
ORIGINAL RESEARCH ARTICLE**A Prospective Study to Evaluate Thyroid Function Tests in Post-menopausal Females at a Tertiary Care Hospital in India***Patharkar S. A.¹, Bavikar J. S.² and Bokankar D.K.³**Associate Professor, Department of Biochemistry, T. N. Medical College & B.Y.L. Nair Charitable Hospital, Mumbai,¹ Associate Professor, Department of Biochemistry, Government Medical College & Hospital Aurangabad, Maharashtra, India^{2,3}.*

Abstract:**Introduction:**

Thyroid problems are quite common during the peri-menopausal and post-menopausal years. The physical foundation of the menopausal state rests on the health of our endocrine system. When estrogen is not properly counterbalanced with progesterone, it can block the action of thyroid hormone, so even when the thyroid is producing normal hormone levels, the hormone is rendered ineffective and the symptoms of hypothyroidism appear.

Aims & Objectives:

The aim of the present study is to investigate the thyroid functions in post-menopausal women of Aurangabad, Maharashtra, India.

Methodology:

This was a cross sectional study of thirty healthy postmenopausal females of 45-70 years age groups. We conducted this study at Government Medical College, Aurangabad during June 2005 to December 2007. Blood was tested for serum thyrotropin concentrations and for free tri-iodothyronine and free thyroxin concentrations. The data was analyzed using the method of descriptive statistics and the results expressed as percentage of the total.

Results:

In the present study out of total 30 postmenopausal females studied, only one (3.33%) was found with subclinical hypothyroidism. Subclinical hypothyroidism was defined by the presence of elevated TSH levels but normal free T4 and free T3. Fisher's exact test. The two-tailed P value is less than 0.0001 which is considered as statistically significant.

Conclusion:

The association between Post-menopausal women having subclinical hypothyroidism and Post-menopausal women who do not have subclinical hypothyroidism is considered to be extremely statistically significant. Hence our study indicates the importance of thyroid-status screening, especially in postmenopausal women.

Keywords: Post-menopausal females, Subclinical Hypothyroidism.

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Aims & Objectives:

The aim of the present study was to investigate the thyroid functions in post-menopausal women of Aurangabad, Maharashtra, India.

Materials and Methods:

This was a cross sectional study of thirty healthy postmenopausal females of 45-70 years age group, without any known major illness. Females with known thyroid illness or taking any medicines

interfering with thyroid function are excluded. We conducted this study at Government Medical College, Aurangabad during June 2005 to December 2007. All the details about the study were well explained to the participants and informed consent was taken in their own language. All due ethical considerations were taken care during the study. Approximately 5 ml of blood was collected in a clean, dry, sterile Plain bulb. Blood sample were allowed to coagulate for 2-3 hrs and then serum was separated by centrifugation at 3000 rpm for 10 min. Blood was tested for serum thyrotropin concentrations and for free tri-iodothyronine and free thyroxin concentrations, using third generation chemiluminiscence immunosorbant assay (CLIA).

Result:

