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Research Article

Assessment of postmenopausal bleeding: a cohort case study

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Abstract

The objective of this study is to assessment the postmenopausal bleeding (PMB), and investigated their causes, correlation with variable socio-demographic status. A 140-women complaining of PMB were enrolled in this study, each patient had a proper questionnaire filled in, with appropriate investigations that included; ultrasonography, Pap smear, colposcopy with cervical biopsy and endometrial curettage to take endometrial biopsy for histopathology. Nearly all cases were married 135 (96.4%), most of them were obese and overweight 97(69.3%), 43(30.7%) were having normal body mass index. Various etiology of PMB were found in this study; endometrial cancer (9.3%), cervical cancer (0.7%), atrophic endometritis (7.1%), atrophic vaginitis (2.8%), endometrial hyperplasia (45%), cervicitis-CIN (15.7%), cervical polyp (12.8%), and endometrial polyp (18.6%). Bleeding from benign causes and of endometrial cancer occurs at fifth decade and sixth decade of life, while from cervical cancer occurs at seventh decade. The pattern of PMB; mild bleeding significantly higher in cervicitis-CIN; moderate bleeding more in endometrial polyp and significantly higher than mild and sever bleeding; while severe bleeding was significantly associated in endometrial cancer. Duration of PMB had a vast range (4 days to 5 years). 24.83% of cases had prolonged bleeding > 6months, (48.7%) with endometrial hyperplasia, (12.8%) had endometrial cancer. The endometrial cancer present in 10% of the patients with recurrent PMB.

Keywords: Postmenopausal bleeding; Endometrial cancer; Colposcopy

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Introduction

The term menopause is derived from the Greek Menos (month) and Pausis (cessation) is defined as the last menstrual period [1]. The diagnosis can only be made retrospectively after a minimum of 1 year's amenorrhea, or 6months according to some [2]. In most women, menopause occurs between the ages of 50 and 55 years, with an average age of 51.5years. PMB is defined as bleeding that occurs after 12 months of amenorrhea in middle–aged women [3]. An arbitrary time limit of one year's amenorrhea is generally set but some prefer to reduce

the period to 6 months [4]. Neither normal (functional) bleeding nor dysfunctional bleeding should occur after the menopause. Atrophic or proliferative endometrium is not unusual. Secretary patterns should not occur unless the patient has resumed ovulation or has received progesterone therapy. PMB is more likely to be caused by pathologic disease than is bleeding in younger women and must always be investigated [3]. Approximately 10% of these PMB have a gynecological malignancy. Women should be regarded as having malignancy until proved otherwise. Around 10% of women with PMB will have primary or secondary malignancy; endometrial cancer (80%), cervical cancer or rarely an ovarian tumor [5]. PMB accounts for a significant proportion of gynecological referrals and occurs in approximately 3% of postmenopausal women [6]. The incidence of PMB is strongly correlated with the time since menopause. The estimated incidence was 409/1000 person-years immediately after the first 12 months of amenorrhea following the menopause, falling to 42/1000 person-years more than 3 years after the menopause [7]. The risk of endometrial carcinoma in women with PMB rises with age from approximately 1% at the age of 50 years to approximately 25% at the age 80 years [8]. In patients who have had only one episode of slight PMB, it is common (12-50%) not to find any abnormality. Of patients with negative findings who have bled only once before curettage, 70-80% do not bleed again afterwards.

Evaluation of uterine bleeding in postmenopausal women

1. History: Detailed history should be obtained to identify the most likely etiology of the bleeding [9,10], key questions when a woman presents with postmenopausal bleeding include:
    - what the results of the last cervical smear?Is there any history 0f cervical abnormality?
    - When was the last natural menstrual period?
    - When did the postmenopausal bleeding start?
    - How heavy is the bleeding, and how long does it last?
    - Where there are precipitating factors such as trauma, including intercourse?
    - Are there any associated symptoms such as pain, fever or changes in bladder or bowel function?
    - Deos she use, or has she used, hormone replacement therapy? what type and for how long?
    - Are there any risk factors for endometrial cancer?

- Age: peak incidence is between 65 -75 years.
- Nulliparity
- Early menarche <12 years and late menopause >50 years
- Regularity of the menstrual cycle (PCOS) .
- Personal history of diabetes mellitus or hypertension.

  -Past medical history of endometrial hyperplasia or polyps.

