Prevalence and Management of Anaemia in Women with Abnormal Uterine Bleeding

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ABSTRACT:

Abnormal uterine bleeding is one of the common health concern affecting women of reproductive age leading to large demand in the Gynaecology department[1].

Abnormal uterine bleeding refers to the bleeding from the uterus that can be present in ways from infrequent episodes, to excessive flow or prolonged duration. The etiology varies with age, parity and may be attributed to both structural and non-structural causes(PALM COEIN)according to FIGO classification[2].It is a very frequent complaint that negatively affects the quality of life, hence, investigation for IDA is mandatory in these patients. Anaemia, characterized by a deficiency of red blood cells or hemoglobin, is a prevalent health concern affecting women worldwide in association with abnormal uterine bleeding. The document includes a comprehensive summary of the most recent research on the diagnosis, symptoms, investigations, causes, and management of AUB. The purpose of the recommendations, which include a list of side effects and indications for large blood loss, is to address the need to improve the lives of women. The objectives of education are supported by the evaluated literature from many sources[3].

Objective: To study the prevalence and management of Anaemia in women with abnormal uterine bleeding (AUB) in Malla Reddy Teaching Tertiary Care Hospital.

Methods: It was a Descriptive observational study conducted in the department of Obstetrics and Gynecology, Malla Reddy Teaching Tertiary Care Hospital from August 2023 to January 2024. There were 153 cases in the study. Details of each patient were recorded and analyzed with respect to age, parity, patterns, AUB according to PALM-COEIN, symptoms, treatment options and Patients were evaluated with menstrual history, physical examination, laboratory tests, pre and post iron supplementation for 4 weeks. and Patients were followed up from 1 to 2 months.

Results: The study shows that The age range of 41-45 years old has the highest prevalence of AUB (44%), AUB and anaemia are significantly correlated (by 60%) moderate anaemia patients are more , 25% of patients had mild anaemia. Iron Supplementation Efficacy is beneficial in controlling hematologic issues caused by AUB, as evidenced by the 80% of cases in which anaemia was successfully corrected. Adenomyosis (AUB-A) is the most common group (67%), according to the PALM-COEIN classification system, which improves our understanding of various aetiologies. Analysis of menstrual patterns. Parity study shows a possible connection-most notably, among women in their 31–35 years of age range-between birthing experiences and AUB. The requirement for blood

transfusions highlights the severity range within the AUB patients and is most common in cases of severe blood loss (21.56%).

Conclusion: Our study is descriptive observational study, AUB is a widespread problem that impacts millions of women globally. The prevalence varies between age groups, classification of AUB as per PALM-COEIN, patterns are identified by symptoms of the patient,

Keywords: AUB – abnormal uterine bleeding, ID - iron deficiency, IDA - iron deficiency of anaemia, PALM-COEIN, HMB, IUDs - intrauterine devices.

INTRODUCTION

ABNORMAL UTERINE BLEEDING (AUB) excessive or irregular bleeding from the uterus is known as abnormal uterine bleeding (via the vagina). It can happen on any day of the month, including regular periods of time. The menstrual cycle occurs around 24-38 days, Cycle variance from day 2 to day 20 of a cycle, Flow duration: 4–8 days. Flow volume: 4-80 ml. [2]

AUB affects around 3% to 30% of women who are fertile, which has a substantial global impact. The nutritional iron deficiency in the Indian population is considered to be the key cause for the noticed AUB cases in the department. 20% of instances of irregular uterine bleeding in the adolescent age group result from iron deficiency triggered by stress, diet, sleep disorders, excessive weight gain, and weight loss. It is considered to be the most familiar and debilitating condition in women, affecting the standard of life & ultimately leading to surgical intervention.

Table 1: AUB Symptom Nomenclature and Definitions in FIGO AUB System 1 [1] [2].

Values	Regular and Non-Regular
Frequency	- Lack of bleeding (frequency) represents amenorrhea. - Rarely (more than 38 days). - Typical (24–38 days). - Periodic (less than 24 days).
Duration	- The normal duration is less than or equal to 8 days. - Prolonged (more than 8 days).
Regularity	- The term "Regular" or "normal" implies a cycle variation of less than 7-9 days. - Longest to shortest cycle variation: above 10 days; irregular.
Flow Rate	- Light (less than 5 ml of blood loss) flow volume. - Normal (5-80 ml). - Heavy (greater than 80 ml).

