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Prevalence of Endometrial Hyperplasia and Its Related Factors in Patients with AUB

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ABSTRACT

Background & Objective: Endometrial hyperplasia is the primary precursor of endometrial cancer in the female reproductive system, with abnormal uterine bleeding (AUB) being the predominant manifestation of this condition. The purpose of this study was to determine the prevalence of endometrial hyperplasia and its correlation with various factors among patients presenting with abnormal uterine bleeding.

Materials & Methods: This cross-sectional descriptive-analytical study reviewed the hospital records of all patients with abnormal uterine bleeding admitted to Ali Ebn-e Abi Taleb Hospital in Zahedan from April 2015 to April 2018. Data were analyzed using the SPSS.

Results: The prevalence of endometrial hyperplasia was estimated to be 20.3%. The average age of the study subjects was about 45 years. The highest number of patients (37, 52.9%) belonged to the age group of 36-50 years. Among the different types of endometrial hyperplasia observed, the most common was "simple non-atypical hyperplasia" found in 45 patients (64.3%), while the least common was "simple atypical hyperplasia" observed in three patients (4.3%). Overall, "non-atypical hyperplasia" (including both simple and complex types) was present in 58 patients (82.85%). The prevalence of infertility, obesity, hypertension, diabetes, premature menarche, late menopause, family history, oligomenorrhea, and polycystic ovary syndrome (PCOS) was reported in 7.1%, 32.9%, 24.3%, 22.9%, 8.5%, 13.6%, 7.1%, 5.7%, and 3.4% of cases, respectively.

Conclusion: women with a history of diabetes, hypertension, and obesity are at an increased risk of developing endometrial hyperplasia. Therefore, it is crucial to evaluate these patients for the presence of endometrial hyperplasia.

Keywords: Frequency, Endometrial Hyperplasia, Abnormal Uterine Bleeding, Endometrial Cancer

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Introduction

In 2014, the World Health Organization (WHO) classified endometrial hyperplasia (EH) into two categories based on the presence of cytological atypia (1). Annually, approximately 200,000 new cases of EH are reported in developed countries (1-3). The incidence of hyperplasia is estimated to be between 133 and 208 cases per 100,000 women, with non-atypical hyperplasia accounting for 121 cases per 100,000 women (4). EH is considered a precursor to endometrial carcinoma and carries significant clinical importance (5). Endometrial cancer stands as the most prevalent gynecological cancer in developed nations (6). Non-atypical endometrial hyperplasia (NEH) carries a carcinoma formation risk of less than 5%, while atypical hyperplasia (AH) raises the risk to as much as 30% (5, 7). Pre-cancerous lesions of the endometrium encompass endometrial hyperplasia, with an incidence ranging from 2% to 20% during the premenopausal period and up to 20% after menopause. It can be estimated that up to 10% of women at the age of menopause may exhibit asymptomatic endometrial hyperplasia (8). Abnormal uterine bleeding stands as the most prevalent symptom of neoplasia and endometrial hyperplasia. Therefore, diagnostic measures are conducted for all women in the menopausal age group (9). Endometrial cancer ranks as

the fourth most frequently occurring cancer, following breast, lung, and colorectal cancer, and stands as the eighth leading cause of malignancy among women **(10, 11)**. Risk factors associated with cancer and endometrial hyperplasia include polycystic ovary syndrome (PCOS), diabetes, obesity, hypertension, oligomenorrhea, tamoxifen therapy, lack of exercise, specific dietary habits, hormone therapy, and contraceptive pills **(12, 13)**. A study by Sanni et al. in 2016 examined 15 patients with risk factors for endometrial hyperplasia, and the results demonstrated that BMI was the most common factor associated with endometrial hyperplasia **(14)**. Nazari and Yar **(14)** in 2006, investigated the frequency of endometrial hyperplasia and its risk factors in a group of 73 patients aged 40-70 years. The study revealed a relatively high frequency of endometrial hyperplasia in the examined population. Diabetes, hypertension, advanced age, and a history of estrogen hormone treatment were not identified as risk factors for endometrial hyperplasia in this study, but the use of oral contraceptive pills (OCP) was recognized as a preventive factor **(14)**. In this study, we assessed the frequency of endometrial hyperplasia and its risk factors in patients presenting with abnormal uterine bleeding (AUB) in Zahedan. The findings of this study provide crucial and valuable insights for screening purposes.

Methods

This cross-sectional descriptive-analytical study was conducted after obtaining approval from the ethics committee of Zahedan University of Medical Sciences, with registration code IR.ZAUMS.REC.1398.292. The study utilized a census approach, including all eligible patients and archived files from Ali Ebn-e Abi Taleb Hospital in Zahedan, covering the period from April 2014 to April 2017. A total of 70 women were included in the study, following the defined inclusion and exclusion criteria. The inclusion criteria consisted of a diagnosis of endometrial hyperplasia, presence of abnormal uterine bleeding, and availability of complete hospital records. Exclusion criteria encompassed the presence of diagnoses other than endometrial hyperplasia for abnormal bleeding, as well as incomplete information in the hospital records. Data collection took place at the pathology department of Ali Ebn-e Abi Taleb Hospital, and statistical analysis was performed using SPSS version 26 (IBM, USA). Descriptive statistics, including frequency distributions presented as percentages, were employed to describe the data. Additionally, the Chi-square test was utilized to compare frequencies between the two groups.

