



UROGENITAL PROBLEM IN POSTMENOPAUSAL WOMEN IN CORRELATION WITH THEIR ESTRADIOL LEVELS

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ABSTRACT

Menopause is that point in time when permanent cessation of menstruation occurs following the loss of ovarian activity. The AIMS AND OBJECTIVES of my study to see the Prevalence of urogenital problems in menopausal women. 2 Study of different urogenital problems in postmenopausal women 3. Estimation of estradiol level in women with post menopause. The study was conducted in the department of Obstetrics and Gynaecology at Acharya Vinoba Bhave Rural Hospital, Sawangi (Meghe), Wardha. Observational study This study includes 100 post-menopausal women and has tried to highlight various urinary complaints, genital complaints, vasomotor symptoms, psychosomatic symptoms, weight, type of menopausal and their correlation with estradiol level and age at menopause of post-menopausal women. This study concluded that the urinary complaints, genital complaints, vasomotor symptoms, psychosomatic symptoms, weight and type of menopause had effects of estradiol level in post-menopausal women.

KEYWORDS: Menopause urogenital, estradiol.

INTRODUCTION

Menopause is that point in time when permanent cessation of menstruation occurs following the loss of ovarian activity. menopause is derived from the Greek words men (month) and pausis (cessation).

In 1000 B.C., life expectancy was only 18 years. By 100 B.C., the time of Julius Caesar, it had reached 25 years. in 1900, in the U.S, life expectancy still had reached only 49 years. In: 2005, the average life expectancy was 80.7 years for women and 75.4 for men¹. Two hundred years ago only 30% of women lived through a menopause; now, more than 90% will. Thus, the menopause transition and postmenopause is very much a condition of the 20th and 21st centuries. The majority of women can therefore expect to live over a third of their lives in a menopausal state.

Unfortunately, many of these postmenopausal women will have a progressively declining quality of life. Optimization of menopause health care should produce a rectangularization of society where postmenopausal women remain at the peak of health Menopause is a significant stage marking the end of a woman's reproductive life. Although this process is physiological, it is plagued by wide range of discomforting features which affects their quality of life.

These symptoms includes years of hot flashes associated with episodes of sweating; sleep disturbances; joint pains; and urogenital symptoms such as decrease in libido, dyspareunia, and bladder incontinence.: These symptoms are primarily due to alteration in the hormonal levels, particularly estrogen; which in turn is caused by aging of the ovaries.

Before menopause, estrogen stimulates the exfoliation of vaginal cells. As. these cells exfoliate and. die, they release large amounts of glycogen. This glycogen is hydrolyzed to glucose and lactobacillus convert the glucose to lactic acid., Which helps maintain vaginal pH between 3.5 and 4.5.

After menopause, with declining levels of estrogen, this pathway is less active, which may allow postmenopausal pH to increase to the range of 5.0-7.5.1.

This study is done in an effort to elucidate postmenopause and its effect over these women in the form of urogenital, vasomotor and psychosomatic symptoms. and relation of level of estradiol with each.

AIMS AND OBJECTIVES

- Prevalence of urogenital problems in menopausal women.

- Study of different urogenital problems in postmenopausal women.
- Estimation of estradiol level in women with post menopause.
- Correlation of estradiol level with urogenital problems.

Study Setting

Place of study: Department of Obstetrics and Gynaecology JNMC, AVBRH, DMIMS, Wardha

Study design: Observational study

Sample size: 100 cases

Inclusion criteria

- Postmenopausal.
- Urogenital complications, eg, DUB, white discharge, fibroid, urinary incontinence, urinary tract infection.
- Patient who will give the Consent.

MATERIAL AND METHOD

Exclusion criteria

- Premenopausal.
- Secondary amenorrhoea.
- Patients on hormonal therapy.

Method

The postmenopausal women with urogenital symptoms who will give the consent to participate in this study will be investigated. The urogenital symptom and, estradiol level shall be analyzed by analyzing the. Estradiol level in the serum samples of each.

Data will be collected from women with climacteric symptoms attending clinics at IPD/OPD basis Physical examination shall be done to assess the - type and extend of the urogenital problem the patient is presenting with. Menopausal age is to be based 'on the history the patient presents estimated from the last menstrual period. Patients shall be classed as. postmenopausal if they had been amenorrhoeic for more than 12 months.

