structured questionnaire specially designed for the study . The sociodemographic data was: age, marital status, education status, and location. Depression in patients was assess by Back Depression Inventory scale. :21 items graded ranging 0-4. Screening instruments used to screen for assess the severity of depressive symptoms. The total BDI score the sum of all items and range from 0-63 The BDI scale have 4 level: 0-10 normal level, 11-16 mild level , 16-30 moderate, 31-63 severe levels. The quantitative data were expressed in number and percentage. Results obtained were compared using Chi-square test and Spearman's coefficient correlation. $P<0.05$ was considered statistically significant.

RESULTS

Table 1. Sociodemographic characteristics and BDI score in males and females

Parameter	Males (means ±SD / %) N=35	Females (means ± SD/%) N=15
Age (years)	35.5 ± 6.4	37.3 ± 6.2
Marital status (married/ unmarried)	73.3% / 26.7%	62.9% / 37.1%
Education (years)	13.3 ± 1.9	12.2 ± 2.8
BDI score	9.7± 6.1	10.8 ±7.8
Location (rural/ urban)	46.7% / 53.3%	45.7% / 54.3%

Table 2. Gender distribution according subgroups of sociodemographic characteristics and BDI

Parameters	Male (N)	X²	P	Females (N)	X²	P	Total (N)	X²	P level
Age 26-35 36-45	 5 10	8000	0.005*	 10 25	8.257	0.004*	 15 35	8000	0.005*
Marital status Unmarried Married	 11 4	5.120	0.024*	 22 13	2.314	0.128	 33 17	5.120	0.024*
Education(years) ≥12 ≤12	 10 5	8000	0.005*	 25 10	6.429	0.011*	 35 15	8000	0.005*
Location Rural urban	 7 8	0.320	0.192	 16 19	0.257	0.612	 23 27	0.320	0.572
BDI <10 >10	 12 3	5120	0.024*	 22 13	2.314	0.128	 15 35	5120	0.024*

In the group of males there were statistically significant more older men (>36 years), unmarried, with higher education and normal BDI (<10) but there were no significant difference in their place of living (location).

In the group of females there were significantly more older (>36 years) and more educated women (>12 years), bit there were no significant difference in women's groups according their marital status, location of living and increased BDI

The total group of observations had significantly higher number of patients older then 36, unmarried, higher educated with increased BDI over 10, but there were no significant difference in patient's location of living.

Table 3. Gender association with sociodemographic characteristics and BDI score

Parameters	Male N (%)	Females N (%)	X²	P level
Age 26-35 36-45	 5 (10) 10 (20)	 10 (20) 25 (50)	1.020	0.312
Marital status Unmarried Married	 11 (22) 4 (8)	 22 (44) 13 (26)	0.514	0.474
Education (years) ≥12 ≤12	 10 (20) 5 (10)	 25 (50) 10 (5)	0.113	0.736
Location Rural Urban	 7 (14) 8 (16)	 16 (32) 19 (38)	0.004	0.951
BDI <10 >10	 12 (24) 3 (6)	 22 (44) 13(32)	0.514	0.474

There were no significant association between gender and age (**X**2(1)> = 1.020, P = 0.312, marital status (X2(1)> = 0.514, P = 0.474), years of education (X2(1)> = 0.113, P = 0.736), BDI score (X2(1)> =0.514 , P = 0.474) and location of living (X2(1)> = 0.004, P = 0.951).

Table 4. BDI score correlation with sociodemographic characteristics in hypothyroid patients.

Gender	Correlation Coefficient	Age	Marital status	Education (years)	Location
Females	Spearman's rho (ρ)	0.045	0.077	0.007	-0.017
	P	0.795	0.658	0.969	0.921
Males	Spearman's rho (ρ)	-0.199	-0.459	-0.069	.329
	P	.478	.085	.808	.232

Females presented insignificant and positive correlation of BDI score with age, married marital status and more years of education and rural place of living. The BDI score in males was insignificantly correlated with unmarried marital status, less years of education, urban place of living, but insignificantly and negatively correlated with age.

Table 5. Gender distribution according grading levels of BDI score .

