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A study on thyroid dysfunction in postmenopausal women

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ABSTRACT

Background:Thyroid dysfunction is common in the general population, especially among older women. The present study was conducted to assess thyroid function in post-menopausal women.

Materials & Methods:56 post- menopausal women and equal number of pre- menopausal women were recruited and classified into group I and II respectively. All were subjected to TSH estimation in RIA centre with Immunoradiometric assay kit. T3 and T4 were also estimated if TSH level was abnormal. The sensitivity of TSH estimation was 0.05µIU/ml. Normal level of TSH was taken as 0.5-4.5µIU/ml.

Results: There were 2 subjects in group I and 4 in group II with TSH level <0.5 µIU/ml, 50 in group I and 46 in group II had between 0.5-4.5 µIU/ml and 4 in group I and 6 in group II had >4.5 µIU/ml. The prevalence of subclinical hypothyroidism was seen in 2 in group I and 4 in group II and overt hypothyroidism in 1 in group I and 2 in group II. The difference was significant (P< 0.05). The mean TSH level in group I was 3.02 µIU/ml and in group II was 3.86 µIU/ml. The difference was non- significant (P> 0.05).

Conclusion: The prevalence of thyroid disorders especially hypothyroidism is more in postmenopausal women than premenopausal women.

Key words: thyroid disorders, post-menopause, premenopausal women

I. INTRODUCTION

Thyroid dysfunction is common in the general population, especially among older women. Serum thyroid auto-antibodies, directed against thyroid peroxidase (TPO) and/or thyroglobulin (Tg), are detectable in up to 25% of women over the age of 60 years.[1] Autoimmune hypothyroidism (denoted by the presence of TPO and/or Tg antibodies) is eight to nine times more common in women than in men, and tends to become increasingly prevalent with age.[2]

Women are more susceptible to thyroid disorders than men and older adults than younger age groups.[3] Thyroid dysfunction is common among the women over the age of 50 for some reason or the other.[4] Menopause, by definition, begins 12 months after the final menses and is characterized by a continuation of vasomotor symptoms and by urogenital symptoms such as vaginal dryness and dyspareunia. The mean age of menopause in Indian women was found out to be 45.03 years on average.[5]In western countries, the mean age at menopause is higher. The risks of osteoporosis and cardiovascular diseases get magnified in postmenopausal women. Thyroid disorders, if left untreated, will increase these risks. Screening for thyroid dysfunction in asymptomatic individuals is not always recommended, but various researchers suggest that aggressive case finding should be pursued in older women.[6]

Special considerations in diagnosing and treating peri-menopausal and postmenopausal women with thyroid dysfunction include the difficulty of differentiating between menopausal symptoms and symptoms related to thyroid dysfunction, the effects of postmenopausal

estrogen replacement or selective estrogen receptor modulators (SERMs) on thyroxine requirements in women with hypothyroidism, and the potential cardiac and bone effects of thyrotoxicosis.[7] The present study was conducted to assess thyroid function in post-menopausal women.

II. MATERIALS & METHODS

This study consisted of 56 post- menopausal women who agreed to participate in the study after their written consent. All these women were above 45 years of age. Equal number of pre- menopausal women were also recruited in the study.

Two groups were made. Group I comprised of pre- menopausal women and group II had post- menopausal women. Detailed history regarding lifestyle, and family history of thyroid diseases, diabetes mellitus, hypertension and cardio vascular was recorded. A thorough general examination physical examination was done. The blood samples were collected by venepunctures with disposable syringe and needle. Sera were separated by centrifugation and subjected to TSH estimation in RIA centre with Immunoradiometric assay kit. T3 and T4 were also estimated if TSH level was abnormal. The sensitivity of TSH estimation was 0.05µIU/ml. Normal level of TSH was taken as 0.5-4.5µIU/ml. Results were clubbed together and statistically analysed using students t test with p value set at 0.05 significant.

III. RESULTS

Table I: TSH level in patients

TSH (µIU/ml)	Group I	Group II	P value
<0.5	2	4	0.05
0.5-4.5	50	46	0.91
>4.5	4	6	0.12

Table I, graph I shows that there were 2 subjects in group I and 4 in group II with TSH level <0.5 µIU/ml, 50 in group I and 46 in group II had between 0.5-4.5 µIU/ml and 4 in group I and 6 in group II had >4.5 µIU/ml. The difference was non- significant (P> 0.05).

