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To Estimate the Prevalence of Anaemia in Patients of Abnormal Uterine Bleeding (AUB) Admitted in Tertiary Care Centre

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Keywords

abnormal uterine bleeding;
anemia;
blood transfusion;
heavy menstrual bleeding;
perimenopausal period;

Abstract

Introduction: Abnormal uterine bleeding (AUB) encompasses menstrual patterns that deviate from the norm and is a common issue, affecting 17.9% of women in India. Identifying underlying causes is essential for restoring regular menstruation. *Methods:* This study included 240 cases of AUB from the gynecology ward between January 1, 2023, and December 31, 2023, based on specific selection criteria. *Objective:* The study aimed to estimate the prevalence of anemia among AUB patients across different age groups and determine the incidence of blood transfusion required for various AUB types. *Results:* AUB was predominantly observed in multiparous women aged 41 to 45, often during the perimenopausal period. The most common complaint was heavy menstrual bleeding. AUB significantly increased the risk of anemia, leading to the need for blood transfusions, iron sucrose or ferric carboxymaltose, oral contraceptives, and both injectable and oral tranexamic acid, along with hematinics. While some patients responded to medical treatment, others needed surgical intervention. *Conclusion:* Among the 240 participants, 44 (18.33%) had severe anemia (Hb < 7 g/dL), 33.33% had moderate anemia, and 30.83% had mild anemia. The study highlighted a significant prevalence of moderate to severe anemia in AUB patients, necessitating various treatment strategies for effective management.

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Contents

1 Introduction

Abnormal Uterine Bleeding is one of the most frequent complaints of women of reproductive age group. It is described as irregularities in the menstrual cycle for frequency, regularity, duration, and volume of blood flow (Bradley & Gueye, 2016; Whitaker & Critchley, 2016). It affects 10–30% of women of reproductive age and up to 50% of perimenopausal women and has a significant impact on quality of life. It is linked to financial losses, decreased productivity, poor health, and increased use of medical services, which may sometimes necessitate surgical interventions like hysterectomy. This may be seen at any age between, the menarche and the menopause, in nulliparous as well as in multiparous (Barros et al., 2023).

The International Federation of Gynaecology and Obstetrics has developed a classification system (PALM-COEIN) for causes of AUB in non-gravid females. There are nine categories: polyp; adenomyosis; leiomyoma; malignancy and hyperplasia; coagulopathy; ovulatory dysfunction; endometrial; iatrogenic; and not yet classified. The elements of the PALM group are discrete (structural) entities that are visually detectable, using imaging techniques and histopathology (Donnez et al., 2022; Davis & Sparzak, 2018). Evidence suggests that more than 25% of women with heavy menstrual bleeding (HMB) symptoms also have iron deficiency anaemia (Nelson & Ritchie, 2015; Fraser et al., 2015). Girls and women residing in low-resource countries have nutritional deficiencies which amplify the impact of HMB on anomia (Munro et al., 2020). Assessment of hemodynamic instability and anaemia, source of bleeding, and ruling out pregnancy are all parts of treating individuals with AUB (Abdulameer et al., 2022).

It's critical to distinguish between acute and non-acute bleeding. In acute uterine bleeding with severe blood loss, hemodynamic stability is re-established first using crystalloids, vasopressors, and blood components. In chronic bleeding patients, the objective is to continue with diagnostic investigation and institute management of the cause (Barros et al., 2023).

According to a study conducted in Lucknow, India, the prevalence of severe anaemia with haemoglobin less than 6gm% was 16.8% while the majority of cases had moderate and mild anaemia with the prevalence of 51.2% and 32% respectively (Nigam et al., 2023).

Another study conducted in a medical college in Mumbai showed anaemia is prevalent in 73% of AUB patients, with benign lesions of endometrium being the major cause of anaemia (Rohidas & Chavan, 2020). In women who underwent gynecological surgery at an academic hospital, retrospective cohort research found that the overall rates of preoperative anemia and transfusion were 23.1% and 10.6%, respectively. Significant preoperative anaemia was linked to non-submucosal leiomyoma, proliferative endometrium causes, and systemic causes of AUB (Medor et al., 2019).

