

## Visits to Emergency Departments for Gynecologic Disorders in KSA

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### ABSTRACT

**Background:** Abnormal uterine bleeding (AUB) influences 20–30% of women sooner or later in their regenerative years and regularly cause women to look for urgent or emergent care.

**Purpose:** To describe the population of women seeking urgent medical attention for abnormal uterine bleeding (AUB), in terms of symptoms, medical history, and clinical examination findings; and to determine characteristics associated with anaemia in this population.

**Materials and Methods:** We implemented a retrospective cohort study of patients comprehended in King Abdulaziz Hospital Emergency Room for abnormal uterine bleeding from November 2016 to May 2017 (n=126). Data collected included demographic factors, laboratory and radiologic findings, clinical history, and physical examination findings. We calculated pervasiveness ratios for moderate to severe anaemia (defined as haemoglobin less than 10 g/dL) and sensitivity and specificity of clinical characteristics for recognizing women with anaemia.

**Results:** The median age of patients was 33 years (range 14–68 years). Nearly half (47.6%) had a concurrent medical condition which could affect their treatment options and 15 had moderate to severe anaemia. The only factors related with moderate to severe anaemia were having both tachycardia and hypotension; duration of bleeding more than 7 days; and haemoglobin of less than 10 g/dL in the previous year.

**Conclusions:** A substantial proportion of patients looking for urgent medical care for abnormal uterine bleeding had potential contraindications for the mainstays of treatment. Clinical symptoms and bleeding history were poorly predictive for moderate to severe anaemia in this population of women.

**Keywords:** Anaemia, Abnormal Uterine Bleeding, Emergency Facility, Acute Uterine Bleeding.

### INTRODUCTION

Abnormal uterine bleeding (AUB) influences 20–30% of women sooner or later in their regenerative years and regularly cause women to look for urgent or emergent care<sup>[1–4]</sup>. Dysfunctional uterine bleeding can have a substantial financial and quality-of-life burden<sup>[5]</sup>. Some women looking for emergent care will have acute uterine bleeding; bleeding that requires prompt treatment to diminish the danger of anaemia that might require blood transfusion or surgical intervention<sup>[6, 7]</sup>.

In the clinical setting, seriousness of bleeding, nonappearance or presence of anaemia, patient inclinations, and contraindications to therapeutic choices normally dictate administration. Hormonal treatments used for women with acute uterine bleeding incorporate progesterone, estrogen, and estrogen and progesterone combinations (in the form of oral contraceptive pills). Despite the fact that these treatments are normally utilized as a part of clinical practice, little research has been

made to assess and compare the efficacy, side effects and

safety of these treatments. Safety of treatment is exceptionally reliant on patients' medical history; while treating patients with AUB, clinicians should ponder co-morbid medical conditions, for example, cigarette smoking, cardiovascular disease, cancer history, and thromboembolic disease as these conditions could be contraindications to few of the medical treatments<sup>[8, 9]</sup>.

The nonappearance or presence of significant anaemia in women with AUB is a vital criterion to support determines the urgency of the condition and the suitable treatment. In the emergency room setting, laboratory services for instant haemoglobin valuation are readily accessible. Nevertheless, not all patients with acute uterine bleeding present to emergency administrations. When administering for these patients in the emergency departments setting, either face to face or via phone, clinicians are presented with the difficult choice of who to

treat in the office and who to send to the emergency room for quick assessment and conceivable intervention<sup>[10]</sup>.

Regardless of the pervasiveness of AUB, little research has been performed on ladies looking for assessment for AUB in an emergency department. Portraying this essential populace of patients, in terms of bleeding symptoms, other complicating therapeutic conditions, and indicators of anaemia can advise the improvement of clinical care rules and help clinicians in adequately triaging, assessing, and treating ladies giving a main complaint of AUB. The principal point of this investigation was to better comprehend the number of inhabitants in women looking for emergency consideration for their AUB, regarding side effects, medicinal history, and clinical examination discoveries. The second point of this examination was to decide qualities related to anaemia in this populace of women looking for emergent assessment and treatment of abnormal uterine bleeding.

## MATERIALS AND METHODS

We performed a retrospective cohort study of non-pregnant patients seen in King Abdulaziz Hospital Emergency Room (ER) seeking treatment for abnormal uterine bleeding from November 2016 to May 2017. A computerized list of patients who presented to the ER from November 2016 to May 2017 was generated. A total of 378 records patients with AUB were identified using nine different ICD-9 codes for AUB in the overall analyses.