CAUSES OF AUB [2] [4]

AUB can occur at any age, but the cause usually depends on various factors like parity, age, and both structural and non-structural abnormalities .

FIGO CLASSIFICATION – PALM COEIN

In 2011, a system of categorization for the etiology of AUB was accepted by the International Federati-

on of Gynecology and Obstetrics. Global specialists and gynecologists provided to the framework of the process, which was developed by a number of epidemiologists. Two approaches for evaluating and categorizing AUB were developed by the FIGO [5, 6].

- The bleeding pattern is defined by flow quantity, continuity, duration, and periodicity in FIGO system 1.
- A structured categorization scheme of potential AUB causes is offered by FIGO system 2 where basic categories according to the acronym PALM (structural) and COEIN (non-structural) were included[7].

Polyp: Polyps are benign growths on the uterine wall that develop from the endometrium, the lining of the uterus. They are not harmful. These growths could result in severe or disorganized bleeding. Additionally, polyps can develop inside the cervical canal or on the cervix. Cervical polyps can result in high monthly flow, disorganized menstrual bleeding, bleeding after menopause, bleeding after sex, or bleeding in between period.

Adenomyosis: Endometrial tissue, lining the uterus, often develops in the uterus's muscular wall. With every menstrual cycle, the misplaced tissue gets thicker, ruptures, and bleeds more.

Leiomyoma: The most typical gynecologic cancer. Benign tumors that develop in the visceral muscle cells of myometrium, a thick layer of the uterine wall that contracts during menstruation and childbirth. They affect anywhere from thirty to fifty percent of women. On top of that, their impact on cell division and over expression of certain growth factors is responsible for the formation of fibroid growth. The possibility of acquiring leiomyomas improves with elevated levels of these hormones.

Malignacy/Hyperplasia: Endometrial hyperplasia thickens the uterine lining, causing abdominal cancer and uterine cancer. The condition rarely occurs during and after menopause.

Coagulopathy: Bleeding upon trauma, surgery, or periods is increased by coagulopathy that affects coagulation of the blood. A condition called von Willebrand, which is characterized by prolonged periods, frequently results from it.
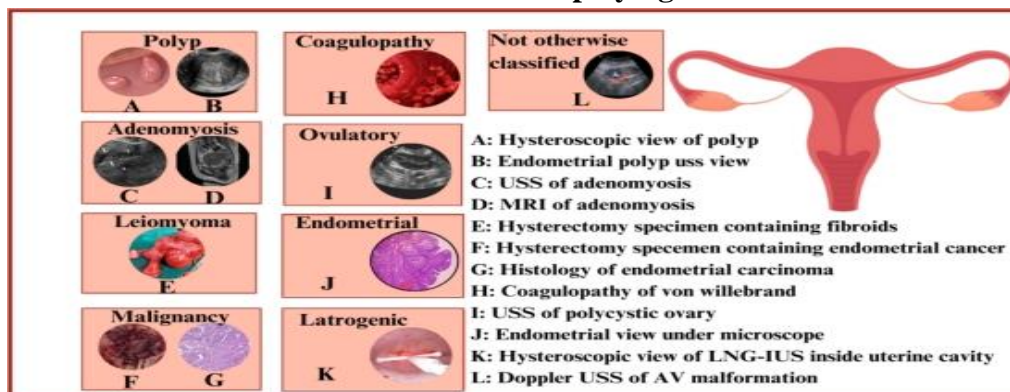
Ovulatory Dysfunction: Irregular, frequent (less than nine per year) menstrual periods or does not ovulate at all due to anovulation.

Endometrosis: The disorders due to the dysfunctioning of the endometrium.

Iatrogenic: The iatrogenic causes are due to hormonal therapy, oral contraceptives, intra-uterine contraceptives, etc.

Not Yet Classified: These consist of uterine isthmocele, arteriovenous abnormalities, and myometrial hyperplasia.

Figure 1: FIGO AUB events can be defined employing the "PALM-COEIN" method.

