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Original Research Article

Evaluation of postmenopausal bleeding: a cross sectional study

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ABSTRACT

Background: Postmenopausal bleeding (PMB) is one of the most common reasons for referral to tertiary care centres with a strong suspicion of malignancy. Endometrial cancer is the most common cause of gynaecological malignancy in the West, but in India the incidence rates are low. Eighty to ninety percent (80-90%) women have benign conditions in India. The aim and objectives of my study are to evaluate causes of PMB and sociodemographic characteristics among postmenopausal women.
Methods: A hospital based analytical cross-sectional study was conducted among women above 45 years with PMB admitted in the department of obstetrics and gynaecology, regional institute of medical sciences (RIMS), Imphal. The study was conducted for a period of two years from October 2019 to September 2021.
Results: In this study, out of 50 postmenopausal women 35 (70%) belong to age group >50 years and only 15 (30%) belong to age group <50 years. The most common cause of PMB in this study was found to be endometrial atrophy (12 out of 50) and two thirds of them having ET between 2-4 mm. This association is found to be statistically significant. The incidence of genital tract malignancy in our study is 14%. Incidence of endometrial carcinoma (8%) is slightly higher than cervical cancer (6%). The incidence of premalignant lesions (endometrial hyperplasia with atypia, endometrial intraepithelial neoplasia, cervical intraepithelial neoplasia) is 20% in this study. The study did not show significant association of clinical variables with benign, premalignant or malignant causes of PMB.
Conclusions: With increase in life expectancy the incidence of PMB is expected to increase in future. Since the incidence of malignancy is quite high, any bleeding in that age group should be evaluated in the line of malignancy unless proved to be otherwise.

Keywords: Cross sectional study, Postmenopause, PMB

INTRODUCTION

Menopause is a physiological event in a woman signaling the end of reproductive years and is associated with signs of hormone deficiency. Menopause is derived from the Greek word meno (month) and pauos (to stop). Post menopause is a challenging period for many women and has a considerable impact on women's health related quality of life. Average age at menopause in Indians is around 45 to 50 years.[1]

Menopause is permanent cessation of menstruation resulting from loss of ovarian activity. PMB is bleeding that occurs after 1 year of attaining menopause in woman who not receiving hormone replacement therapy (HRT).[2]

PMB has several causes such as atrophic endometritis or vaginitis, exogenous estrogen usage, endometrial hyperplasia, endometrial or cervical polyp, cervical cancer, endometrial cancer etc.

For diagnosis of endometrial pathology in women with PMB, trans vaginal sonography (TVS) is a valuable tool. This method is a very suitable tool to assess the endometrium for further investigation including endometrial biopsy.[3]

Six percent (6%) of the women presenting with PMB are diagnosed to have endometrial carcinoma and at the same time 90% of the women with endometrial carcinoma present with PMB. Hence clinical suspicion and identification of risk factors is thus significant for prompt investigation and diagnosis of the condition.[5]

Due to lack of public awareness, screening programmes and inadequate health facilities, this symptom is usually ignored along with other medical problems and thus women present at a very late stage.[1]

PMB continues to be a huge burden on the health care system with varying etiology and considerable social impact. Therefore, this medical situation necessitates the estimation of the recent disease burden. Worldwide a number of studies on PMB have been conducted, but there are few reports from India especially from Northeast region.[1]

The current study was carried out to evaluate various causes and sociodemographic factors associated with PMB among postmenopausal women admitted in the department of obstetrics and gynaecology, RIMS.

METHODS

A hospital based analytical cross-sectional study was conducted in the department of obstetrics and gynaecology, regional institute of medical sciences (RIMS), Imphal among women above 45 years with PMB. The study was conducted for a period of two years from October 2019 to September 2021.

Exclusion criteria

Women on HRT, women with PMB due to fibroid/ adenomyosis/ bleeding diathesis and women with PMB <45 years were excluded from the study.