Acute anaemia, shock, and even death are consequences of severe acute uterine bleeding if quick treatment is not given. Chronic AUB is a significant contributor to Iron deficiency (Barros et al., 2023). Therefore, early diagnosis and treatment of AUB would prevent anaemia and therefore minimize the need for blood transfusion (Salpeter et al., 2014; Spiess, 2001).

We intend to carry out a study to estimate the prevalence of anaemia in admitted AUB patients in different age groups. Identifying and understanding the underlying reasons is crucial for effective clinical treatment. This can be achieved via clinical examination and imaging techniques such as ultrasonography,

hysterosalpingography, CT scan, and MRI. The clinician's goal was to reverse the anomaly and create or restore cyclic, predictable menstruation with normal volume and duration (Beghé et al., 2004; Bencaiova et al., 2012). The histological examination could be performed during a surgical procedure such as hysteroscopy, D&C, endometrial biopsy, or hysterectomy. This established the diagnosis.

Objectives

Primary objective:
To Estimate the Prevalence of anaemia in patients of AUB in different age groups admitted to GMERS Medical College and Hospital, Gotri

Secondary objective:
To find out the incidence of blood transfusion in various types of AUB.

2 Materials and Methods

An institution-based retrospective study was conducted in a tertiary health care facility in Gotri for 12 months on 240 women of all ages who attended the gynae OPD and were admitted to the gynae ward with complaints of abnormal uterine bleeding.

Inclusion criteria:
Admitted patients of AUB of 20-50 years in the tertiary care hospital of Gotri.

Exclusion criteria:
- Pregnant women.
- Post- menopausal women.
- Female less than 20 years.
- Patients with known disorder of coagulopathy

Sample size:
The sample size is calculated using the formula:

$$N=\frac{Z^2\,P(100-P)}{d^2}$$

Where;
N = sample size,
Z = standard normal deviation (for a 95% confidence interval, the value is taken as 1.96)
P = prevalence or proportion of interest
d = precision (allowable error)

For an estimated prevalence of AUB (in India) of 17.09%, with 4.8% absolute precision, and 95% confidence interval, a minimum sample size of 240 was calculated.

Study procedure:

Data collection:
Data will be extracted from case sheets of admitted AUB patients maintained at the OBGYN department of Gotri Hospital. We will extract variables from the following domains-sociodemographic factors like Age, Residence, Religion, cause of AUB, and type of management given conservative or surgical.
The patients would be classified into the following groups based on hemoglobin levels:
Normal: >/= 12 g/dl

Mild anaemia: 10.0-11.9 g/dl
Moderate anaemia: 7.0-9.9 g/dl
Severe anaemia: < 7.0 g/dl

The checklist will comprise of following headings-

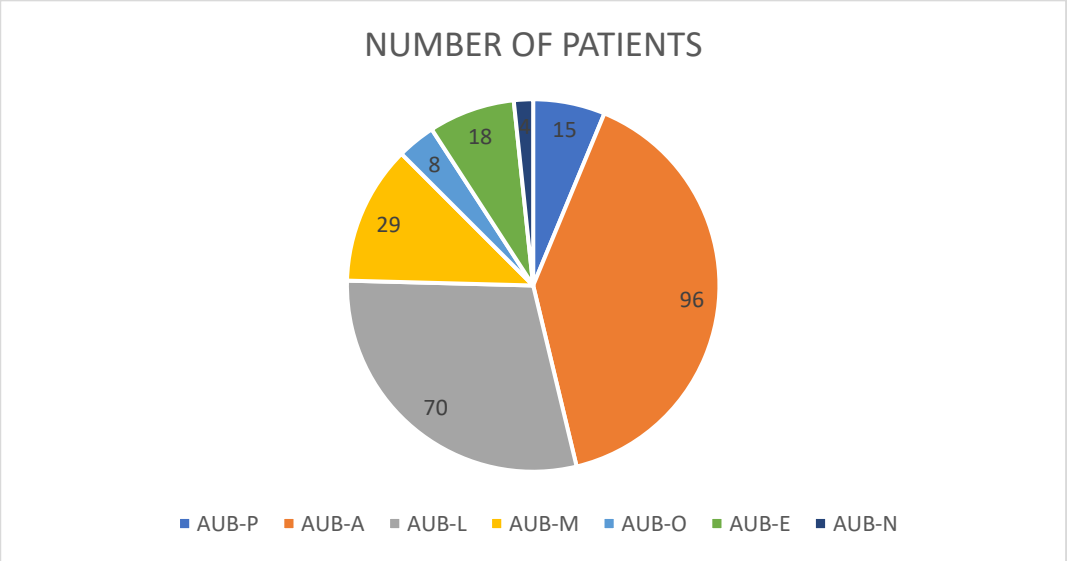
- Sociodemographic:
- Blood Investigations: hemoglobin, total leucocyte count, platelet count, sickling test
- Diagnosis: Type of AUB
- Treatment is given: tablet Iron, Blood transfusion, Ferric carboxymaltose, Ferrous sucrose, OCP, Tranexamic acid, and Surgical Management

