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ENDOMETRIAL HYPERPLASIA IN OBESE PATIENTS OF REPRODUCTIVE AGE PRESENTED WITH ABNORMAL UTERINE BLEEDING.

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ABSTRACT

BACKGROUNG: Abnormal uterine bleeding AUB is commonly reported at the gynecological OPDs as approximately 1 in every 3 patients in these OPDs reports about this complaint **OBJECTIVES:** This Study aimed to determine the frequency of endometrial hyperplasia in obese patients of reproductive age with abnormal uterine bleeding. **METHODS:** This cross-sectional study was carried from 1st of March 2023 to 31st July 2023 at the Department of Gynaecology and Obstetrics District Head Quarter Hospital, Mardan. A total of 213 women between the ages of 18-40 years with BMI≥ 30 kg/m2 with complaint of abnormal uterine bleeding were included in this study. Endometrial thickness was assessed through transvaginal ultrasonography. Endometrial hyperplasia was diagnosed when ultrasonography showed quite 7 mm thickness of endometrium within two days after the end of menstruation. Statistical analysis was done using IBM SPSS Version 25. **RESULTS:** The Mean age was 29.36±6.52 years, range from of 18-40 years. The mean BMI was 32.83±2.27 while mean parity was 1.73±1.26. Results of transvaginal ultrasonography show the presence of endometrial hyperplasia in 13.15% of these obese women. BMI stratification ratio showed higher in patients endometrial hyperplasia BMI≥35 than patients with BMI<35 although the difference was not statistically significant. **CONCLUSION:** The obese women consulting for abnormal uterine bleeding in their reproductive age have a considerable risk for the development of endometrial hyperplasia and must be assessed for its diagnosis.

KEYWORDS: Abnormal uterine bleeding, Endometrial hyperplasia, Obese patients, Reproductive age.

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INTRODUCTION

Abnormal uterine bleeding AUB is commonly reported at the gynecological OPDs as approximately 1 in every 3 patients in these OPDs reports about this complaint.[1] AUB is characterized by irregular and/or heavy bleeding and is in fact an umbrella term that covers inter-menstrual or heavy bleeding and disorders of ovulation.[2] It replaces older terms such as dysfunctional uterine bleeding DUB, metrorrhagia and menorrhagia.[3] AUB has crippling effects on quality of life QOL as besides the medical problem, it also put psychological, social and economic stress.[4] Different types of AUBs are irregular menstrual bleeding, postmenopausal bleeding and bleeding related to instruments. American College of Obstetricians and Gynecologists therefore recommends the diagnosis based on symptoms, clinical manifestations and histology. [5] The reasons of AUB may include hormonal, induced, systemic or related to endometrial pathologies such as sub mucous myomas, polyps, endometrial hyperplasia EH or endometrial carcinoma EC. AUB might also be caused by Infectious endometritis or endometrial atrophy. [6] Diagnosis therefore needs to be individualized and to be based on the cause of AUB. [7]

EH is among the common cause of AUB presented in daily medical practices. [8] EH results from the irregular multiplication of endometrium which causes an increase in gland-to-stroma ratio. The Royal College of Obstetrician and Gynecologists RCOG suggest that the transvaginal ultrasound TVS has an important role in assessment of structural abnormalities. RCOG mention that in women of reproductive age with AUB, the presence of hyperplasia is unlikely if endometrial thickening is <7 mm. [9] Further investigations are suggested through histological examination to differentiate the presence of atypical features in the endometrial cells and nucleus. It is important that untreated EH has potential to develop as EC. [10, 11]

EH is developed due to disorganized multiplication of glands in the endometrium caused by estrogen in the absence or deficiency of progesterone. Studies have shown that the incidence is more prevalent if a woman is taking exogenous estrogen without taking progesterone. This unopposed estrogen, whether from an endogenous or an exogenous source, is the most important etiologic factor of EH. Etiology and type of hyperplasia is important to differentiate as it can be of simple, complex or atypical.[12]

The risk factors for EH extracted from different studies are family history of AUB, obesity, nulligravida and hypertension. [6] The obesity defined by World Health Organization is when the BMI body mass index is ≥ 30 kg/m2. There are excess levels of estrogen and androgens in obese women which can be a reason of anovulation and may result in the development of EH. The process can occur in both postmenopausal and premenopausal women and may lead to EC if EH is not treated. [13] Studies and meta-analysis have reported the relation between obesity and EH in women of reproductive age but the data regarding this is sparse, especially in our local population. This study was therefore planned to determine the frequency of EH in obese women from reproductive age group. The results of the study will help the gynecologists to suggest the management plan for these women suffering from EH.