Results

The study participants had a mean age of 45.41 ± 9.87. Among the 70 patients included in the study, 11 (15.7%), 37 (52.9%), and 22 (31.4%) fell into the age groups of 20-35, 36-50, and 51-65 years, respectively. The prevalence of endometrial hyperplasia among patients with abnormal uterine bleeding (n = 345) was estimated to be 20.3% (n = 70). The most common type of endometrial hyperplasia observed in this study was "simple non-atypical hyperplasia," which was present in 45 patients (64.3%), while the least common type, "simple atypical hyperplasia," was observed in only three patients (4.3%). Overall, a total of 58 patients (82.85%) exhibited "non-atypical hyperplasia" (including both simple and complex types), while the remaining 12 patients (17.15%) were diagnosed with "atypical hyperplasia" (simple and complex).

Among the patients diagnosed with endometrial hyperplasia, the prevalence of infertility, BMI ≥ 25, hypertension, diabetes, and premature menarche (≤ 9 years old) was observed in five cases (7.1%), 23 cases (32.9%), 17 cases (24.3%), 16 cases (22.9%), and six cases (8.5%), respectively. Out of the 22 patients with endometrial hyperplasia who were over 50 years old, three cases (13.6%) experienced late menopause. Additionally, five patients (7.1%) had a family history of endometrial hyperplasia, four cases (5.7%) reported oligomenorrhea, and three cases (4.3%) were diagnosed with polycystic ovary syndrome (PCOS).

Based on the data presented in Table 1, among the 11 patients in the age group of 20-35 years, seven cases (63.63%) were diagnosed with uterine non-atypical simple hyperplasia, while three cases (27.27%) had atypical complex hyperplasia. In the age group of 36-50 years, out of 37 patients, 28 patients (75.67%) had non-atypical simple hyperplasia, and six patients (16.21%) had non-atypical complex hyperplasia. Among the 22 patients in the age group of 51-65 years, 10 patients (45.45%) had hyperplasia without simple uterine atypia, and six patients (27.27%) had hyperplasia without complex atypia. Additionally, out of the total 70 patients, only three cases (4.28%) were diagnosed with simple atypical hyperplasia, all of which were in the age group over 50 years. The relationship between age and endometrial hyperplasia was assessed using a chi-square test in this study. However, no significant relationship was observed between age and the development of endometrial hyperplasia (P = 0.05).

Table 1. Association between endometrial hyperplasia and patients' age

Age of patients	Type of uterine hyperplasia				Total	P-value
	Simple (without atypia	Complex (without atypia)	Simple atypical (with atypia)	Complex atypical (with atypia)		
20-35	7	1	0	3	11	0.105
36-50	28	6	0	3	37	
51-65	10	6	3	3	22	
Total	45	13	3	9	70	

Discussion

The prevalence of endometrial hyperplasia among patients with abnormal uterine bleeding during the study period (n = 345) was estimated to be 20.3% (n = 70). The average age of the subjects was approximately 45 years. The age group with the highest number of patients was 36-50 years, with a frequency of 37 individuals (52.9%), while the age group under 35 years had the lowest number of patients, with a frequency of 11 individuals (15.7%). The most common type of endometrial hyperplasia observed in this study was "simple hyperplasia without atypia," present in 45 patients (64.3%), whereas the least common type, "simple atypical hyperplasia," was found in only 3 patients (4.3%). Overall, "hyperplasia without atypia" (simple and complex) was observed in 58 patients (82.85%), while "atypical hyperplasia" (simple and complex) was reported in 12 patients (17.15%).

Among the subjects, infertility was reported in five cases (7.1%), and 23 subjects (32.9%) had a BMI above 25. Seventeen patients (24.3%), 16 patients (22.9%), and 6 patients (8.5%) had hypertension, diabetes, and a history of premature menarche before the age of 9 years, respectively. Among the 22 patients with endometrial hyperplasia over the age of 50, late menopause was reported in three cases (13.6%). Five patients (7.1%) had a family history of endometrial hyperplasia. Oligomenorrhea was reported in four cases (5.7%) among the subjects, and three patients (4.3%) were diagnosed with polycystic ovary syndrome (PCOS).

Regarding the specific age groups, out of the 11 patients in the 20-35 years age group, seven cases (63.63%) had simple atypical uterine hyperplasia, and three cases (27.27%) had complex atypical hyperplasia. In the 36-50 years age group, out of 37 patients, 28 patients (75.67%) had hyperplasia without simple uterine atypia, and six patients (16.21%) had hyperplasia without complex atypia. Among the 22 patients in the 51-65 years age group, 10 patients (45.45%) had hyperplasia without simple uterine atypia, and six patients (27.27%) had hyperplasia without complex atypia. Furthermore, out of the total 70 patients, only three cases (4.28%) were diagnosed with simple atypical hyperplasia, and all three cases were in the age group over 50 years.