A: Hysteroscopic view of polyp
B: Endometrial polyp uss view
C: USS of adenomyosis
D: MRI of adenomyosis
E: Hysterectomy specimen containing fibroids
F: Hysterectomy specemen containing endometrial cancer
G: Histology of endometrial carcinoma
H: Coagulopathy of von willebrand
I: USS of polycystic ovary
J: Endometrial view under microscope
K: Hysteroscopic view of LNG-IUS inside uterine cavity
L: Doppler USS of AV malformation

PATTERNS OF AUB: [8, 9,10]

Menorrhagia: Heavy (> 80ml) or prolonged (> 7 days) menstrual flow.

Hypomenorrhea (cryptomenorrhea): Menses which occur less than the average 28-day cycle (> 2 days).

Oligomenorrhea: Prolonged and infrequent periods which occur for more than 35 days. (caused by prolonged follicular phase).

Amenorrhea: Non-menopausal women do not have bleeding for 6 months or more.

Polymenorrhagia: Bleeding which occurs too frequently (bleeding which occurs every 21 days or less).

Metrorrhagia: Anytime over the menstrual cycle, bleeding can take place (irregular forming a part of bleeding from the uterus).

Hypermenorrhea: Excessively heavy or protracted menstrual flow is referred to as hypermenorrhea.

ANAEMIA [11,12,13]

Anaemia is defined by the World Health Organisation (WHO) as a public health issue when the concentration of haemoglobin or the number of red blood cells in the body falls below the normal level. Anaemia is a severe global public health issue that primarily affects women who are pregnant or just gave birth, as well as teenage girls and women who are menstruation. According to WHO estimates, 30% of women in the 15–49 age group and 37% of pregnant women worldwide are anaemic. Abnormal uterine bleeding leads to severe blood loss which ultimately results in anaemia. A person with anaemia does not have enough healthy red blood cells in their body. Anaemia is a outcome of the absence or dysfunction of RBC in the body. This reduces the flow of oxygen to the organs of the body.

ID and IDA typically do not develop if adequate consumption of iron equals iron loss. If menstrual blood loss exceeds iron intake, leading to iron deficiency, then, anemia occurs:

- Increased menstrual blood loss.
- Decreased nutritional intake.

ID is a familiar source of anaemia, accounting for 60% of anaemia cases worldwide which are categorized as mild to moderate. One of the most repeated complaints among people who are of reproductive age is heavy menstrual bleeding; iron deficiency anemia is an ongoing problem in many AUB patients because of acute or chronic blood loss. Across all age groupings, anaemia prevalence is one of the highest in India.

In two thirds of women who lose over 80 millilitres every menstrual cycle, heavy menstrual bleeding results in iron deficiency anaemia and restricts normal activities. Reduced ability to perform everyday tasks is experienced by women who suffer higher menstrual bleeding, affecting their quality of life.

Weariness, weak nails, head pain, exhaustion, feeling tired and short of breathing, and a condition known as restless leg syndrome. The risk of infections, significant bleeding, and preoperative blood transfusions are all raised with IDA prior to surgical complications and death.

TREATMENT [14, 15,16,17]

The management of AUB is dependent on the basis of :

- Estimation of hemodynamically stable levels.
- Root of cause.
- The severity of anemia and condition of the patient.

Medications to control AUB

- Hormonal Birth Control
- Pain Relievers
- Anti-Fibrinolytic Agents
- The Estrogens
- Progestogens
- Androgens

For long term therapy of AUB, there are various therapeutic choices available:

- Intra-uterine Levonorgestrel System
- OCs (extended cycle or month)
- Treatment with Progesterone oral or intermuscular
- Tranexamic acid
- Pain relivers

MATERIAL AND METHODS:

This study is Descriptive observational study done in the department of obstetrics and gynaecology, Malla Reddy Teaching Tertiary Care Hospital form August 2023 to January 2024 for the period of six months.

Inclusion criterias: For study, both inpatients and outpatients were taken. presenting with haemoglobin levels below 12g/dl and abnormal uterine bleeding, resulting with ID and IDA. prevalence and management of Anaemia with abnormal uterine bleeding (AUB).

Exclusion criterias: women who had blood transfusions within the three months prior to the data collection period.