  -Past medical history of breast or ovarian tumors.

-Drug history of exogenous estrogen excess.

- Unopposed estrogen replacement therapy.
- Tamoxifen
- Family history of hereditary non polyposis colon cancer(HNPCC).

2. Physical Examination: A careful physical examination of the external and internal anatomy of the female genital tract is crucial. A diagnosis cannot be established and a treatment plan must not be instituted without a pelvic examination. Speculum examination should be performed to see if a source of bleeding can be identified (bladder, rectum, vulva, vagina and uterus), to assess atrophic changes in the vagina and to note any suspicious lesions, lacerations or foreign bodies. A bimanual pelvic examination is necessary to look for the size, position, mobility, contour and tenderness of the uterus. In addition, a general examination should be performed to look for signs of systemic illness [11, 12, 14].

3. Basic Laboratory Evaluation: All women who experience PMB must be evaluated for endometrial cancer since age is a significant risk factor for this disorder, mainly by Transvaginal Sonography (TVS) [17, 18], Saline infusion sonohysterography (SIS) [19], Dilatation and curettage (D&C) [20], Endometrial biopsy and aspiration [21], Hysteroscopy, Cervical Cytology [22].

The aim of the study is to find out common causes of PMB, determine correlation between socio-demographic factors with the causes of PMB, and detect the relation and risk factors related to cervical and endometrial cancer.

Patient and method

Study design

Across sectional study was conducted over a period of 12 months from the 1st january 2015 to the 31st December 2015 in all public hospitals in Al-Najaf governorate : Al-Zahraa maternity teaching hospital, Al-Sader teaching hospital, Al-Hakim general hospital, Al-Forat general hospital, Al-Manathera general hospital, Al-Sajad general hospital, Al-Haidaria general hospital, with two private hospitals (Al-Ameer private hospital, Al-Ghadeer private hospital). 140 postmenopausal women presented with bleeding were collected. A detailed close ended questionnaire was used to collect the data after verbal consent was obtained. By interviewing these women information were collected about different demographic factors like age, socio-economic status,…etc. The collected data were put in master chart. They were grouped and tabulated according to the various criteria and results were analyzed. Following thorough examination, each patient had ultrasound scan at department of radiology, the following criteria were assessed: Endometrial thickness, uterine size, presence of any fibroid, polyp of any size, fluid inside uterine cavity or any mass in the pelvic cavity. Fractional curettage was arranged on specialist's operation list (committee & family acceptance recorded for unmarried patients). Preoperative preparation was including blood count, hemoglobin, renal function test, ECG, chest X-ray, blood sugar, then curettage was performed under GA (6 samples taken from endocervix, anterior, posterior, two lateral

and fundal wall of the uterus were taken, and the sample sent for histopathological examination to a senior pathologist. According to the result of these investigations the etiology of bleeding was identified, the treatment decided by gynecologist according to the etiology.

Later on the tissues obtained by hysterectomy were examined by a senior pathologist to confirm the diagnosis(only three cases were unfit for hysterectomy). At the end of the study the etiology of bleeding obtained and classified as following; the endometrial causes include, endometrial atrophy, endometrial polyp, hyperplasia or carcinoma, and cervical lesion were classified as inflammatory, polyp, dysplasia and carcinoma.

Statistical analysis

Microsoft excel computer program version eight. The software used for data analysis is SPSS (statistical package for social sciences) Version 20, means, frequencies and percentages were calculated. A p value of ≤ 0.05 was considered as statistically significant.

Results

140 postmenopausal women presented with pervaginal bleeding were included in this study their ages ranged from 46-80years old, with mean age of 58.6±7.2 years.

- Of these 140 cases ,115 cases on histopathological examination found to have genital tract pathology,90% had benign pathology while 10% had malignancy
- 15 cases had normal endometrial tissue.
- 10 cases had inadequate endometrial tissue sample for histopathological examination.
- 38 cases had multiple pathological causes for PMB.

Socio- demographic variables

- Age: it is clear that most bleeding episodes were between 50-59 yrs & incidence of bleeding is decreased with age.
- Marital state: only five cases were unmarried others were married (135 cases)
- Social class: most of the cases were from low and middle social classes (overcrowding and poverty) only 5 cases from high social class (high standard of living).
- Smoking: 29 patients were smokers others weren't
- Parity: from above data appears that most of the patients were multipara & grandmultipara only five were nullipara.
- Medical comorbidity: 62.2% of them were affected by chronic medical disease (HTN or DM).