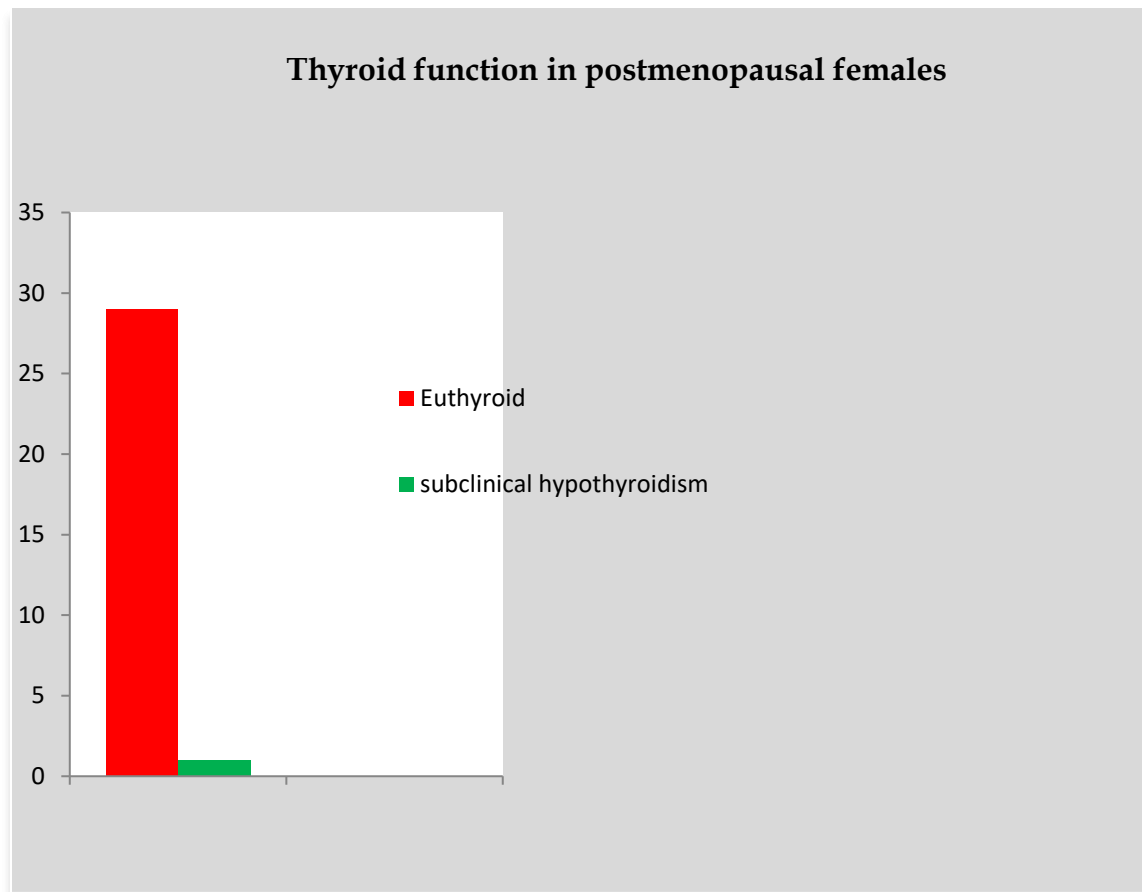
In the present study, total thirty (30) postmenopausal females without any known major illness were studied, with mean age 49.76 ± 5.59 yrs, mean BMI 22.80 ± 1.47 with average menopausal years 8.3. We found 29 females with euthyroid status and one postmenopausal female with subclinical hypothyroidism(3.33%). Subclinical hypothyroidism was defined by the presence of elevated TSH levels but normal free T4 and free T3 .By applying the Fisher's test², the two-tailed P value is less than 0.0001 is considered to be statistically significant.

Table No. 1: Age in years and body mass index (BMI) in kg/m²

Total Females	30
Mean Age	49.76 ± 5.59 Years
BMI	22.80 ± 1.47

Table No. 2: Result of Thyroid function

Parameters	Post menopausal females(n=30) mean \pm S.D	Reference range
ft3(pg/ml)	2.5697 ± 0.77	1.4- 4.2
ft4 (ng/dl)	1.2313 ± 0.39	1.2 – 2.0
TSH(μ U/ml)	1.3796 ± 0.26	0.36 – 6.16
Subclinical hypothyroidism	1	----



Discussion:

Menopause is defined as the permanent cessation of menses (begins 12 months after the final menses) due to depletion of viable follicles. Although estradiol levels are low after the initial cessation of menses, they continue to decline beyond the cessation of menses.³ The deficiency of estrogen in postmenopausal women develops oxidative stress, and becomes the cause of various pathologies like development of hypertension.⁴ Thyroid problems are quite common during the perimenopausal and postmenopausal years. The physical foundation of the menopausal state rests on the health of our endocrine system - or hormone producing organs like the thyroid. It is a fact that 26 percent of perimenopausal women suffer from hypothyroidism.⁵ When oestrogen is not properly counterbalanced with progesterone, it can block the action of thyroid hormone, so even when the thyroid is producing normal hormone levels, the hormone is rendered ineffective and the symptoms of hypothyroidism appear. However, laboratory tests may show normal thyroid hormone levels in women, because the thyroid gland isn't actually malfunctioning.⁶ There is no doubt from this study that the changes that occur in the thyroid function after menopause is not friendly for the general

health of women. It is generally believed that postmenopausal symptoms are less in Indian women than their Caucasian counterparts. This may not be true because several studies in the past have shown psychological, physical, biochemical, hormonal and vasomotor parameters that are not of great variance with what is obtained elsewhere (Grundy, 1994, Mandel et al, 2002, Pirway et al, 2002).^{7,8,9} The problem is that the harsh climatic and poor socioeconomic environment overwhelms Indian women that they hardly ever complain about menopausal symptoms unless it is severe.

Conclusion:

Our study indicates the importance of thyroid-status screening, especially in postmenopausal women. As our knowledge and awareness about thyroid function test increases and technology permits, the estimation of thyroid hormones should be done routinely in postmenopausal females as a precautionary measure for good health.

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