Patients who had received anaemia treatment within the four weeks before the data were collected.

Patients with anaemia from different medical problems and causes, or from bleeding disorders they have acquired or inherited.

Pregnant, Abortion, Lactating and Postmenopausal women are excluded.

For the prevalence and management of anaemia in women with abnormal uterine bleeding (AUB) cases among the total number of patients attending gynecology ward both inpatients and outpatients is taken. Data is taken from case record of both inpatients and out patients. Considering patients age, pattern of bleeding, menstrual history, medication history, laboratory investigations, diagnosis and surgical procedures among the patients AUB with anaemia during the study period, a total of 153 cases were analysed and histological diagnosis were made.

Statistical analysis: Data was assessed by Ms excel and the results were drawn as graphs. Using IBM SPSS statistics, the chi square test was used to compare the HB% before and after the iron supplementation therapy to treat the anaemia. The outcomes of study was calculated as percentage and represented as tables and graphs.

RESULTS:

In our descriptive observational study 153 patients were selected, Who attended the gynecology ward of both inpatient and outpatients during study period.

Out of 153 patients the highest incidence is found in the age group of 41-45 years 68 patients (44%) followed by 36-40 years 37 patients (24%) then, 31-35 years 14 patients (9%), 46-50years 11 patients

(7%), 26-30 years 10 patients (7%) least incidence found in 15-20 years 6 patients (4%). Age group as in figure 1.

Table 1: Distribution of the study participants according their age group.

AGE	FREQUENCY	PERCENTAGE
15-20	6	4%
21-25	7	5%
26-30	10	7%
31-35	14	9%
36-40	37	24%
41-45	68	44%
46-50	11	7%

**Figure 2: Age distribution of study**
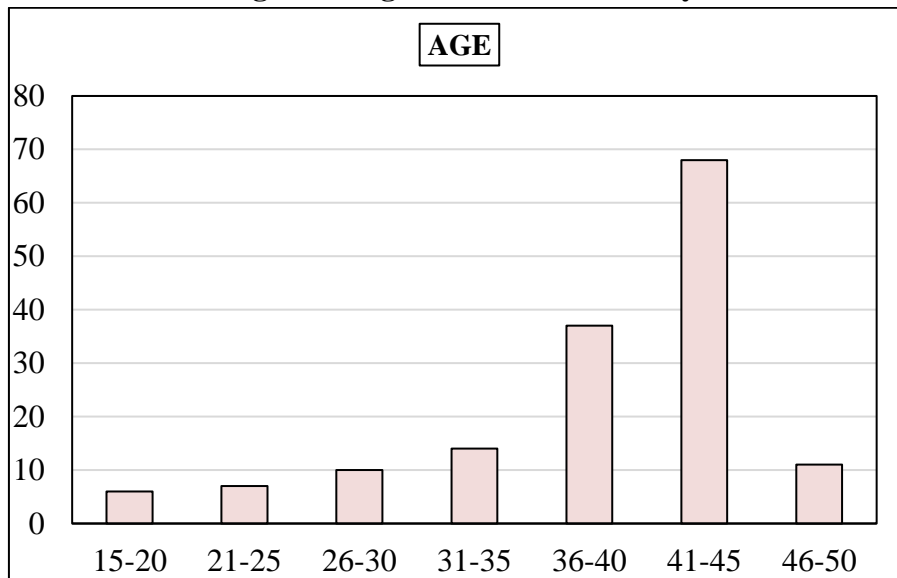
Prevalence of anaemia based on the severity. It was observed that most of the patients had moderate prevalence of anaemia 92 patients (60%) followed by mild 38 patients (25%) severe 15 patients (10%) and least were normal 8 patients (5%). As we observed that most of patients with moderate prevalence of anaemia based on the hemoglobin values.