Independent/ predictive variables

Age, literacy, parity, body mass index (BMI), socioeconomic status, blood pressure and endometrial thickness were Independent/ predictive variables.

Dependent/ outcome variables

Simple endometrial hyperplasia, complex endometrial hyperplasia without atypia, complex endometrial hyperplasia with atypia, endometial atrophy, endomerial polyp, cervial polyp, endometrial intraepithelial neoplasia (EIN), cervical intraepithelial neoplasia (CIN), endometrial carcinoma and cervical carcinoma were included as dependent/ outcome variables.

Procedure of study

Postmenopausal women who presented clinically with complaint of vaginal bleeding, with their last menstrual period at least one year back and older than 45 years were considered eligible for participation after taking informed consent.

Complete clinical history including age, parity, educational status, socioeconomic status, chief complaints, history of past illness, menstrual history, obstetric history, family history, personal history, drug history especially that of anticoagulants, HRT and tamoxifen therapy was also noted as per predefined proforma. Details regarding vaginal bleeding were recorded. These included the timing of onset, duration and amount of bleeding, h/o associated symptoms including presence of vaginal discharge, abdominal mass or pain and h/o recent weight loss was obtained. A thorough general physical examination was performed. Height was measured using a calibrated wall mounted Stadiometer. The respondent was instructed to remove shoes, with arms at the side and leveled shoulder. Then with back of the heels, buttock and shoulders touching the wall, was asked to look straight ahead, with line of sight parallel to the floor. The arrow point was leveled at the same level as the investigators eye and height was recorded to the nearest 0.1 cm.

Weight was measured with weighing machine. The respondent was instructed to remove shoes and heavy clothing eg: sweater, jackets, and made to stand at the centre of the weighing scale. Weight was recorded to the nearest decimal fraction. BMI was calculated.

Blood Pressure was recorded. The respondents were made to either sit comfortably in a chair with her back and arm supported and legs uncrossed. The middle of the blood pressure cuff on the upper arm was kept at the level of the heart. The blood pressure was recorded to the nearest 2 mmHg.

General physical and systemic examination including Blood pressure, pulse, temperature, BMI, respiratory rate, oedema, pallor, jaundice, dehydration, knee jerk was checked.

Specific clinical examination including abdominal, speculum and bimanual pelvic examinations were performed to assess the cervix and to determine size, position and mobility of uterus. Cervical smears were taken. TVS was done to assess endometrial thickness. CT and MRI was done in malignant cases.

All the routine investigations including complete haemogram, urine routine examination, liver and kidney function test, ABO grouping and Rh typing, blood sugar estimation, coagulation profile, X-ray chest and ECG were done. D and C was performed for all cases and specimen sent for histopathological examination.

Statistical analysis

Descriptive and inferential statistical analysis has been carried out in the present study. Results on continuous

measurements are presented on Mean ± SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance. The following assumptions on data is made, Assumptions: 1. Dependent variables should be normally distributed, 2. Samples drawn from the population should be random, cases of the samples should be independent

Chi-square/ Fisher exact test has been used to find the significance of study parameters on categorical scale between two or more groups, non-parametric setting for qualitative analysis. Fisher exact test used when cell samples are very small. Independent t test has been done for association between continuous variables, between two groups. P<0.05 has been taken as statistically significant.

Statistical software

The statistical software namely SPSS 22.0 and R environment ver. 3.2.2 were used for the analysis of the data and Microsoft word and excel have been used to generate graphs, tables etc.

Ethical issues

Ethical approval was obtained from the research ethics board in RIMS. Informed written consent was obtained from the respondents. A code number was assigned and no names were taken to maintain confidentiality. Data collected was kept secured. Only my guide, co-guide and I had access to the data set.

RESULTS

Figure 1 shows that 70% belong to age group >50 years and 30% belong to age group <50 years.