Study Implications:
This study would determine the burden of anaemia in admitted AUB patients. This would highlight the importance of early anaemia detection and treatment in AUB patients to avoid the debilitating effects of AUB on the quality of life of patients.

3 Results and Discussions

3.1 Result

Since even normal fluctuations in the menstrual cycle during the transition phase may be misinterpreted by the patient as abnormal bleeding, it is challenging to ascertain the true incidence of AUB. In this study, 240 cases of AUB, that fitted the inclusion criteria were taken. Pie chart 1 illustrates the number of patients categorized by FIGO PALM-COEIN classification, with AUB-A having the most patients followed by AUB-L and AUB-M, respectively.



PIE CHART 1

Menorrhagia was the most common complaint among the 240 patients, as shown by Table 1 and Pie chart 2. Menorrhagia with dysmenorrhea came in second, irregular menstruation with dysmenorrhea came in third, and urine incontinence came in last.

PIE CHART 2

Table 1
Chief Complaints Among Patients of AUB

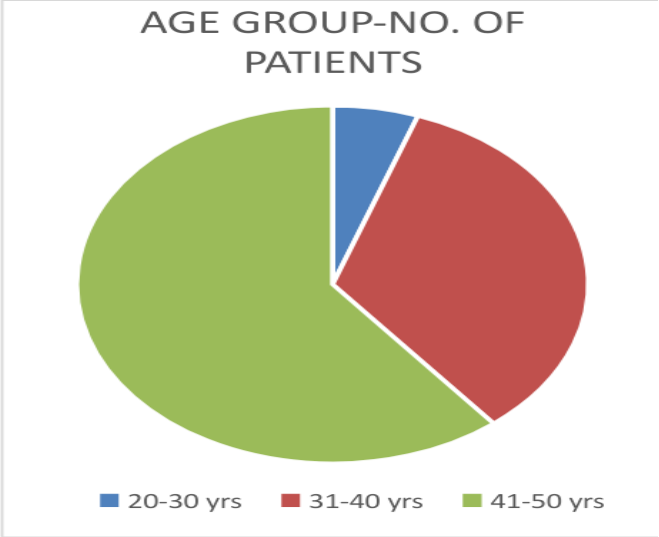
Chief complaints	Number of patients
Menorrhagia + Dysmenorrhea	30
Menorrhagia	143
Dysmenorrhea	29
Irregular Menstruation + Dysmenorrhea	4
Irregular Menstruation	23
Polymenorrhea	10
Urine incontinence	1

Table 2 depicts the age-wise distribution of patients, with the majority of them being between the ages of 41-50, as well as the prevalence of anaemia according to age group, which was further classified as normal, mild, moderate, and severe.