**Table 2: Distribution of the prevalence of anaemia according to its severity**

DESCRIPTION	FREQUENCY	PERCENTAGE
MILD	38	25%
MODERATE	92	60%
SEVERE	15	10%
NORMAL	8	5%

Figure 3: Distribution of prevalence of anaemia
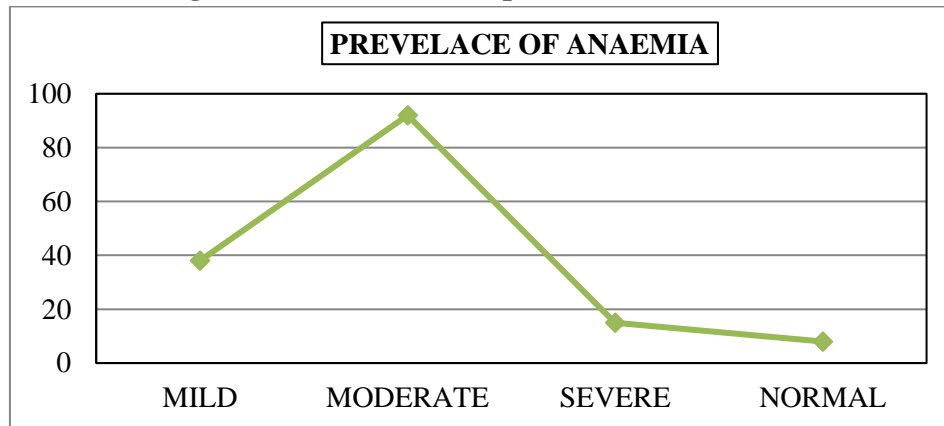
In the present study we have observed that the Hb levels in AUB patients were low. To correct the Hb levels the iron supplements were given to patients. After taking iron supplements twice or thrice a day for 4 weeks, anemia women's hemoglobin levels were routinely monitored after four weeks the progress shows that the gradually the Hb levels came back to normal in 80% of patients. It was calculated by chi square test using IBM SPSS statistics. The conclusion indicates that iron supplementations can correct the blood loss for greater extent in AUB with anaemia patients.

Figure 4 : Distribution of the change in the haematological parameters before and after iron supplementation for 4weeks.
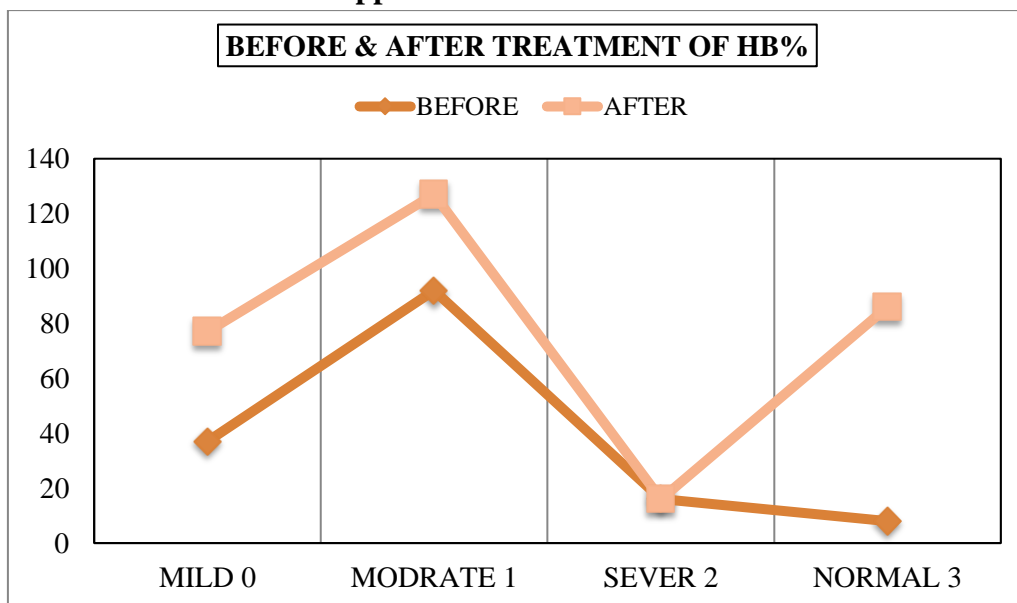
All the cases were classified as per PALM-COEIN classification (table 3) majority of the patients was found Adenomyosis AUB-A with 102 (67%) patients out of 153, followed by AUB-L leiomyoma with 40 patients (26%).