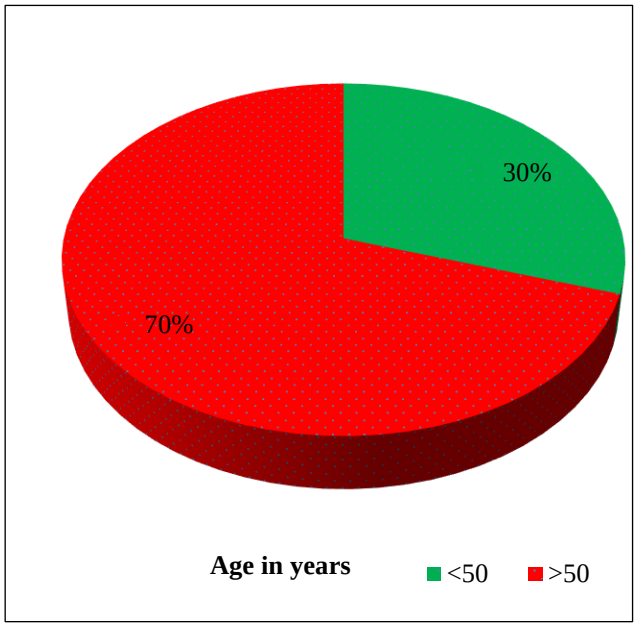

Figure 1: Distribution of patients by age group, (n=50).

Figure 2 shows 96% were literate and only 4% were illiterate.

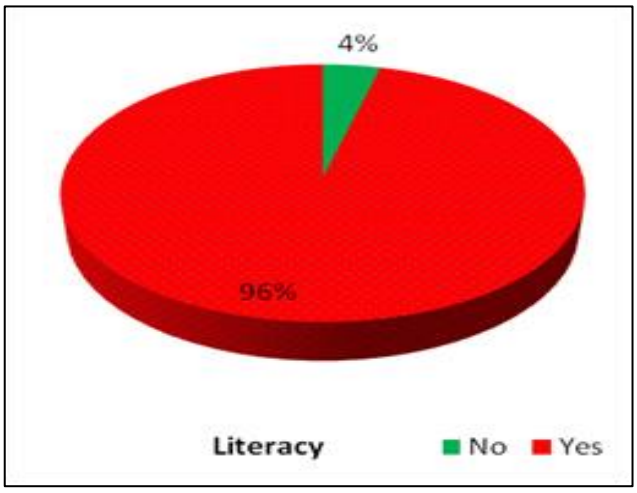

Figure 2: Distribution of patients by literacy, (n=50).

Table 1: Distribution of patients by parity status, (n=50)

Parity	N	Percentage (%)
P_0	5	10.0
P_1	5	10.0
P_2	15	30.0
P_3	16	32.0
P_4	6	12.0
P_5	1	2.0
P_6	1	2.0
P_7	1	2.0

Table 1 shows that majority are P_3 (32%) followed by P_3 (30%), nullipara constitutes only 10%.

Table 2: Distribution of patients by their body mass index, (n=50).

Body mass index (kg/m^2)	N	Percentage (%)
<18.5	2	4.0
18.5-24.0	37	74.0
25.0-29.9	11	22.0
>30.0	0	0.0

Figure 3 shows 74% of the subjects having normal BMI, 22% overweight and no case of obesity.

Table 3: Distribution of patients by socioeconomic status (N=50)

Social economic status	N	Percentage (%)
Lower	4	8.0
Lower middle	14	28.0
Upper middle	28	56.0
Upper	4	8.0

Figure 5 shows 56% subjects from upper middle and 28% from lower middle class whereas only 8% of the cases from upper and lower class each.