Procedure

Blood samles were analyzed by Chemiluminescent Immunoassay Chemiluminescence immunoassay (CLIA) methods: Immunoassays based on chemiluminescence

have substantially greater sensitivity and dynamic range than those based on earlier-generation detection techniques. Efficient light emission with low background is coupled with the high sensitivity and broad range of the photomultiplier detector. For every photon of light striking the surface of the photomultiplier, there is a 10⁶ fold electronic amplification of the signal. Photomultipliers have very low background noise and inherent dynamic ranges of 5 to 6 orders of magnitude. the chemiluminescence immunoassay (CLIA) thus combine the specificity and sensitivity of labeled probes evidenced by chemiluminescence and spatial morphological resolution and localization of the signal of the immunohistochemistry technique. Among assay methods, chemiluminescence detection represents a versatile, ultrasensitive tool with a wide range of applications in biotechnology. It also gives a sensitive, rapid alternative to radioactivity as a detection principle in immune assay for the determination of molecules (e.g., proteins, hormones, drugs, nucleic acids and environmental pollutants). Chemiluminescence is now commonly used for immunoassay in the form of a CL label or as a CL detection reaction for an enzyme or a nanoparticle label. In recent years, CLIA has become very popular in clinical chemistry and environmental analysis, due to its high sensitivity, wide dynamic range and complete automation.

RESULTS

This observational study of 'Urogenital problems in postmenopausal women in correlation with estradiol level' was conducted in the department of gynecology, Acharya Vinoba Bhave Rural Hospital, Sawangi (M), Wardha.

A total of 100 post menopausal women, fulfilling the inclusion criteria were included in the present study.

The data obtained was coded and entered into Microsoft Excel Worksheet. The data was analyzed by using descriptive statistics, unpaired t test and coefficient of correlation - statistic with the help of statistical software SPSS 17.0 version and tabulated as below.

Table No. 1: Table showing age wise distribution of post menopausal women.

Age (yrs)	No. of Patients	Percentage %
40-45	19	19.00%
46-50	33	33.00%
51-55	17	17.00%
56-60	18	18.00%
>60	13	13.00%
Total	100	100.00%

In above table no. 1, it was observed that maximum 33.00% (33) women were from 46-50 age groups where as only 13.00% (13) were form above 60 age group. The

mean age of women was 53.27 yrs with standard deviation 7.40. The minimum and maximum age of women was 40 and 75 respectively.

Table No. 2: Table showing age of Natural Menopause.

Age (yrs)	No. of Patients (n=81)	Percentage %
40-45	47	58.02%
46-50	28	34.57%
51-55	6	7.41%
Total	81	100.00%

From the above table it was clear that maximum 58.02% (47) women had age of natural menopause between age group 40 - 45 yrs. While as only 7.41% (6) women had age of natural menopause between age group 51 - 55 yrs.

The mean age of natural menopause was 45.34 with standard deviation 4.39. The minimum and maximum age of natural menopause was 40 and 55 respectively.

Table No. 3: Table showing age of Surgical Menopause.

Age (yrs)	No. of Patients (n=19)	Percentage %
<40		26.32%
40-45	9	47.37%
46-50	4	21.05%
>50	1	5.26%
Total	19	100.00%

Table no. 3 reveals that, Out of 19 women 9 (47.37%) had age of surgical menopause between age group 40-45 yrs. Only 1 (5.26%) women had surgical menopause in

the age of above 50 yrs. The mean age of surgical menopause was 42.52 with standard deviation 1.68.

Table No. 4: Table showing Distribution of Patients according to types of Menopause.

Menopausal Type	No. of Patients	Percentage %
Natural	81	81.00%
Surgical	19	19.00%
Total	100	100.00%

In the present study 81.00% (81) women were having natural menopause and 19.00% (19) had undergone surgical menopause.

Table No. 5: Table showing Indication for Hysterectomy in surgical menopause women.

Indication	No. of Patients	Rank
Fibroid uterus	6	1
DUB	4	2
Adenomyosis	3	3
PID		2
Chronic cervicitis	2	4
Ovarian tumour	1	5
Cervical dysplasia	1	5

From the above table it was shown that most common indication for hysterectomy in surgical menopause

women was indication like fibroid uterus (6) and DUB (4) has rank 1 and 2 respectively.

Table No. 6: Correlation of Age with Estradiol level of post menopausal women.