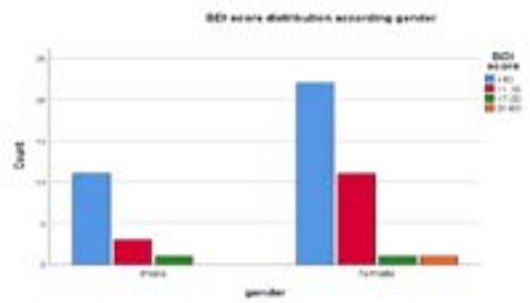
Grading	score	Male(N)	Female(N)	Total (N)
Normal	0-10	12	28	40
mild	11-16	2	5	7
moderate	17-30	1	1	2

severe	31-63	0	1	1
X^2		11.200	34.371	53.200
P		0.004	<0.001	<0.001

There were statistically significant differences in the BDI score levels in total hypothyroid patients (2(3)> = 53.200, P <0.001), with less people with severe (1) and moderate (2) compared to mild (14) or undepressed (33) patients.

There were significant difference in BDI score in hypothyroid males (2(2)> = 11.200, P =0.04) with no patients with severe (0), less with moderate (1) and mild (2) compared to patients with normal BDI (12). There were significant differences in BDI score in hypothyroid females (2(3)> = 34.371, P<0.001) with less patients with severe (1) and moderate (2) compared to mild (19) and normal score(28)

Figure1. Gender distribution according grading levels of BDI score



DISCUSION

The results in our studies suggested that prevalence of depression in hypothyroidism patients is more common in females and older age groups. These results findings correlate with another study (12,13,14). These data may be due to the occurrence of endogenous depression or because in the study we have an older population following the onset of menopause. Also in our study we got a high percentage of patients with poor family support who live along in urban environment with poor social live. Our findings suggest that poor social life and the lack of family support are the key risk factors for the development of depression.

In our study results shows that only in 20% of patients had some degree of depression. This results correlate with some study who told that in 20, 5% of the patients and in 28% of patients with hypothyroidism had some degree of depression (3,4). But not correlate with another study who report a high percentage of depression among this patients 63% (13). Also most of the studies show a different changes of TH hormones during depressive episode data are contradictory : few studies show normal range(9) another studies suggesting an increase while others suggesting decrease the TH level (5,11). Person with hypothyroidism are et the risk of depression (14,15,16,). Krysiak R in our study also is in concordance told that comorbidity of depression and hypothyroidism as 60% (17). Some authors suggested that both thyroid dysfunction and depression together affect also female sexual (18). So any patients on treatment for hypothyroidism mast be screened for depression. Also patients with depression who not responding to standard dosage of antidepressant mast be screened for the thyroid states (18) . Because one of the most common mistakes which happen is that the doctors fail to look for any psychiatric comorbidity in such patients (7).

The result of some study show that patients with hypothyroidism are increase risk of psychiatric disorders and they begin treated with antidepressant and anxiolytics (19). Also one study suggested that thyroxin replacement as a monotherapy fails to achieve total remission (20). So some studies suggested that if all fail, add some thyroid as an augmentation to antidepressant and also used biopsychosocial-based intervention maybe act efficiently.(19,20,21).

CONCLUSION

The results in our studies show that only 20% of hypothyroidism patients had some degree of depression so, these patients presenting in our study mast be treating by endocrinologist and a psychiatric. Before prescribing any antidepressant almost doctor mast go for the thyroid function test, and also if depression not responding to standard dosage of antidepressant mast be screened for the thyroid status. So early recognition of an endocrine conduction will help minimize psychiatric morbidity and will help to use the adequate therapy.

REFERENCES

1. Wolkowitz OM, Rothschild AJ. Psychoneuroendocrinology: The Scientific Basis of Clinical Practice, American Psychiatric. 1st ed. Washington, DC, USA: American Psychiatric Publishing, Inc.; 2003. pp. 419–44. [Google Scholar]
2. Boral GC, Ghosh AB, Pal SK, Ghosh KK, Nandi DN. Thy-

roid function in different psychiatric disorders. Indian J Psychiatry. 1980;22:200–2. [PMC free article] [PubMed] [Google Scholar]