**Table 3: AUB According to PALM-COEIN from the study**

PALM COEIN	FREQUENCY	PERCENTAGE
Polyps	5	3%
Adenomyosis	102	67%

Leiomyoma	40	26%
Malignancy Hyperplasia	3	2%
Coagulopathy	0	0%
Ovulatory dysfunction	2	1%
Endometriosis	0	0%
Iatrogenic	0	0%
Not Yet Classified	1	1%

It was observed the common bleeding pattern in menorrhagia (49%) with 75 cases, polymenorrhea accounted (14%) with 21 cases, metrorhegia were 20 cases(13%), Amenorrhea 15 cases (10%), Oligomenorrhea 11 cases (7%), Hypomenorrhea 4 cases (3%) respectfully.

Table 4: Pattern of various menstrual irregularities in AUB cases.
Figure 5: different patterns of AUB noted from the patients.
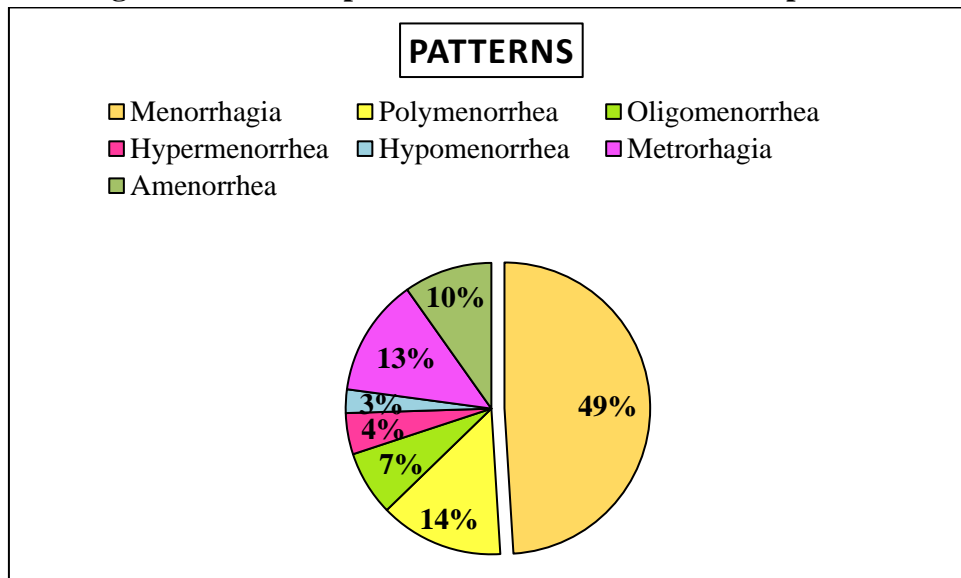
During the study according to the symptoms and complications the flow of the patients were noted as heavy flow, average flow, scanty flow and no flow. We noticed that heavy flow in 73 patients (34.64%), followed by average flow 53 patients (34.64%), no flow 15 patients (9.80%). Scanty flow least incidence found in the range of flow in patients

Table 5: distribution Range of flow

| RANGE OF FLOW	FREQUENCY	PERCENTAGE
Heavy flow	73	42.71%
Average flow	53	34.64%
Scanty flow	2	1.30%
No flow	15	9.80%

Parity of an individual plays a significant role in AUB as the women undergo continuous cyclic changes in their menstruation. Maximum frequency of AUB was observed 31-35 years, 70 (54.75%), 36-40 years, 40 (26.14), while minium was seen in age 15-25 years, 18 (11.76%).