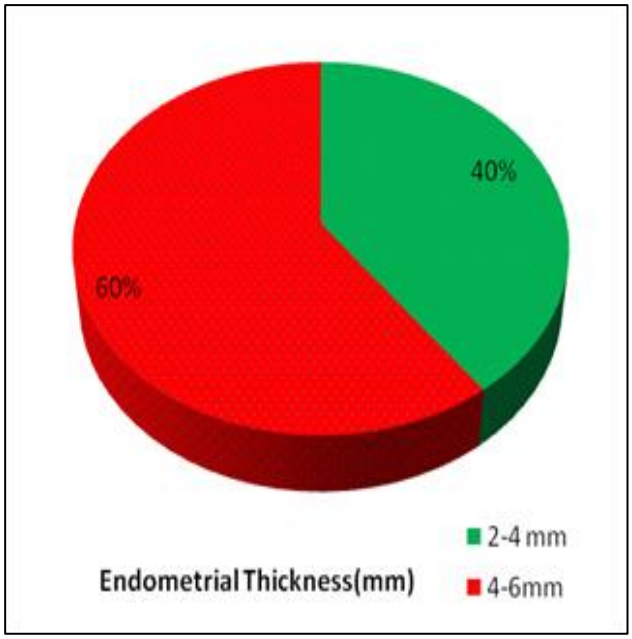

Figure 3: Distribution of patients by endometrial thickness, (n=50).

Figure 3 shows 40% patients have endometrial thickness: 2-4 mm whereas 60% patients have endometrial thickness: 4-6 mm.

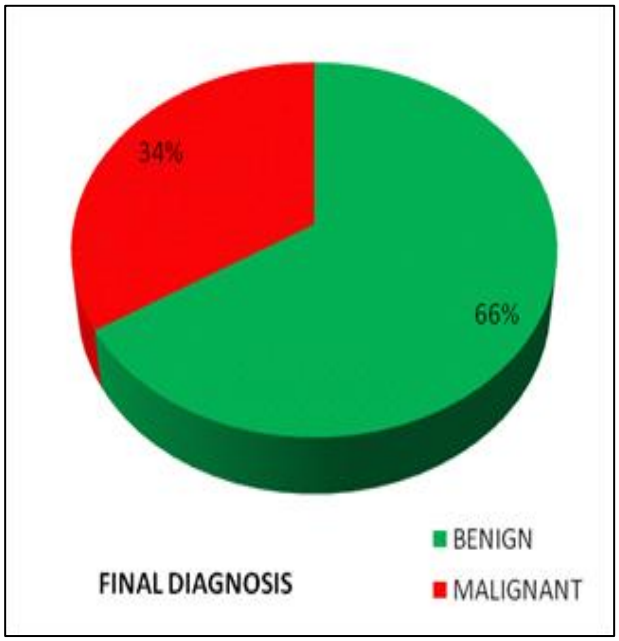

Figure 4: Distribution by benign and malignant/premalignant aetiologies, (n=50).

Figure 4 shows 66% cases are due to benign aetiologies and 34% cases due to malignant/premalignant aetiologies.

Table 4: Association of clinical variables with endometrial thickness of the patients, (n=50).

Variables	Endometrial thickness (mm)		Total, (n=50) (%)	P value
	2-4 mm, (n=20) (%)	4-6 mm, (n=30) (%)		
Parity				
P_0	1 (5)	4 (13.3)	5 (10)	0.380
P_1	2 (10)	3 (10)	5 (10)	
P_2	4 (20)	11 (36.7)	15 (30)	
P_3	7 (35)	9 (30)	16 (32)	
P_4	4 (20)	2 (6.7)	6 (12)	
P_5	1 (5)	0 (0)	1 (2)	
P_6	1 (5)	0 (0)	1 (2)	
P_7	0 (0)	1 (3.3)	1 (2)	
Literacy				
Illiterate	2 (10)	0 (0)	2 (4)	0.303
Literate	18 (90)	30 (100)	48 (96)	
Social economic status				
Lower	3 (15)	1 (3.3)	4 (8)	0.125
Lower middle	8 (40)	6 (20)	14 (28)	
Upper middle	8 (40)	20 (66.7)	28 (56)	
Upper	1 (5)	3 (10)	4 (8)	

Chi-square test/ Fisher exact test

Table 4 shows that there is no significant association for parity, literacy and socioeconomic status with endometrial thickness ($p>0.05$).

