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A HOSPITAL BASED STUDY TO EVALUATE SUBCLINICAL HYPOTHYROIDISM IN POSTMENOPAUSAL WOMEN

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ABSTRACT

Menopause is the permanent cessation of menstruation due to the failure of ovarian follicular development. 51is the mean age of menopause, but can vary from 45-55 yrs. Subclinical hypothyroidism is diagnosed when serum TSH is more than 6.8 mIU/ml and serum T3, T4 are normal. Women are far more likely than men to be afflicted with thyroid problems. The study was therefore conducted in the Department of medicine in collaboration with Department of Biochemistry, super speciality hospital GMC, Jammu. Out of a total of 1500 admitted patients, 450 females of more than 45 yrs of age, having attained menopause, selected randomly for this study. 2ml of venous blood was collected from ante cubital vein under aseptic conditions from each individual with her consent, duly following the guidelines and norms of the hospital. Whole blood specimen was analyzed via automated chemiluminescent micro-particle immunoassay (cmiatechnology, ARCHIECT TSH assay). About 24% of postmenopausal women were found with subclinical hypothyroidism, out of which 10% women were in the age group of 45-55 yrs and 14% women were above 55 years of age, having subclinical hypothyroidism with mean serum TSH levels (8.33±1.2) mlU/ml & (9.70±1.47) mlU/ml respectively.

KEYWORDS: Post Menopause, Subclinical Hypothyroidism, chemiluminescence.

INTRODUCTION

Menopause has been defined as permanent cessation of menstruation due to the failure of ovarian follicular development despite gonadotropic stimulation. The mean age of menopause is 51years but can vary from 45-55 yrs.[1] In rare cases it can occur as early as 30s or as late as 60s. Menopausal health is important since this stage of life is not to be avoided. Typical menopausal symptoms are vasomotor symptoms (hot flushes), vaginal dryness[2], mood swings, depression, Dry skin, anxiety, panic attacks, problems with concentration, memory and sleep disturbances.[3] Subclinical hypothyroidism is defined as a serum thyroid stimulating hormone (TSH) above the defined upper limit of the reference range, associated with serum free thyroxin (T4) within the reference range. Subclinical hypothyroidism was diagnosed when serum TSH was more than 6.8 mIU/ml and serum T3, T4 were normal. Mild thyroid failure is asymptomatic however nearly 30% of patients with this condition may have symptoms that are suggestive of thyroid hormone deficiency.[4] The prevalence of subclinical hypothyroidism in the United States adult population is 4–8.5%,[5] although this figure increases with age, may differ among ethnic groups and less consistent data is available among men.[6] Women are far more likely than men to be afflicted with thyroid problems leading to fatigue, depression, weight gain and others due to the triggering effect of hormones.[7]

Mild thyroid failure commonly progress to overt hypothyroidism. The progression to overt hypothyroidism is approximately 2–18% per year addition to progression to overt hypothyroidism a number of possible consequences of subclinical hypothyroidism exist.[8] Overt hypothyroidism is associated with somatic symptoms, cognitive impairment, neuromuscular abnormalities, systolic and diastolic cardiac functions, which is improved by giving L-thyroxine therapy.[9] Further the treatment of mild thyroid failure has been reported as cost-effective. Recent studies suggested that there are millions more suffering from subclinical problems still undiagnosed, therefore we planned to do the same in our institute.

MATERIAL AND METHODS

The study was conducted in the Department of medicine in collaboration with Department of Biochemistry, super speciality hospital GMC, Jammu. Total number of patients admitted in medicine ward during a period of Dec 2015- Feb 2016 was Approximately 1500, out of

which 450 were the females of more than 45 yrs of age, having attained menopause, selected randomly for this study. 2ml of venous blood was collected from ante cubital vein under aseptic conditions from each individual with her consent, duly following the guidelines and norms of the hospital. Whole blood specimen was analyzed via automated chemiluminescent micro-particle immunoassay (cmiatechnology, ARCHIECT TSH assay).[10]

OBSERVATION AND RESULTS

Out of these 450 subjects, 24% of postmenopausal women were having subclinical hypothyroidism. 10% women lying in the age group of 45-55 yrs and 14% women above 55 years of age were having subclinical hypothyroidism with mean serum TSH levels (8.33±1.2) mlU/ml & (9.70±1.47) mlU/ml respectively. These observations are tabulated in table: 1. Out of 108 SCH women, 36 postmenopausal women having serum TSH levels above 10mIU/ml were treated with L-thyroxin and 19 women responded to the treatment, serum TSH levels were lowered, and there was alleviation of certain symptoms like depression, insomnia anxiety, mood swings, etc.

Table: 1

S No	Age Group	% of Post Menopausal Women With Subclinical Hypothyroidism	Serum TSH Levels in mIU/ml (Mean ±SD±SE)
1	45-55 Years of age	10%	8.33±1.2±0.45
2	56 years and above	14%	9.70±1.47±0.55

DISCUSSION

Women body has delicate balance of hormones such as oestrogen and progesterone which can be upset when body is under stress and not receiving enough support. Perimenopause, menopause and pregnancy are the times in women life when hormonal level is particularly common and are associated with hypothyroidism. Oestrogen which is a hormone messenger having receptor sites in many locations of the body like uterus, vagina, breast, bones and brain. It stimulates the growth of uterine lining each month for implantation of fertilized ovum, whereas progesterone thickens the inner lining of the uterus during the last few weeks of menstrual cycle. But as menopause sets in and as the ovulation ceases, progesterone is no longer produced except for a small amount by adrenal glands. In the postmenopausal state, there is 10-15 fold increase in circulating FSH levels, a 4-5 fold increase in LH and more than 90% decrease in the circulating estradiol levels. Oestrogen is believed to cause an increase in thyroxin binding globulin and therefore increase in serum T3 and T4 levels. In menopause oestrogen levels decrease, thus there is decrease in thyroxin binding globulin [11] and ultimately decrease in serum T3 and T4 levels. Sex hormone binding globulin concentrations are also decreased in hypothyroidism.

Despite all these known facts about menopausal problems, women still continue to sufferer. Frequently, the underlying hypothyroidism is such a controlling factor that simply correcting it returns the whole system to fairly normal functioning. Menopause continues but is more gradual and a comfortable process.

CONCLUSION

There is an increasing the prevalence of high serum TSH with age particularly in postmenopausal women which lead to overt hypothyroidism, therefore routine screening of serum T3, serum T4 and serum TSH is a must. All the patients with serum TSH above 10 mIU/ml should be treated with levothyroxine and if below, then decision lies with the physicians to correlate the clinical features with their severity.

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