Table: 6 Parity distribution of cases

PARITY	FREQUENCY	PERCENTAGE
0	18	11.76%
1	8	5.22%
2	70	54.75%
3	40	26.14%
4	14	9.15%
5	3	1.96%

**Figure 6: distribution of parity**
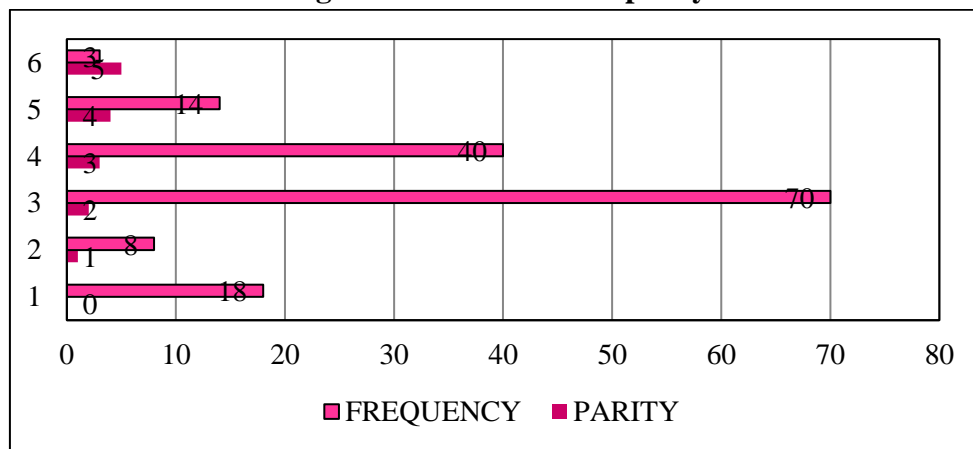
In our study we came to know that Blood transfusions were necessarily required by those patients who suffered from severe blood loss due to AUB. Majority of them didn't significantly require any blood transfusions as the blood loss was corrected with iron supplementation therapy itself. The table represents that (table 7) NO with 120 patients (78.43%) where not undergone blood transfusion as the hemoglobin level came to normal with the intake of iron supplements, YES represent the patient undergone with the blood transfusion as the patients have heavy blood loss due to AUB, 33 patients (21.56).

Table 7: Determination Blood transfusion in AUB with anaemia patients

BLOOD TRANSFUSION	FREQUENCY	PERCENTAGE
YES	33	21.56%
NO	120	78.43%

Figure 7 : Distributes the patients who had blood transfusion and patients or not.

BLOOD TRANSFUSION FREQUENCY
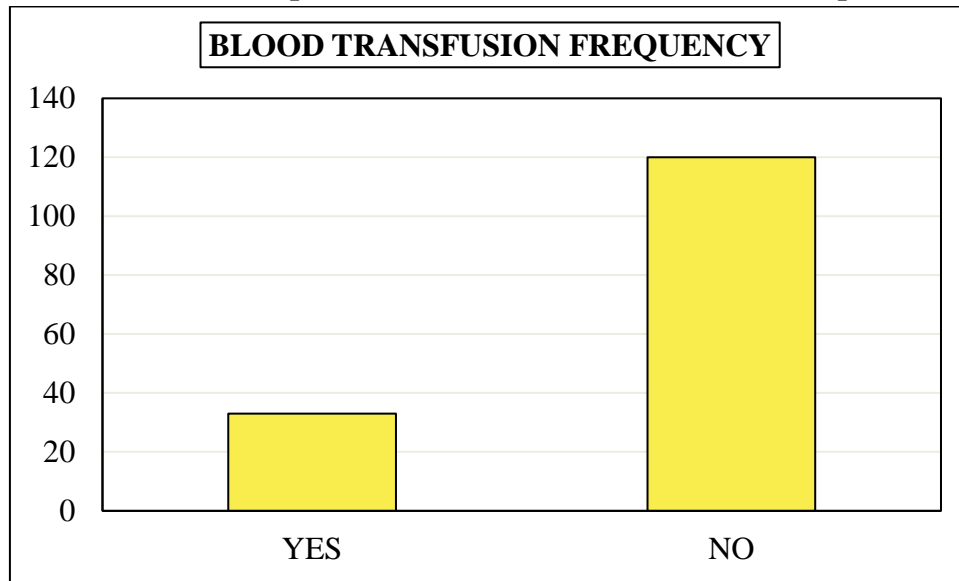
DISSCUSION

The study demonstrated a substantial prevalence of abnormal uterine bleeding across various age groups, underscoring the necessity of identifying and addressing this health concern. The significant percentage of patients in the 41-45 age range experiencing AUB

Radha Nair et al. (12) reported similar findings, finding that age groups presenting with AUB were 40–45 years (58%) and 46–49 years (24%). 13 Anupma Kumari and others According to research, the age groups of 40–45 years (65.55%) and 46–50 years (27.77%), respectively, had the highest prevalence of AUB.