Graph I:TSH level in patients

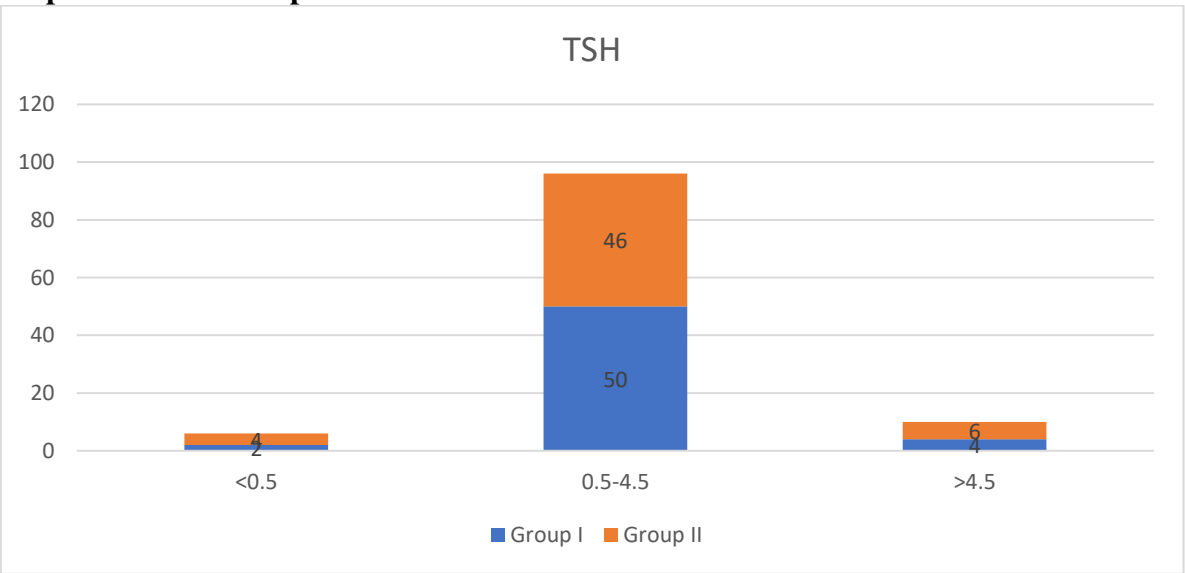

Table II:Subclinical and overt hypothyroidism

Groups	Subclinical hypothyroidism	Overt hypothyroidism	P value
Group I	2	1	0.04
Group II	4	2	0.03

Table II, graph II shows that prevalence of subclinical hypothyroidism was seen in 2 in group I and 4 in group II and overt hypothyroidism in 1 in group I and 2 in group II. The difference was significant (P< 0.05).