		Age of Women	Estradiol Level
Age of Women	Pearson Correlation	1	-0.380*
	Sig. (2-tailed)		0.013
	N	100	100
Estradiol Level	Pearson Correlation	-0.380*	1
	Sig. (2-tailed)	0.013	
	N	100	100

*. Correlation is significant at the 0.05 level (2-tailed).

The above table shows that the values of Pearson correlation of coefficient for Age of women with

Estradiol level. This study found that there was negative significant correlation between age with estradiol level of

post menopausal women as $r=-0.380$. It was concluded that serum E2 levels decrease with increasing age in women.

Table No. 7: Table showing Mean and S.D. of Weight of women according to.

Menopausal Type	Mean	S.D.	Std. Error	t Statistic	P Value
Natural	54.46	8.08	0.89	0.378	0.714
Surgical	53.68	7.69	1.76		NS

From the above table it was found that mean weight of natural menopausal was 54.46:kg and surgical menopausal was 53.68kg with standard deviation 8.08 and 7.69 respectively. By using t statistic non significant

difference was found between the mean weight of natural menopausal and surgical menopausal asp value > 0.05 at 95% level of significance.

Table No. 8: Table showing Distribution of Menopausal Women according to Urinary Complaints.

Urinary Complaints	No. of Patients	Rank
Burning Micturition	50	1
Incontinence	31	2
Frequency	14	3
Dysuria	13	4
Urgency	10	5
Retention of urine	1	6

* No. of Patients exceeds 100 due to overlapping of symptoms.

From the above table it was shown that most common urinary complaints of menopausal women were Burning Micturition to 50 patients with rank 1. Also the urinary complaints like Incontinence to 31 patients with rank 2.

It clears that Burning Micturition and Incontinence were most commonly urinary complaints found in the menopausal women.

Table No. 9: Correlation of Estradiol Level with Urinary Complaints of post menopausal women.

	Burning Micturition	Dysuria	Frequency	Incontinence	Urgency	Retention of urine	Estradiol Level
Burning Micturition	1.000						
Dysuria	.327	1.000					
Frequency	.173	.015	1.000				
Incontinence	.541	.191	.290	1.000			
Urgency	.200*	.268	-.038	.353	1.000		
Retention of urine	-.101	-.039	-.041	-.067	-.034	1.000	
Estradiol Level	.104	.031	-.008	.042	.066	-.009	1.000

*. Correlation is significant at the 0.05 level (2-tailed)

**. Correlation is significant at the 0.01 level (2-tailed)

The above table shows that the values of Spearman correlation of coefficient for estradiol level with urinary complaints. This study found that there was no

correlation with estradiol level of post-menopausal women with urinary complaints.

Table No. 10: Correlation of Estradiol Level with Vasomotor and psychosomatic symptoms of post-menopausal women.

	White Discharge	Dyspareunia	Dryness	Itching	Boils at genitalia	Spotting per vaginum	Estradiol Level
White Discharge	1.000						
Dyspareunia	*.204	1.000					
Dryness	*.253	.798**	1.000				
Itching	.076	.155	-.111	1.000			
Boils at genitalia	.107	.113	-.055	.113	1.000		
Spotting per vaginum	-.088	-.085	-.068	-.085	-.025	1.000	
Estradiol Level	-.026	-.058	-.050	-.026	.017	-.159	1.000

*. Correlation is significant at the 0.05 level (2-tailed)

**. Correlation is significant at the 0.01 level (2-tailed)

The above table shows that the values of Spearman correlation of coefficient for estradiol level with vasomotor and psychomatic symptoms. This study found that there was no correlation with estradiol level of postmenopausal women with Vasomotor and psychosomatic symptoms

DISCUSSION

The present observational study of 'Urogenital problems in postmenopausal women in correlation with estradiol level' was conducted in the department of gynecology, Acharya Vinoba Bhave Rural Hospital, Sawangi (M), Wardha.

A total of 100 postmenopausal women with genital, urinary, vasomotor and psychosomatic symptoms were studied according to the proforma.

Nichols K. C. et al (1984) 48 observed that Effective doses of conjugated estrogens and estradiol administered by different routes achieve estradiol plasma concentrations of similar magnitude (between 35 and 100 pg/ml).

In the present study, it was found that estimated mean estradiol level was 20.80 with standard deviation 21.51. Also observed that the minimum estradiol level was 6.59 whereas maximum estradiol level was 202.28 of postmenopausal women.