- 13 patients had ischemic heart diseases.
- 1 patient had thyroid-ectomy and on thyroxin treatment.
- 1 patient had psychiatric problem.
- 1 patient had chronic liver disease.

- BMI: Obesity was a clear factor.

Table 1.
Socio-demographic variables

Variable		Frequency	Percentage%
Age/years	40-49	7	5.0
	50-59	68	48.6
	60-69	50	35.7
	≥70	15	10.7
Marital status	Married	135	96.4
	Unmarried	5	3.6
Socioeconomic status	Low	51	36.4
	Moderate	84	60
	High	5	3.6
Occupation	Employed	8	5.7
	Unemployed	132	94.3
Smoking	Yes	29	20.7
	No	111	79.3
Parity	Nullipara	5	3.6
	1-4	67	47.8
	≥5	68	48.6
Medical comorbidity	Hypertension	46	32.9
	DM	13	9.3
	Both	28	20
	Nill	53	37.8
BMI	18-24.9	43	30.7
	25-29.9	65	46.5
	30-40	31	22.1
	>40	1	0.7

Frequency percentage of different etiologies

Table (2) shows that endometrial hyperplasia is a major cause of postmenopausal bleeding (45%), while endometrial polyp comes next (18.6%) followed by cervisitis CIN (15.7%) and endocervical polyp (12.8%).

While the frequency percentage of liomyomas (12.1%), endometrial cancer was (9.3%), atrophic endometritis and atrophic vaginitis (9.9%), the reminder include adenomyosis (2.8%) ,endometrial polyp (5.5%) and cervical cancer was (0.7%) Table (2).

Table 2.

Frequency percentages of different etiologies

Histopathological findings	No. of cases	Percentage %
Endometrial hyperplasia	63	45 %
Endometrial polype	26	18.6 %
Cervicitis-CIN	22	15.7 %
Endocervical polype	18	12.8 %
Lieomyoma	17	12.1 %
Endometrial cancer	13	9.3 %
Atrophic endometrium	10	7.1 %
Atrophic vaginitis	4	2.8 %
Cervical cancer	1	0.7 %

Variables- endometrial hyperplasia and malignancies

Table (3) shows relation between factors that considered as a risk factor for (Endometrial cancer- cervical cancer and endometrial hyperplasia). Age: as it's clear from table (1) that most common age for endometrial hyperplasia is 5th decade, 35out of 63 cases were between 50-59 yrs of age and it is the sixth decade for endometrial cancer, 7 out of 13 cases were between 60-69 years of age. While for Ca cervix the dominant age was 7th decade (only one case detected). Parity: in relation to endometrial cancer all cases were married only one case nulliparous and 12 cases halved between multiparus and grandmulti-parous.

While with hyperplasia 3 cases were unmarried, 37 cases multipara & for cervical cancer case was grandmulti-para. Exogenous estrogen and HRT: none of the cases with endometrial and cervical cancer were receiving HRT. Smoking: in relation to endometrial cancer 3 out of 10 cases were smokers while from 63 cases of endometrial hyperplasia 21 of them were smokers, and the case of cervical Ca was nonsmoker. Medical disease: 1 case of endometrial Carcinoma had HTN, 2 cases have DM and 5 of them had both DM and HTN, those with hyperplasia 26 of them had HTN, 9 DM and 7 of them had both, while the case of cervical cancer had both. BMI: most of cases with endometrial cancer were obese or overweight; those with cervical cancer were within normal range for BMI. Family history of relevant cancer: from those who had endometrial cancer only 2 of them had family history of endometrial cancer and one case had family history of breast cancer.

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Table 3.