Table 2
Haemoglobin Levels by Age Group in AUB Patients

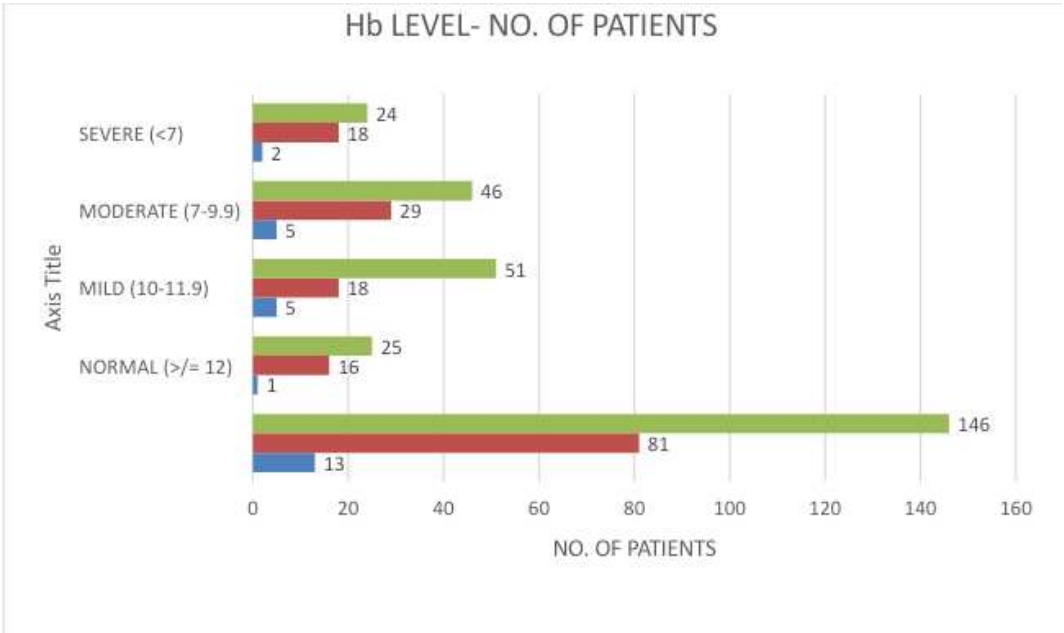
Age group	Number of patients	Hb%			
		Normal (>/= 12)	Mild (10-11.9)	Moderate (7-9.9)	Severe (<7)
20-30 years	13	1	5	5	2
31-40 years	81	16	18	29	18
41-50 years	146	25	51	46	24
		42	74	80	44

Pie chart 3: Age distribution of patients included in the current study.



PIE CHART 3

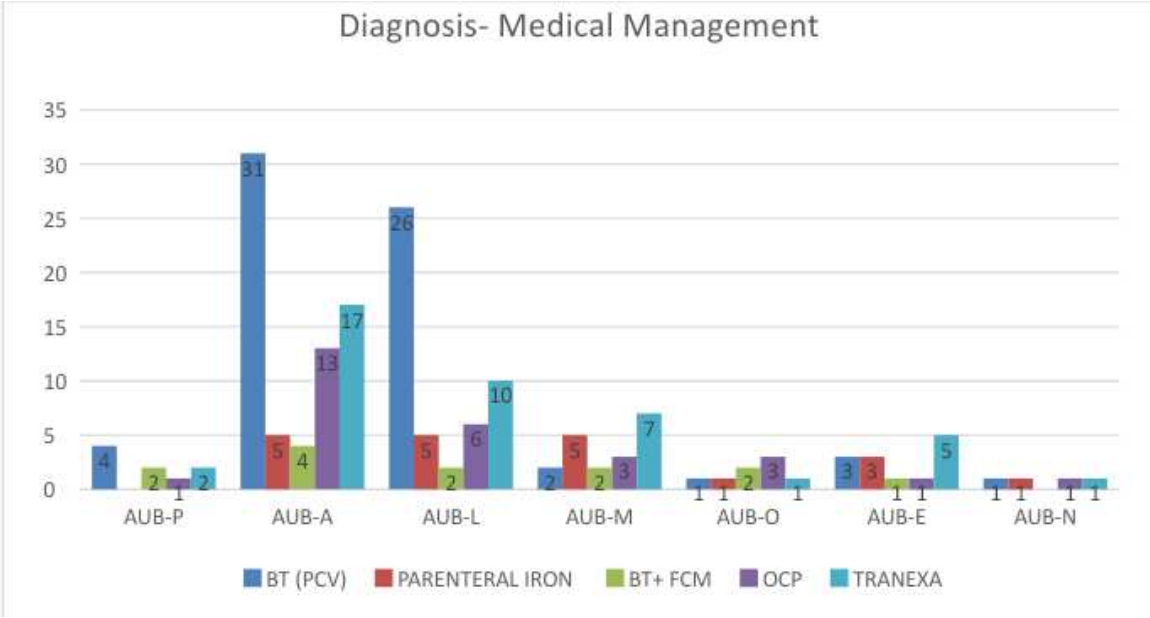
Table 2 and bar chart 4 indicate that the age group 41-50 years has the highest prevalence of anaemia, with 146 out of 240 patients affected. In this group, moderate anaemia is the most common, followed by mild and severe anaemia. The age group 31-40 years has the second highest frequency of anaemia with 81 patients. Moderate anaemia is also the most prevalent in this group, followed by mild and severe anaemia.