3. Saxena J, Singh PN, Srivastava U, Siddiqui AQ. A study of thyroid hormones (T3, T4& TSH) in patients of depression. Indian J Psychiatry. 2000;42:243–6. [PMC free article] [PubMed] [Google Scholar]
4. Gupta S, Saha PK, Mukhopadhyay A. Prevalence of hypothyroidism and importance of cholesterol estimation in patients suffering from major depressive disorder. J Indian Med Assoc. 2008;106:240–2. [PubMed] [Google Scholar]
5. Whybrow PC, Prange AJ, Jr, Treadway CR. Mental changes accompanying thyroid gland dysfunction. A reappraisal using objective psychological measurement. Arch Gen Psychiatry. 1969;20:48–63. [PubMed] [Google Scholar]
6. Haggerty JJ, Jr, Garbutt JC, Evans DL, Golden RN, Pedersen C, Simon JS, et al. Subclinical hypothyroidism: A review of neuropsychiatric aspects. Int J Psychiatry Med. 1990;20:193–208. [PubMed] [Google Scholar]
7. Carvalho AF, Machado JR, Cavalcante JL. Augmentation strategies for treatment-resistant depression. Curr Opin Psychiatry. 2009;22:7–12. [PubMed] [Google Scholar]
8. Bauer M, Heinz A, Whybrow PC. Thyroid hormones, serotonin and mood: Of synergy and significance in the adult brain. Mol Psychiatry. 2002;7:140–56. [PubMed] [Google Scholar]
9. Smith JW, Evans AT, Costall B, Smythe JW. Thyroid hormones, brain function and cognition: A brief review. Neurosci Biobehav Rev. 2002;26:45–60. [PubMed] [Google Scholar]
10. Bernal J, Nunez J. Thyroid hormones and brain development. Eur J Endocrinol. 1995;133:390–8. [PubMed] [Google Scholar]]
11. Forman-Hoffman V, Philibert RA. Lower TSH and higher T4 levels are associated with current depressive syndrome in young adults. Acta Psychiatr Scand. 2006;114:132–9. [PubMed] [Google Scholar]
12. Redmond GP. Hypothyroidism and women's health. Int J Fertil Womens Med. 2002;47:123–7. [PubMed] [Google Scholar]
13. Chaudhary R, Chabra S, Singla M, Mishra BP, Sharma A. Psychiatric morbidity among hypothyroid patients – A hospital based study. Delhi Psychiatry J. 2014;17:35–8. [Google Scholar]
14. Kvetny J, Ellervik C, Bech P. Is suppressed thyroid-stimulating hormone (TSH) associated with subclinical depression in the Danish General Suburban Population Study? Nord J Psychiatry. 2015;69:282–6. [PubMed] [Google Scholar]
15. Ittermann T, Völzke H, Baumeister SE, Appel K, Grabe HJ. Diagnosed thyroid disorders are associated with depression and anxiety. Soc Psychiatry Psychiatr Epidemiol. 2015;50:1417–25. [PubMed] [Google Scholar]
16. Cosci F, Fava GA, Sonino N. Mood and anxiety disorders as early manifestations of medical illness: A systematic review. Psychother Psychosom. 2015;84:22–9. [PubMed] [Google Scholar]
17. Krysiak R, Drosdzol-Cop A, Skrzypulec-Plinta V, Okopien B. Sexual function and depressive symptoms in young women with thyroid autoimmunity and subclinical hypothyroidism. Clin Endocrinol (Oxf) 2015 DOI: 10.1111/cen.12956. [PubMed] [Google Scholar]
18. Joffe RT, Sullivan TB. The significance of an isolated elevated TSH level in a depressed patient: A clinical commentary. Int J Psychiatry Med. 2014;48:167–73. [PubMed] [Google Scholar]
19. Thvilum M, Brandt F, Almind D, Christensen K, Brix TH, Hegedüs L. Increased psychiatric morbidity before and after the diagnosis of hypothyroidism: A nationwide register study. Thyroid. 2014;24:802–8. [PubMed] [Google Scholar]
20. Kalra S, Balhara YP. Euthyroid depression: The role of thyroid hormone. Recent Pat Endocr etab Immune Drug Discov. 2014;8:38–41. [PubMed] [Google Scholar]
21. Huynh NN, McIntyre RS. What are the implications of the STAR*D trial for primary care? A review and synthesis. Prim Care Companion J Clin Psychiatry. 2008;10:91–6. [PMC free article] [PubMed] [Google Scholar]