Table 5: Association of clinical variables with endometrial thickness of the patients, (n=50).

Variables	Endometrial thickness (mm)		Total, (n=50)	P value
	2-4 mm, (n=20)	4-6 mm, (n=30)		
Age (Years)	53.75± 4.31	52.4± 4.81	52.94± 4.62	0.317
BMI (kg/m^2)	22.54± 1.96	23.81± 2.7	23.3± 2.49	0.077
SBP (mmHg)	132.8± 11.43	143.67± 12.09	139.32± 12.89	0.003
DBP (mmHg)	83.7± 7.26	89.87± 9.63	87.4± 9.2	0.019

Independent t test

Table 5 shows that those with ET between 2-4 mm have mean SBP: 132.8±11.43 and mean DBP: 83.7±7.26, those with ET between 4-6 mm have mean SBP: 143.67±12.09 and mean DBP: 89.87±9.63. This association is statistically significant. There is no statistically significant association with age and BMI.

Table 6 shows that endometrial atrophy is the most common cause of PMB in this study and two third of them having ET between 2-4 mm and this association is statistically significant ($p<0.05$). Endometrial carcinoma is the commonest genital tract malignancy (8%) in this study and there is no statistically significant association of premalignant/malignant causes of PMB with endometrial thickness.

Table 6: Association of various causes of PMB with endometrial thickness, (n=50).

Variables	Endometrial thickness (mm)		Total, (n=50) (%)	P value
	2-4 mm, (n=20) (%)	4-6 mm, (n=30) (%)		
Benign				
Simple endometrial hyperplasia	5 (25)	2 (6.7)	7 (14)	0.100
Complex endometrial hyperplasia without atypia	0 (0)	6 (20)	6 (12)	0.069
Endometrial atrophy	8 (40)	4 (13.3)	12 (24)	0.044
Endometrial polyp	1 (5)	4 (13.3)	5 (10)	0.635
Cervical polyp	1 (5)	2 (6.7)	3 (6)	1.000
Malignant/premalignant				
Complex endometrial hyperplasia with atypia	2 (10)	6 (20)	8 (16)	0.450
Endometrial carcinoma	0 (0)	4 (13.3)	4 (8)	0.140
Cervical carcinoma	2 (10)	1 (3.3)	3 (6)	0.556
Endometrial neoplasia *in situ*	0 (0)	1 (3.3)	1 (2)	1.000
Cervical intraepithelial neoplasia	1 (5)	0 (0)	1 (2)	0.399

Table 7: Association of clinical variables with benign/ premalignant/ malignant aetiologies of PMB, (n=50).

Variables	Aetiology		Total, (n=50) (%)	P value
	Benign, (n=33) (%)	Premalignant/ Malignant, (n=17) (%)		
Age (Years)				
<50	11 (33.3)	4 (23.5)	15 (30)	0.698
>50	22 (66.7)	13 (76.5)	35 (70)	
Parity				
P_0	2 (6.1)	3 (17.6)	5 (10)	0.213
P_1	3 (9.1)	2 (11.8)	5 (10)	
P_2	13 (39.4)	2 (11.8)	15 (30)	
P_3	11 (33.3)	5 (29.4)	16 (32)	
P_4	3 (9.1)	3 (17.6)	6 (12)	
P_5	1 (3)	0 (0)	1 (2)	
P_6	0 (0)	1 (5.9)	1 (2)	
P_7	0 (0)	1 (5.9)	1 (2)	
Body mass index (Kg/m^2)				
<18.5	0 (0)	2 (11.8)	2 (4)	0.174
18.5-24.9	25 (75.8)	12 (70.6)	37 (74)	
25.0-29.9	8 (24.2)	3 (17.6)	11 (22)	
>30.0	0 (0)	0 (0)	0 (0)	
Literacy				
Illiterate	1 (3)	1 (5.9)	2 (4)	1.000
Literate	32 (97)	16 (94.1)	48 (96)	
Socioeconomic status				
Lower	1 (3)	3 (17.6)	4 (8)	0.091
Lower middle	12 (36.4)	2 (11.8)	14 (28)	
Upper middle	18 (54.5)	10 (58.8)	28 (56)	
Upper	2 (6.1)	2 (11.8)	4 (8)	
Endometrial thickness (mm)				
2-4	15 (45.5)	5 (29.4)	20 (40)	0.427
4-6	18 (54.5)	12 (70.6)	30 (60)	