Variables-Endometerial hyperplasia&malignancies

Variable		Endometrial hyperplasia	Endometrial cancer	Cervical cancer
Age/years	40-49(n=7)	2(13.3%)	0(0%)	0(0%)
	50-59(n=68)	35(51.5%)	3(4.4%)	0(0%)
	60-69(n=50)	19(38%)	7(14%)	0(0%)
	≥70(n=15)	7(46.7%)	3(20%)	1(6.7%)
P value		0.404	0.111	0.133
Parity	Unmarried(n=5)	3(60%)	0(0%)	0(0%)
	Nullipara(n=5)	2(40%)	1(20%)	0(0%)
	1-4(n=67)	37(55.2%)	6(8.9%)	0(0%)
	≥5(n=68)	21(30.8%)	6(8.8%)	1(1.4%)
P value		0.061	0.933	0.133
Exogenous hormones		0(0%)	0(0%)	0(0%)
Smoking	Yes(n=29)	21(72.4%)	3(10.3%)	0(0%)
	No(n=111)	42(37.8%)	10(9%)	1
P value		<0.001	0.824	0.468
Medical comorbidity	Hypertension(n=46)	26(56.5%)	1(2.2%)	0(0%)
	DM(n=13)	9(69.2%)	2(15.4%)	0(0%)
	Both(n=28)	7(25%)	5(17.8%)	1(3.5%)
	Nill(n=53)	21(39.6%)	5(9.4%)	0(0%)
P value		0.013	0.307	0.497
BMI	18-24.9(n=43)	19(44.2%)	2(4.6%)	0(0%)
	25-29.9(n=65)	17(26.1%)	4(6.2%)	1(1.5%)
	30-40(n=31)	26(83.8%)	7(22.6%)	0(0%)
	>40(n=1)	1(100%)	0(0%)	0(0%)
P value		<0.001	0.045	0.762

This table shows significant association between multiparty, smoking and medical co morbidity especially diabetes mellitus with endometrial hyperplasia, also there is significant association between body mass index with endometrial hyperplasia and endometrial cancer where higher percentage of cases were among obese women. Majority of patients presenting with postmenopausal bleeding were observed in the first phase (1-5yrs) of clear span: (71) cases which represent (45.2%) followed by second phase (37) cases which represent (23.5) %. In the first phase of clear span the predominant pathology was endometrial hyperplasia (45%). In second phase of clear span the predominant pathology was endometrial polyp endometrial hyperplasia. In third phase (19.1%) predominant pathology was cervicitis, endometrial hyperplasia and cancer of

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cervix. In phase four of clear span (12.1%) the predominant pathology was endometrial hyperplasia &endometrial carcinoma.

Table 4.

Different etiology-clear span

Diagnosis	Clear span			
	1-5Y (45.2%)	6-10Y (23.5%)	11-15Y (19.1%)	>15Y (12.1%)
Cervicitis-CIN	9	4	8	1
Endometrial polype	7	12	5	2
Endocervical polype	8	6	3	1
Atrophic vaginitis	3	0	1	0
Atrophic endometritis	3	2	2	3
Endometrial hyperplasia	37	11	8	7
Endometrial cancer	3	2	3	5
Cervical CA	1	0	0	0

In this table there is no significant association between clear span and different etiologies except endometrial hyperplasia which is significantly higher in the period 1-5 years. Table (5), shows that most of the cases had moderate (one soaked pad daily) PMB (45%), mild (spotting) PMB represented (40.7%) and sever (two or more soaked pads) PMB represented (14.3%). (50.79%) of patients with endometrial hyperplasia had moderate PMB, while (30.15%) of cases had mild PMB and (19%) revealed sever PMB. Most patients with endometrial polyp complained from moderate bleeding (69.2%), mild and sever bleeding represent (23.1%) and (7.7%) respectively. (53.84%) of patients with endometrial carcinoma had moderate PMB, (30.76%) of cases had mild PMB and (15.38%) of them had sever PMB. The case of cervical carcinoma had moderate PMB. Most cases of cervicitis (77.3%) had mild uterine bleeding and the remainder cases (22.3%) had moderate bleeding. (61.1%) of cases with endocervical polyp had mild PMB and (38.9%) of them had moderate bleeding. All cases of Atrophic vaginitis complained from mild PMB, while (50%) of atrophic endometeritis revealed mild bleeding, (40%) had moderate bleeding and (10%) had sever PMB.

Table 5.