BAR CHART 4

The necessary medical management is indicated in Table 3 and Bar Chart 5. The FIGO PALM-COEIN categorization indicates that AUB-A requires the greatest amount of blood transfusions (BT), followed by

AUB-L. While six patients in AUB-L and thirteen patients in AUB-A needed oral contraceptive pills (OCP), respectively. Four patients in AUB-A with severe anaemia needed parenteral iron as well as blood transfusions. AUB-A and AUB-L demonstrated the highest utilization of injectable and per-oral tranexamic acid for the medical treatment of abnormal uterine bleeding.

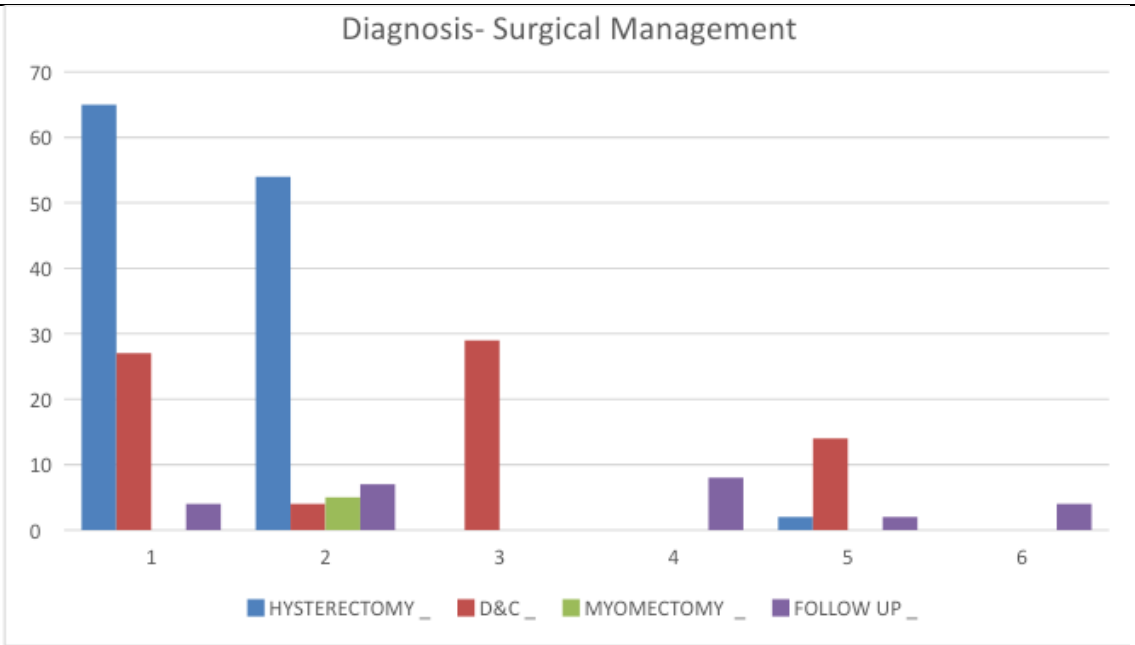


BAR CHART 5

Table 3
Medical Management of AUB

Diagnosis	Medical Management				
	BT (PCV)	Parenteral iron	BT+ FCM	OCP	Tranexa
AUB-P	4	_	2	1	2
AUB-A	31	5	4	13	17
AUB-L	26	5	2	6	10
AUB-M	2	5	2	3	7
AUB-O	1	1	2	3	1
AUB-E	3	3	1	1	5
AUB-N	1	1	_	1	1