METHODS AND MATERIALS

This cross-sectional study was conducted from 1st of March 2023 to 31st July 2023 at the Department of Gynaecology and Obstetrics District Head Quarter Hospital, Mardan. Sample size was calculated as per assumptions with the Precision=3.5%, Prevalence= 7.3%, Population size=Infinite and 95% confidence interval the estimated sample size n=213. [13, 14]

A total of 213 women between the age of 18-40 years with BMI≥ 30 kg/m2 reporting at the outpatient department with complaint of AUB periods more often than 26 days or any bleeding lasting more than 7 days were included in this study through consecutive non-probability sampling. Exclusion criteria were set as pregnancy or women taking contraceptive medication.

All the demographics of patients were taken and noted down. Important clinical parameters like marital status, weight, height and parity were recorded. Endometrial thickness was assessed through trans-vaginal ultrasonography. Endometrial biopsy was done in patients where increased/irregular thickness of endometrium was reported. Dilatation and Curettage technique was employed to take the endometrial sample and sent for histopathology.

Primary outcome was set as frequency and percentage of endometrial hyperplasia in these obese women with abnormal uterine bleeding. Endometrial hyperplasia was diagnosed when US showed quite 7 mm thickness of endometrium within two days after the end of menstruation. [8, 15] Ethical approval of conducting the study was taken from the ethical committee of the hospital.

The study purpose was explained and consent was taken from the participants on written forms. Data analysis was performed using SPSS version 25. Quantitative variables like age, weight, BMI, parity and endometrial thickness were expressed in form of Mean±SD. Qualitative variables like gender and presence of endometrial hyperplasia were expressed in form of frequency and percentage. Descriptive analysis was done by applying frequency and percentage. Chi-square test was applied to find the significance of difference while keeping p≤0.00 as significant.

Table 1: Demographics and clinical presentation of the included participants.

Variables	Demographics and clinical presentation	
Age Mean ± SD Years	29.36±6.52	
Weight Mean ± SD Kg	93.80±6.35	
BMI Mean ± SD	32.83±2.27	
Parity Mean ± SD	1.73±1.26	
Patient's initial complaint	Menorrhagia n %	106 49.77
	Polymenorrhea n %	63 29.58
	Polymenorrhagia n %	44 20.66

RESULTS

Table 1 presents the demographics and clinical characteristics of the included participants. The mean age of the participants was 29.36 ± 6.52 years, with a mean weight of 93.80 ± 6.35 kg and a mean BMI of 32.83 ± 2.27 kg/m². The average parity was 1.73 ± 1.26. Regarding initial complaints, menorrhagia was reported by 106 49.77% participants, polymenorrhea by 63 29.58%, and polymenorrhagia by 44 20.66%.

Table 2 summarizes the transvaginal ultrasonography TVS findings among the study participants. The mean endometrial thickness was 7.01 ± 3.32 mm. Endometrial hyperplasia EH was detected in 28 13.15% participants, while the majority 185; 86.85% showed no evidence of EH.

Table 2: Transvaginal ultrasonography TVS findings among participants n=213

Primary Out Comes		
Endometrial Thickness Mean ± SD mm		7.01±3.32
Presence of EH	Yes n %	28 13.15
	No n %	185 86.85

Table 3 presents the association between BMI categories and the prevalence of endometrial hyperplasia EH. Among participants with BMI <35 n=172, 12.21% n=21 had EH, while in those with BMI ≥35 n=41, 17.07% n=7 were affected. Although the prevalence of EH was higher in the BMI ≥35 group, the difference was not statistically significant p=0.407.