1. Comparison of Mean Estradiol level in various studies

Authors	Mean
Joanne Ryan ⁵²	23.7
Present Study	20.80

Comparison of Our Study with Other Studies

2. Comparisons of Mean age of Menopausal women (Yrs)

Authors	Previous Research	Our Study
Randhawa et al (1987) ^[53]	43.5	53.27±7.40
D.S Tsehay (2014) ^[54]	46.7	
S.Sharma(2007) ^[55]	47.53	
Jaszman (1976) ^[56]	51.4	
S. Palacios(2010) ^[57]	54	

John F. Randolph et al (2004) 30 studied 3257 participants from seven clinical sites in the Study of Women's Health Across the Nation (SWAN).

They concluded that Serum E2 concentrations decreased significantly with age, with a steeper decline at higher ages.

This study found similar negative significant correlation between age with estradiol level of postmenopausal women as $r = -0.380$ and concluded that serum E2 levels decrease with increasing age in women.

Narinder Mahajan et al (2012), studied that mean age of menopause was 44.54 years. Kiyoshi Takamatsu et al (2004) found that the subjects were 389 Japanese women (age range: 45-60 years; mean: 51.4 +/- 3.8 years) who visited the menopause clinic in Department of Obstetrics and Gynecology, Keio university hospital, reporting climacteric symptoms. Their depressive tendencies were examined with the SDS (Self-rating Depression Scale, filled out by the patient).

The SDS was computed to be 42.4 +/- 9.9. Ninety-three (23.9%) suffered from an intermediate or higher level depressive tendency; 132 (33.9%) had a mild depression; and 164 (42.2%) were free of any depressive tendency.

Masakazu Terauchi et al (2014) 21, studied that the mean ± standard deviation age of participants was 51.8 ± 5.4 years; 44% of participants were classified as being in the menopausal transition, and 56% were classified as postmenopausal.

Marya Ahsan et al (2015) 4, studied that the mean age of the perimenopausal group was 43.45 (2.02) years and that of postmenopausal group was 48.52 (2.27) years. Among the postmenopausal women, the mean age of menopause observed in their study was 45.29 (2.17) years.

Kwawukume E. Y. et al (2004) 26 studied that the mean and median ages at menopause were 48.05 years +/- 3.62 S.D. and 48 years respectively.

In the present study, it was found that maximum 33.00% (33) women were from 46- 50 age groups where as only 13.00% (13) were from above 60 age group. The mean age of women was 53.27 yrs with standard deviation 7.40. The minimum and maximum age of women was 40 and 75 respectively.

In this study it was found that mean weight of natural menopausal was 54.46kg and surgical menopausal was 53.68kg with standard deviation 8.08 and 7.69 respectively.

In this study, it was clear that maximum 58.02% (47) women had age of natural menopause between age group 40 - 45 yrs. The mean age of natural menopause was 45.34 with standard deviation 4.39. Out of 19 women 9 (47.37%) had age of surgical menopause between age group 40 - 45 yrs. Only 1 (5.26%) women had surgical menopause in the age of above 50 yrs. The mean age of

surgical menopause was 42.52 with standard deviation 1.68.

The present study shows that 43.00% (43) women had 1-5 duration of menopausal years whereas only 5.00% (5) women had duration of menopausal years more than 20. The mean duration of menopause was 8.52 with standard deviation 5.69. 81.00% (81) women were having natural menopause and 9.00% (9) had undergone surgical menopause.

Lisbeth Hellstorm et al (1990) 46 observed that the prevalence of urinary incontinence was 37.2%. The authors found that Urinary incontinence was more prevalent ($p < 0.001$) in women (43.2%) than men (24.0%), and in residents of a nursing home or hospital (83.9%) than in men and women living at home (29.4%).

Li C. et al (2003) 33 observed that there were 6917 participants, with a response rate of 64%. A lower risk for hot flushes was related to older age, high education, and vigorous physical exercise. The major risk factors for vasomotor complaints were current weight gain, part-time employment, oophorectomy, unhealthy lifestyle,

and concomitant health problems. Light smoking, late age of menopause, higher education, and excessive weight reduced the risk of vaginal dryness.