The surgical management of abnormal uterine bleeding was shown in Table 4 and Bar Chart 6 based on the FIGO PALM-COEIN classification, where AUB-A saw the greatest number of hysterectomy cases, followed by AUB-L, and five AUB-L patients needed myomectomy. In contrast, 15 patients with an AUB-P diagnosis needed polypectomy along with dilatation and curettage. AUB-M had the highest number of dilatation and curettage (D&C), followed by AUB-A & AUB-E.



BAR CHART 6

Table 4
Surgical Management of AUB

Diagnosis	Surgical Management				
	D&C + Polypectomy	Hysterectomy	D&C	Myomectomy	Follow Up
AUB-P	15	_	_	_	_
AUB-A	_	65	27	_	4
AUB-L	_	54	4	5	7
AUB-M	_	_	29	_	_
AUB-O	_	_	_	_	8
AUB-E	_	2	14	_	2
AUB-N	_	_	_	_	4

3.2 Discussion

Anaemia affects most females with AUB because of acute or chronic blood loss linked to the condition, which presents as irregular menses, menorrhagia, or polymenorrhea. The age groups of 41–50 years, followed by 31–40 years, had the highest prevalence of anaemia out of 240.

Within the 240 patients in the current study, 44 (18.33%) had severe anaemia (Hb < 7 gm%), while the remaining 33.33% and 30.83% had moderate and mild anaemia, respectively. In our study, anaemia affected 82.5% of the women, of whom 22.22% had severe anaemia and needed blood transfusions. Additionally, the greatest number of blood transfusions was observed in AUB-A & AUB-L. Oral iron preparations were used to treat mild anaemia, while parenteral iron preparations were used to treat moderate anaemia, depending on the patient's financial situation. Of the 240 patients included in the study, 71 (29.58%) needed pharmacological care, such as injectable or oral tranexamic acid, which helps to control the menstrual cycle, prevent menorrhagia, and raise haemoglobin levels.

AUB-A (53.71% of the 121 patients) and AUB-L (44.62% of the 121 patients) were the most common indications for hysterectomy among the 121 (50.41%) women who had the procedure for abnormal uterine bleeding. Those in the perimenopausal age range exhibited this the greatest. These results differed from a

study conducted by Sharma et al. (2014). Prolapse cases accounted for 29% of hysterectomies performed, in contrast no hysterectomies were performed in our study for prolapse. We discovered statistically significant correlations between different AUB diagnoses and D&C and hysterectomy (Refer to Table 5).

Table 5
Statistical Correlation

	Hysterectomy	D&C	Row Totals
AUB-A	65 (67.06) [0.06]	27 (24.94) [0.17]	92
AUB-L	54 (42.28) [3.25]	4 (15.72) [8.47]	58
AUB-E	2 (11.66) [8.01]	14 (4.34) [21.53]	16
Column Totals	121	45	166(Grand total)

The chi-square statistic of the above table is 41.7565. The p-value <0.00001. The result is significant at p<0.05.

4 Conclusion

The perimenopausal age group, mainly multiparous women, is found to have a higher prevalence of AUB. One major contributor to the incidence of AUB is surgical procedures performed on the uterus and adnexa, such as cesarean sections, tubal sterilization, or D and E. One of the most prevalent patterns of bleeding is menorrhagia. In most cases of AUB, medical therapy remains the initial course of treatment, depending on the patient's age, hormonal therapy, other risk factors, and regularity of the cycle. As a last resort, hysterectomy is a surgical treatment but carries its own set of risks and after-effects, just like any other major operation. In the current study, 44 (18.33%) of the 240 participants had severe anaemia (Hb < 7 gm%), whereas the majority 33.33% had moderate anaemia and 30.83% had mild anaemia. The current investigation found a significant prevalence of moderate and severe anaemia in AUB patients who required blood transfusions, OC tablets, parenteral iron treatment, and surgical management.

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