Although several similar studies have been conducted worldwide due to the prevalence and importance of this disease, it should be noted that the results may vary among different populations and races due to the epidemiological nature of this issue. In the study conducted by Faraji, Esmailpour and Behfar **(10)**, out of 504 women, 61 women (1.12%) were found to have abnormal uterine bleeding with various types of hyperplasia, including simple or complex, with or without atypia. Similar studies by Anastasiadis, Skaphida **(8)**. Wasson, Sox **(15)**, Farquhar, Lethaby **(16)**, reported prevalence rates of 20%, 5%, and 5.4% respectively. It should be noted that the lower proportion of patients in the studies by Farquhar, Lethaby **(16)** was due to the exclusion of cases with simple hyperplasia. Therefore, the findings of our study, indicating a prevalence of 20.3% of endometrial hyperplasia in patients with abnormal uterine bleeding, align with previous research. Additionally, a study conducted by ZareRashkooeih, Rezaeian **(17)**. examined the pathology of samples and reported rates of hyperplasia, normal findings, and uterine changes as 5.45%, 6.24%, and 4% respectively. In a study conducted by Moradan **(18)** in Semnan total of 80 cases of diagnostic curettage were examined. Among these cases, 83.75% were found to be normal, 11.25% had endometrial hyperplasia, and 5% had cervical dysplasia. Additionally, out of 92 cases of hysterectomy, 41% had leiomyoma, 13% had endometrial hyperplasia, 6.5% had adenomyosis, 1.1% had cervical dysplasia, and 1.1% had endometrial carcinoma. Another study conducted by Tabasi, Samimi **(19)**, reported that out of 31.2% of patients with abnormal endometrium, 23.4% had hyperplasia and 9.3% had polyps Hahn, Chun **(20)**. examined hysterectomy specimens and found that 27% had atypical hyperplasia, 54.8% had typical hyperplasia, 7.6% had normal findings, and 3.9% had endometrial carcinoma. Leiomyoma and endometrial hyperplasia are frequently mentioned as common causes of bleeding. As previously mentioned, the majority of patients in the present study were in their fifth decade of life, which is consistent with findings from other studies, such as Samiee Rad, Nikmohammadi **(21)** in

Qazvin, which examined 887 cases **(21)**, and Sagar, Tomar **(22)**. In the present study, there was no significant relationship observed between the type of endometrial hyperplasia and the age of patients (P = 0.05). These findings are consistent with the results reported by Faraji, Esmailpour and Behfar **(10)** and Wasson, Sox **(15)**, but differ from the studies conducted by Farquhar, Lethaby **(16)** and Tehranian, Bayani **(23)**, which reported a relationship between the two variables. Faraji, Esmailpour and Behfar **(10)** reported a strong correlation between the presence of endometrial hyperplasia and the menstrual pattern of oligomenorrhea. Ryan also identified oligomenorrhea as a risk factor for endometrial hyperplasia. Hardiman, Pillay and Atiomo **(24)** and Balen **(25)** have reported that women with polycystic ovary syndrome, a condition characterized by a high percentage of individuals with oligomenorrhea cycles, exhibit different endometrial function compared to normal individuals. These women are also observed to have an increased incidence of hyperplasia and endometrial cancer. The study by Cheung **(26)** noted that endometrial cancer typically follows endometrial hyperplasia, and 7.35% of women with polycystic ovary syndrome experience endometrial hyperplasia. While Villavicencio, Bacallao **(27)** reported findings consistent with the present study, epidemiological data do not consistently support an elevated risk of endometrial hyperplasia and cancer in individuals with polycystic ovary syndrome. However, evidence suggests a high prevalence of endometrial hyperplasia and carcinoma in women with polycystic ovary syndrome due to the continuous effect of estrogen on endometrial tissue without the counterbalancing influence of progesterone **(28)**. Regarding the present study, obesity was observed in 32.9% of patients with uterine hyperplasia, which aligns with the findings of Wise, Jordan **(29)** where an association between endometrial hyperplasia and obesity was identified.

Conclusion

Based on the findings of the present study, approximately one-fifth of patients referred to the obstetric clinic with abnormal uterine bleeding have been diagnosed with endometrial hyperplasia. This prevalence has shown an increase compared to the past two decades. Considering the significance of uterine cancer in cases of uterine hyperplasia, it has become increasingly important to screen patients presenting with abnormal uterine bleeding using appropriate diagnostic methods, such as diagnostic curettage. The study's results indicate that women with a medical history of diabetes, hypertension, and obesity are at a higher risk of developing endometrial hyperplasia, thus necessitating the evaluation of these patients for this condition.

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Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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