Table 3: Association between BMI categories and endometrial hyperplasia EH prevalence n=213

BMI	EH		p-value
BMI<35 n=172	Yes n %	21 12.21	0.407
	No n %	151 87.79	
BMI≥35 n=41	Yes n %	7 17.07	
	No n %	34 82.92	

DISCUSSION

This study aimed to determine the frequency of endometrial hyperplasia EH in obese women of reproductive age presenting with abnormal uterine bleeding AUB. Our findings revealed that 13.15% of participants had EH, with a higher though non-significant prevalence with BMI ≥35 17.07% compared to BMI <35 12.21%, *p*=0.407. These results align with existing literature linking obesity to EH risk and underscore the need for early screening in this population. The data shows significantly lower chances of hyperplasia and malignancy in premenopausal women compared to post-menopausal women; however, obesity significantly increases this risk in both premenopausal and postmenopausal ages. [16]

Nelson et al., in their retrospective study determined the risk factors of endometrial pathologies in women with AUB. The study showed that obese patients BMI>30 of reproductive age presenting at OPDs with AUB had a 7.3% incidence of EH. The researchers also mentioned that the possibility of finding any uterine pathology was only <2% if the patients were not obese BMI <30 kg/m2. [14]

Gawron G studied the incidence of hyperplasia in premenopausal women presenting with AUB. They also assessed the co-relation of EH with age and obesity. The results showed that the chances of EH are raised in patients with high BMI OR 1.16 95% CI 1.05- 1.28. [16]

Sajitha et al. studied the prevalence of AUB as per their age groups. They included all the cases of AUB which may have endometrial cause. The results of the study had an important finding that patients diagnosed with EH had significantly higher BMI. In fact out of these women 30.76% were found to be overweight while 10.2% were obese. [17]

Petersdorf K et al. made a literature review to determine the frequency of EH and associated risk factors in women of childbearing age. The results of the study showed age, obesity and diabetes as major risk factors associated with EH. [18]

A recent study conducted in Pakistani population aimed to find frequency of EH in obese patients BMI was 32.10±3.13 Kg/m2, belonging to reproductive age 18-35 years and had complaint of AUB. In this retrospective study TVS was used to find the endometrial thickness in these patients and showed an endometrial

thickness of 10.153±2.39 millimeter. The incidence of EH reported in this study was 9.3%. The study concluded that the high BMI is among the main risk factors for EH in women belonging to reproductive age group. [19]

The Mean age in our study was 29.36±6.52 years with an age range of 18-40 years. The mean of BMI was 32.83±2.27 while mean parity was 1.73±1.26. The patients were presented with complaints of menorrhagia 49.77%, polymenorrhea 29.58% and polymenorrhagia 20.66%. Results of transvaginal ultrasonography show the presence of endometrial hyperplasia in 13.15% of these obese women. Stratification of patients with respect to their BMI show that ratio of patients suffering from endometrial hyperplasia was higher in patients with BMI≥35 than patients with BMI<35 although the difference was not statistically significant 17.07 Vs 12.21% respectively, p=0.407. These results are in line with studies conducted previously to determine the risk factors of EH in obese women of reproductive age with complaints of AUB. [8, 14, 16, 19]

Basescu I and co-workers investigated the impact of bariatric surgery on endometrial pathology at the premalignant stage. The outcomes of the study showed a good impact of weight loss on the endometrium and the authors suggested that a weight loss strategy may decrease the risk of malignancy in obese women. [20]

A recently published systemic review by Mooney SS and Sumithran P discussed the benefit of weight reduction in obese women suffering from EH. The researchers mentioned that very limited data is available over the topic, however the reported cases show partial regression of simple, complex and atypical hyperplasia with weight loss strategy. [21]

Gingh G and Puckett Y have recently recommended that clinicians must advise life style changes or bariatric surgery which will cause reduced production of endogenous estrogen and will help to control their future risk related to EH. [8]

This study's strengths include its standardized diagnostic approach and well-defined obese cohort, providing valuable local data on endometrial hyperplasia EH frequency. However, modest sample size may limit subgroup analyses, and the reliance on ultrasound without universal biopsy confirmation could affect diagnostic accuracy. While single-center recruitment restricts generalizability, the findings highlight the need for EH screening in obese women with abnormal uterine bleeding and warrant further research on weight management interventions.

CONCLUSION

Obesity is among major risk factors for the development of endometrial hyperplasia in women of reproductive age. These women with higher body mass index presenting with abnormal uterine bleeding at gynecological clinics must be assessed for the presence of endometrial hyperplasia.

ETHICS APPROVAL: The ERC gave ethical review approval.

CONSENT TO PARTICIPATE: written and verbal consent was taken from subjects and next of kin.

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AUTHORS' CONTRIBUTIONS:

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated in the work to take public responsibility of this manuscript. All authors read and approved the final manuscript.

CONFLICT OF INTEREST: No competing interest declared

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