Different etiology- Amount of PMB

Diagnosis	Amount of PMB			P value
	Mild n=64	Moderate n=71	Sever n=22	
Cervicitis-CIN	17 (77.3%)	5 (22.7%)	0(0%)	<0.001
Endometrial polype	6 (23.1%)	18 (69.2%)	2 (7.7%)	0.026
Endocervical polype	11 (61.1%)	7 (38.9%)	0(0%)	0.078
Atrophic vaginitis	4 (100%)	0 (0%)	0(0%)	0.204
Atrophic endometritis	5 (50%)	4 (40%)	1 (10%)	0.972
Endometrial hyperplasia	19 (30.2%)	32 (50.8%)	12 (19%)	0.063
Endometrial cancer	2 (15.4%)	4 (30.7%)	7 (53.9%)	<0.001
Cervical CA	0 (0%)	1 (100%)	0 (0%)	0.620

In table 5 shows that mild bleeding significantly higher in cervicitis-CIN, In endometrial polyp the moderate bleeding is significantly higher than mild and sever bleeding ,while endometrial cancer was significantly associated with amount of bleeding were most cases had severe bleeding. Table (6), shows that the duration of PMB was between (1week-1month) in (33.1%) of cases and it was between (1month-6months) and in (31.2%), (15.9%) of cases had PMB of (>6months-12months) duration, the reminder cases were (10.8%) presented within (a week) duration and only (8.9%) had PMB of (more than 1year duration). Duration of PMB had a vast range (4 days to 5 years). (24.83%) of cases had prolonged bleeding >6months, of these (48.7%) had endometrial hyperplasia and (12.8%) had endometrial cancer. In this study the incidence of recurrent PMB was 25.47%, of these 40% had endometrial hyperplasia, while 10% of the patients with recurrent PMB had endometrial cancer. The incidence of recurrent bleeding was (25.47%); most of these patients had a previous dilatation and curettage.

Table 6.

Different etiology- Duration of PMB

Diagnosis	Duration of PMB					P value
	<1wk n=17	1wk-1m n=52	>1-6m n=49	>6-12m n=25	>1y n=14	
Cervicitis-CIN	2 (9%)	9 (40.9%)	7 (31.8%)	3 (13.6%)	1 (4.5%)	0.979
Endometrial polype	0(0%)	8 (30.7%)	9 (34.6%)	8 (30.7%)	1 (3.8%)	0.207
Endocervical polype	2 (11.1%)	9(50%)	5 (27.9%)	1 (5.5%)	1 (5.5%)	0.764
Atrophic vaginitis	1 (25%)	2 (50%)	1 (25%)	0 (0%)	0 (0%)	0.996
Atrophic endometritis	1(10%)	6(60%)	3 (30%)	0 (0%)	0 (0%)	0.613
Endometrial hyperplasia	9 (14.3%)	16 (25.4%)	19 (30.1%)	11 (17.5%)	8 (12.7%)	0.175
Endometrial cancer	2 (15.3%)	2 (15.3%)	4 (30.6%)	2 (15.3%)	3 (23.07%)	0.477
Cervical CA	0 (0%)	0 (0%)	1 (100%)	0 (0%)	0 (0%)	0.345

Discussion

PMB is considered as an important and alarming symptom both to the patient and the gynecologist [23]. The incidence of PMB declines with succeeding years after menopause and that the incidence of endometrial carcinoma increases as the age of the patient with PMB increases [24] and as observed by other [25]. The result of this study is comparable to this observation, the frequency of bleeding after seventy years are decrease; only ten cases were reported. The most common age for occurrence of bleeding in post menopause in this study is fifth decade and is comparable to the result of other study [26]. Endometrial cancer is one of the most common gynecological malignancies, the peak incidence for endometrial cancer is between (65-75years) of age (12) which is higher than the result of this study (the peak incidence for endometrial cancer is between (60-69 years) of age), also this result is lower than the peak incidence for endometrial cancer [27] (which is between 65-74years) but, it is higher than other study which showed peak incidence between50-54years. Excessive estrogen is associated with most of the risk factors that have been linked to endometrial carcinoma [28]. Either endogenous or from exogenous source, this is in regard to early menarche and late menopause [29]. All 13 cases with endometrial cancer had menarche below 14 years of age and 9 out of 13 had menopause after 50 years. Nulliparity and infertility associated with

anovulation is considered a risk factor for endometrial cancer, pregnancy reduces the risk of endometrial cancer by 30% after the first birth and by 25% with each subsequent birth [30], in this study all cases of endometrial carcinoma were married, among those one of them was infertile, the parity range from 4-9, so there is no evidence for the risk to decline with increasing number of birth [31].