Graph II:Subclinical and overt hypothyroidism

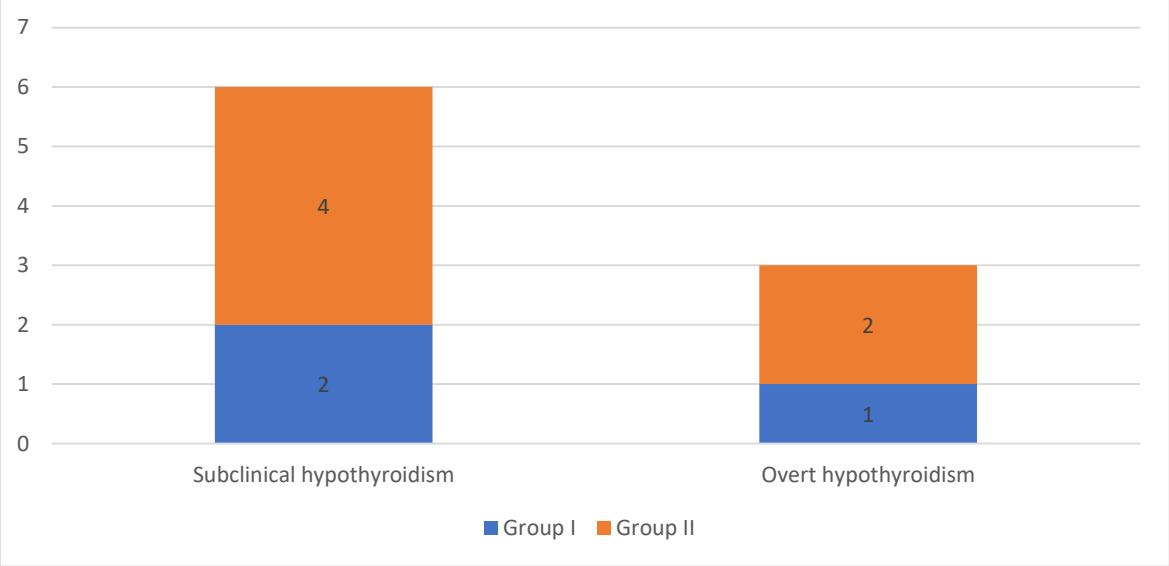

Table III: TSH in both groups

Groups	Mean (µIU/ml)	P value
Group I	3.02	0.57
Group II	3.86	

Table III shows that mean TSH level in group I was 3.02 µIU/ml and in group II was 3.86 µIU/ml. The difference was non- significant (P> 0.05).

IV. DISCUSSION

Menopause is a physiological process characterized by loss of reproductive function, depletion of ovarian follicles, state of estrogen deficiency and appearance of variety of menopausal symptoms, like lethargy, hot flushes, anxiety, sexual problems, tiredness, insomnia, weight gain and mood swings.[8] Many of these symptoms are similar to symptoms of hypothyroidism.[9] It has also been observed that menopausal symptoms are more intense in patients with hypothyroidism. There is likelihood of symptoms of hypothyroidism in this age group being misinterpreted as menopausal symptoms and hypothyroidism remaining undetected. If hypothyroidism remains undetected and untreated, it can lead to health hazard like hyperlipidemia, atherosclerosis and heart disease.[10] Even subclinical hypothyroidism can progress to overt hypothyroidism, especially if serum TSH concentration is >10 mIU/l. Further, there is evidence that subclinical hypothyroidism can be associated with elevated total and low- density lipoprotein cholesterol levels and these levels improve with treatment with L-T4.[11] The present study was conducted to assess thyroid function in post- menopausal women.

In present study, there were 2 subjects in group I and 4 in group II with TSH level <0.5 µIU/ml, 50 in group I and 46 in group II had between 0.5-4.5 µIU/ml and 4 in group I and 6 in group II had >4.5 µIU/ml. Bordoloi et al[12] in their study serum TSH level were measured in 304 apparently healthy females. Unbound T3 and T4 were measured if TSH level was abnormal. TSH levels were compared among different age groups. The prevalence of hypothyroidism was found to be 8.2% in premenopausal and 12.7% in postmenopausal women. There were more cases of subclinical hypothyroidism than clinical hypothyroidism. Difference of Mean± SEM of TSH level in these two groups was significant though there was no correlation between age and TSH level.

We found that prevalence of subclinical hypothyroidism was seen in 2 in group I and 4 in group II and overt hypothyroidism in 1 in group I and 2 in group II. Joshi et al[13] studied the prevalence of hypothyroidism in peri- and postmenopausal women and the correlation of menopausal symptoms with hypothyroidism. Out of 200 women 25 women had raised TSH levels. Three women had overt hypothyroidism (TSH high, free T4 low), and 22 women had subclinical hypothyroidism (TSH high, free T4 normal). It was observed that out of 94 women who had MRS score, more than 8, 16 (16.6%) women had hypothyroidism and out of 106 women with lower MRS score (1 to 8), nine (8.49%) women had hypothyroidism. Prevalence of hypothyroidism is high in peri- and postmenopausal age group (12.5%). Though women with high score are more likely to suffer from hypothyroidism, low score does not preclude the possibility of hypothyroidism. Screening should be done in this age group to prevent complications of hypothyroidism.

We found that mean TSH level in group I was 3.02 µIU/ml and in group II was 3.86 µIU/ml. Jaya[14] in a study conducted among 100 postmenopausal women, found that the prevalence of hypothyroidism was 22% and that of subclinical type was 8% while 2% of the females were suffering from thyrotoxicosis. Prevalence of hypothyroidism increased with increasing age. Author concluded that thyroid dysfunction has a correlation with duration of menopause with maximum patients having more than 10 years of menopause. Chaurasia P et al[15] conducted a study in Gujarat to find out the age and sex variation of thyroid hormone. In females they found that TSH level were lowest <20 years (Mean±SD = 0.43±0.00µU/L) and highest in 20-40 years (2.43±1.38µU/L). It again became low in 40-60 years (1.71±1.84µU/L and high above 60 years (2.27±1.85µU/L).

V. CONCLUSION

Author found thattheprevalence of thyroid disorders especially hypothyroidism is more in postmenopausal women than premenopausal women.

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