During the study, the patients' flow was classified as heavy, moderate, insufficient, or nonexistent based on their symptoms and problems. We observed that there was no flow in 15 patients (9.80%), average flow in 53 patients (34.64%), and heavy flow in 73 patients (34.64%). Patients with scarce flow had the lowest incidence within the flow range.

According to the article the prevalence of anemia based on the flow ,in this article the heavy flow have been evaluated , despite the high flow more likely to been seen in women's, Bernardi LA, Ghant MS, Andrade C, Recht H, Marsh EE. The association between subjective assessment of menstrual bleeding and measures of iron deficiency anemia in premenopausal African-American women: a cross-sectional study. BMC women's health. 2016 Dec;16(1):1-7.

The high incidence of anaemia that has been found in AUB patients—60% of them had moderate anemia—highlights the detrimental effects of excessive or protracted bleeding on the hematologic condition of those affected. This organisation highlights how crucial it is to take anaemia into account when managing AUB holistically.

The iron supplementation approach used in the study to treat anaemia in AUB patients showed positive outcomes, with haemoglobin levels significantly rising in 80% of cases. This shows that iron supplementation may have a major impact in restoring blood loss in cases of anaemia in AUB patients, ultimately leading to better overall health outcomes. Haemoglobin is the primary laboratory parameter found to be efficient for determining the severity of anaemia. Hence, it was compared before and after iron supplementation to ensure the progress of the condition. The Chi square test enables us to evaluate

the difference in haemoglobin levels between the pre and post-iron supplementation treatment;s as a result, the value of 'P' was initiated less than 0.5, indicating that the assumption was correct.There was no significant blood transfusions required in majority of the sample.

As AUB patients were classified using the PALM-COEIN Adenomyosis (AUB-A) was found to be the most common group, accounting for 67% of cases. With 26% of cases, leiomyoma (AUB-L) was the second most common. This classification offers useful knowledge about the various aetiologies that contribute to AUB in the patients according to study.

Menorrhagia, which affects 49% of AUB cases, has emerged as the most common menstrual pattern. The comprehensive analysis of various menstrual abnormalities and patterns, such as polymenorrhea, oligomenorrhea, and metrorrhagia, enhances the precision of knowledge regarding AUB manifestations within people of all ages.

Early diagnosis using endometrial studies will aid in the therapy and prevention of premalignant lesions.This study's endometrial hyperplasia incidence study is smaller than other studies. Singh P. Abnormal uterine bleeding-evaluation by endometrial aspiration. Journal of mid-life health. 2018 Jan;9(1):32.

Hisa K, Haruna M, Hikita N, Sasagawa E, Yonezawa K, Suto M, Ota E. Prevalence of and factors related to anemia among Japanese adult women: Secondary data analysis using health check-up database. Scientific reports. 2019 Nov 19;9(1):17048. On the report of this they show the prevalence of anemia is more effected to reproductive aged women.

Women in the age range of 31 to 35 had the highest frequency of AUB, according to parity analysis. This finding is consistent with the concept that ongoing cyclic alterations in menstruation brought on by birthing experiences may be a factor in AUB in this group of women.

Afghan S, Yasmeen A. Abnormal uterine bleeding (AUB) a clinicopathological study of 150 cases. Ann Pak Inst Med Sci. 2013;9(4):201-4. Parity was was seen mostly in age of 41 and above.

The study investigated whether blood transfusions are necessary for people with AUB. Unexpectedly, most of them (78.43%) did not need blood transfusions, indicating that iron supplementation was crucial in stopping the blood loss. Still, blood transfusions were necessary for 21.56% of patients who had suffered considerable blood loss, indicating the range of severity within the AUB patient.

CONCLUSION

Descriptive observational Study on abnormal uterine bleeding (AUB) helps understand its patterns, severity, and methods of treatment. patients with major AUB has a high occurrence in the 41–45 age group. The effectiveness of iron supplements in treating anaemia, the knowledge gained from the PALM-COEIN classification, and a thorough study of menstrual patterns all help to improve the diagnostic and treatment strategies for AUB. The results show the need for individualized strategies that take severity, age, treatment and parity into account in order to maximize results and improve women's general health.

ACKNOWLEDGEMENTS

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