Exogenous estrogen: in this study all cases were non user of HRT, because usage of HRT isn't common in our community. Obesity is another risk factor studied. Increased body mass index is one of the major risk factors for the PMB and hence malignancy [32]. Seven cases with endometrial cancer were obese &4 cases were overweight. 30 out of 63 cases with hyperplasia were obese &17 were overweight. Another risk factor for endometrial cancer is a family history of endometrial cancer.

The greatest risk appears to be in first degree relatives, genetic disease represent up to 10% of cases [33], 3 cases with endometrial cancer have a family history of related cancers, 2 with breast cancer & one case with endometrial cancer. Medical disease including DM and HTN are common medical problems in patients with post menopausal bleeding these are significantly associated with endometrial cancer, but a causal relationship not been confirmed yet [34].

It is important to mention that all risk factors are based on probabilities, and even someone without any risk factors can still get endometrial cancer. Cervical carcinoma is vastly more common in developing countries; there are several known risk factors for getting cervical cancer. One of the most important risk factors for cervical cancer is infection with a virus called HPV. HPV which is the virus that causes genital warts, but having genital warts doesn't necessarily mean you are going to get cervical cancer. However, almost all cervical cancers have evidence of HPV virus in them. In this study this has not been assessed because of unavailability of HPV studying.

Any risk factors for developing sexually transmitted diseases are also risk factors for developing cervical cancer. Another important risk factor for developing cervical cancer is smoking. In this study only one case had cervical cancer, she was smoker, and we don't have adequate power to definitively test actual risk of smoking on cervical cancer. In this study the clear span divided in 4 phases, it was observed that hyperplasia predominantly observed in phase one as result by other [35].

The incidence of malignancy increases with delay in presentation, while incidence of atrophic changes & cervicitis appears mostly in phase 1 & 3. In general with advancing in age, the incidence of bleeding decreases which represents phase 3 & 4 of clear span, in phase 4 only (12.1%) of cases were present while phase one represents(45.2%) 0f cases. As shown in this study endometrial hyperplasia with or without atypia was the predominant finding in about (45%) of cases which is higher than the result of many other studies [36]. Frequency percentage of cervical and endometrial polyp together was about (31.4%) in this study which is higher than that reported by others [37].

Frequency percentage of atrophic endometritis-vaginitis was (9.9%) of cases. The exact cause of bleeding from atrophic endometritis isn't known, it may be due to anatomic vascular variation or local haemostatic mechanism [38].

The absolute risk of endometerial cancer in non-user of HRT who present with PMB ranges from (5.7-11.5%) [7], the frequency percentage of endometrial carcinoma is (9.28%) in this In this study the frequency percentage of Cervical cancer is (0.7%). Exogenous estrogen: the percentage is zero, this is most likely due to small number of women in our society that use HRT in postmenopausal years due to lack of awareness about its advantages.

The frequency percentage of cervicitis-CIN was (15.7%), which was the 3rd etiology of postmenopausal bleeding in this study, which is higher than other study [39]. There is no evidence to indicate whether different patterns of PMB such as one-off bleeding or more frequent bleeds are more likely to be associated with malignancy [40]. Women with recurrent PMB after initial negative investigations are no more likely to have endometrial cancer than those presenting for the first time but re-investigation is indicated if six months has elapsed [41]. Longer lasting bleeding episodes, higher amount of bleeding and recurrent bleeding episodes were the clinical characteristics associated with endometrial cancer [42].

In this study (53.9%) of patients with endometrial cancer had sever uterine bleeding, while (19%) of patients with endometrial hyperplasia had sever PMB and (38.43%) of patients with endometrial cancer had prolonged PMB>6month. The incidence of recurrent PMB was (25.47%), of these, (10%) had endometrial cancer, (40%) of the patients with recurrent PMB had endometrial hyperplasia in this study.

Conclusions

Majority of cases with post menopausal bleeding were having benign causes 90%, however malignancies were very important etiology of bleeding in this age group, it constitute 10%. Malignant cases were either endometrial cancer (9.3%) or cervical cancer (0.7%), obesity was significant morbidity in this age group.

Suspicion of endometrial carcinoma increases if PMB is associated with other factors like medical illness (HTN, DM).

Investigations like ultrasonography, Pap smear and endometrial biopsy are essential to diagnose causes of PMB. For women who present with postmenopausal bleeding and a benign tissue diagnosis, recurrent bleeding is a worrisome problem and reinvestigations should be carried out as hysterscopy.

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