Sievert L. L. et al (2003)³⁴, studied that the majority of respondents said that a menopausal woman feels "insecure" and "unattractive" yet "complete," "necessary," and "successful." Pre-menopausal women and respondents who had undergone a hysterectomy were more likely to express negative attitudes. Post-menopausal women and women with fewer years of education were significantly more likely to report symptoms such as hot flashes, joint aches, and nervous tension. In the present study, it was seen that most common symptoms were Backache/ joint pain in 79% patients whereas insomnia was found in 49% patients. Psychosomatic symptoms like irritability, mood swings and depression were observed in 33%, 28% and 21% menopausal women respectively.

In the Present study, it was observed that 48.00% (48) women were suffered from Headache whereas 29.00% (29) and 23.00% (23) women had found vasomotor symptoms. like Hot flushes and sweating respectively.

3. Comparisons of Symptoms in various studies

Authors	Hot flushes	Sweating	Headache	Insomnia
S. Sharma(2007) ⁵⁵	53.86 %		55.9%	-
Kwawukume E. Yet al(2004) ²⁶	56.65%	-	-	71%
Pedro et al (2003) ⁶	70.00%	59.00%	68.00%	-
Stadberg E(1997) ⁴²	53%			52%
R Marahatta (2012) ⁵⁸	41.1			77%
Nancy E.Avis(2005) ⁵⁹	. 44%	-	-	41%
Present Study	29.00%	23.00%	48.00%	49.00%

In the present study it was found that most common urinary complaints of menopausal women were Burning Micturition to 50% patients. Also the urinary complaints

like Incontinence to 31% patients. It clears that Burning Micturition and.

4. Comparisons of Symptoms in various studies

Authors	Dryness	Dyspareunia
Borker SA(2013) ^[60]	9.3%	31.8%,
Stadberg etal(1997) ^[42]	21%	37%
R Marahatta (2012) ^[58]	76%	76%
Present Study	13.00%	19.00%

The present study found that there was significant correlation between duration of menopause of post menopausal women with hot flushes of vasomotor symptoms as $r = -0.206$. Also the positive significant correlation was found between backache with duration of menopause as $r = 0.518$ at 0.01 level of significance. It was clear that as the duration of menopause increases there is increase in symptoms of backache as shown in maximum post menopausal women. It was observed that as the duration of menopause increases urinary complaints like frequency increases in post menopausal women. This study found that there was positive significant correlation between duration of menopause of post menopause in women with genital complaints

like dyspareunia and dryness as $r = 0.325$ and $r = 0.441$ respectively.

SUMMARY AND CONCLUSION

This study includes 100 post menopausal women and has tried to highlight various urinary complaints, genital complaints, vasomotor symptoms, psychosomatic symptoms, weight, type of menopause and their correlation with estradiol level and age at menopause of post menopausal women.

All these symptoms were due to hormonal imbalance specially estrogen deficiency. But other factors such as age at menopause, weight, type of menopause also play

an important role in causing urinary, genital, vasomotor and psychosomatic symptoms in post menopausal women.

This study concluded that the urinary complaints, genital complaints, vasomotor symptoms, psychosomatic symptoms, weight and type of menopause had effects of estradiol level in post menopausal women. Also the age of menopause was positively correlated with urinary complaints, genital complaints, vasomotor symptoms, psychosomatic symptoms of post menopausal women.

Positive attitude, social and psychological support will help these women to rediscover their own individuality and their place in the society and make menopause a positive experience.

Recommendations

In the rural set up as in the present study, severe postmenopausal symptoms were identified among women, due to lack of awareness very few women seek medical help regarding postmenopausal symptoms.

More menopausal clinics and schemes should be started so that majority population can be approached and educated about symptoms of menopause and can be offered a better and healthy living.

Despite the fact that sexual problems are common in postmenopausal women, majority of them with distressing sexual problems do not seek formal care, but when they/do, it is typically the woman, rather than the physician, who initiates the conversation clinicians should routinely ask their menopausal patients whether vaginal dryness, dyspareunia or another bothersome sexual problem is present. as many effective interventions are present.

As very few studies have been done we would recommend more researches to be done to gain more information.

The need and opportunities for research on this hormone to improve the management should be considered by all those involved in caring for this population.

Limitation

As this study was conducted in a rural setup, not many women are aware about the menopausal symptoms and do not seek medical help.

As the investigation was expensive many patients refused to participate in the study.

Due to all the above mentioned reasons, the sample size was less and not conclusive.

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