Table 7 shows that there is no statistically significant association of clinical variables with benign/ premalignant/ malignant causes of PMB.

DISCUSSION

PMB is an alarming sign for many patients and has a high possibility of association with cervical/uterine malignancy. It is one of the commonest symptoms the patients present with and hence should be thoroughly studied for early diagnosis and treatment.

In the present study of 50 patients with PMB, age group >50 years contribute maximum percentage of PMB (70%) whereas the study conducted by Sreelatha et al and Verma et al most of the women were in the age group of 40-44 years.[1,2] The mean age for PMB in our study is 52.94 years. There is no association of age and PMB in our study.

Most of the PMB patients are multiparous (P_3 and P_2) constituting 62% of the cases which is consistent with the findings of and Vishwanathan et al and Bebincy et al.[4,26]

Considering socioeconomic status majority of the study subjects belong to the middle socioeconomic status (84%) and only 8% belong to lower and upper socioeconomic status each. This is consistent with the study conducted by Viswanathan et al where it observed that most of patients belonged to lower socioeconomic strata by Verma et al.[3,4]

In the present study majority of the women has normal BMI and only 22% of them are overweight whereas Vishwanathan et al found that majority (63.3%) of them were overweight and only 28.3% were of normal BMI.[4]

Benign lesions were most common cause for PMB in current study accounting for 66% of study subjects which was similar with study conducted by Verma et al whereas benign causes were observed in 82.45% and 90% cases by Karmakar et al and Al Turnhi et al respectively.[3,11,25]

Commonest cause of PMB in this study is atrophic endometritis (24%). The 2/3rd of this atrophic endometritis have ET between 2-4 mm which is found to be statistically significant. This finding was similar with findings of study conducted by Dawood et al and Grademark et al.[11,15]

The incidence of genital tract malignancy in this study is 14% whereas study conducted by Dawood et al, Karmakar et al, Al Turnahi et al, Ubeja et al and Verma et al was 16%, 10.4%, 10%, 39% and 5% respectively.[3,11,22,25,27]

Among malignancies, endometrial carcinoma is the commonest (8%) followed by cervical cancer (6%) in the current study. Kothapally et al, Ubeja et al observed that cervical carcinoma was the commonest malignant cause of PMB followed by endometrial carcinoma in their study. In this study endometrial carcinoma has been seen among those having ET between 4-5mm hence ET is not a good predictor of endometrial carcinoma, the same finding was also observed in a study conducted by Bebincy et al.[5,26,27]

In our study some patient related data were collected retrospectively with clinical questions to our women about past events and with our given sample size it is not possible to differentiate whole spectrum of genital tract malignancy as they are associated with varied biological behaviour, different demographic parameters and clinical risk factors.

CONCLUSION

With increase in life expectancy the incidence of PMB is expected to increase in future. Since the incidence of malignancy is quite high, any bleeding in that age group should be evaluated in the line of malignancy unless proved to be otherwise.

Though the main aim of evaluation of cases of PMB is to exclude premalignant and malignant lesions of cervix and endometrium, majority of the cases have benign causes. Therefore, careful histologic examination to find benign, premalignant and malignant lesions should be emphasized.

Hence there is an urgent need of basic level of information for all women so that they can interpret any symptom they experience and seek medical advice. Awareness at community level can only reduce this time lapse leading to earlier diagnosis and management. Screening of women for genital tract malignancies as a public health intervention may have positive outcome.

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