Data abstraction for this study included age, race, gynecologic provider, previous therapies for AUB in the 3 months prior to the index presentation, medical history, current symptoms, physical examination findings, and laboratory findings (including hemoglobin concentration). Data were verified for accuracy by the data management team. We defined anaemia as a hemoglobin concentration less than 12 g/dL. We further divided anaemia into categories of moderate to severe (hemoglobin < 10.0 g/dL) and mild (hemoglobin 10.0–11.9 g/dL). We compared the proportion of women with and without anaemia in terms of demographic characteristics, past medical history, self-reported bleeding symptoms at the time of presentation, and clinical exam findings at the time of presentation. Categorical variables were compared using Fisher's exact test and medians were compared using Wilcoxon's rank sum test.

Prevalence ratios (relative risks [RRs]) for moderate to severe anaemia (hemoglobin <10 g/dL) and 95% confidence intervals (CIs) were calculated using Poisson regression with robust variance estimation<sup>[11]</sup>. Data were analysed using STATA 9.0. We then calculated the sensitivity and specificity of presenting symptoms and past medical history for identifying women with severe anaemia, along with exact binomial 95% CIs. Sensitivity analyses were performed to evaluate for work-up bias. Not every patient presenting to the ER for abnormal uterine bleeding receives an assessment of hemoglobin. 10 women (10/126 = 7.9%) did not have a hemoglobin concentration recorded. Staff choose which tests to obtain was based upon the patients' clinical presentation. For these analyses, we first assumed that all patients with missing hemoglobin concentration had moderate to severe anaemia and then recalculated assuming that all patients with missing hemoglobin concentration did not have moderate to severe anaemia. These data from the sensitivity analyses are presented in the results section. To assess association amid characteristics of medical history and clinical exam findings, we hypothesized that, compared to women who did not report passing blood clots, women who reported passing blood clots would be more likely to have severe anaemia. Previous studies have shown that 20–43% of women with heavy menstrual bleeding have anaemia (hemoglobin <12 g/dL)<sup>[12, 13]</sup>.

**The study was done according to the ethical board of Umm Al Qura university.**

## RESULTS

Between August 2005 and February 2006, 137 women sought urgent care at the ER for AUB. After exclusion and inclusion criteria were applied, 126 records remained in the overall analyses (Table 1). The median age of patients was 33 years (range 14–68 years). Almost half (47.6%) of women had a concurrent medical condition which could affect their treatment options. Specifically we found that 17.5% had cardiovascular disease, making it likely that the medical options encompassing estrogen might be contraindicated for a substantial proportion of women needing treatment. 52% had been on previous therapy for AUB and 23.8% of the patients had documentation of receiving outpatient care for their bleeding within the previous 3 months. Of the 45 (35.7%) who had a haemoglobin recorded

in the previous year, 12 had a hemoglobin of <10g/dL.

**Table 1:** Characteristics of the population of women with AUB

Characteristics	N	(%)
Median age [Range]	33 [14–68]	
Median gravidity [Range]	2 [0–13]	
Median parity [Range]	1 [0–8]	
Previous therapy for AUB		
Blood transfusion	2	1.6%
Iron	7	5.6%
NSAIDS	5	4.0%
Hormonal medications	31	24.6%
Surgery	10	7.9%
Others	4	3.2%
Not specified	7	5.6%
Received outpatient care for AUB in past 3 months		
	30	23.8%
Cumulative number of days patient has had heavy or irregular menstrual bleeding		
	7	
<b>Concurrent or Previous Medical Conditions</b>		
Any condition	60	47.6%
Breast, endometrial, ovarian cancer	5	4.0%
Cardiovascular disease	22	17.5%
Depression	20	15.9%
Diabetes	5	4.0%
Gastrointestinal diseases	13	10.3%
Migraine headaches	5	4.0%
Seizure disorder	3	2.4%
Thromboembolic disease	4	3.2%
Not specified	4	3.2%
Any haemoglobin in previous year <10 g/dle		
	12	9.5%

In this population of women with AUB, 117 (92.9%) had a hemoglobin concentration recorded (Table 2). 49 were anaemic with a haemoglobin of <12g/dL and 15 had moderate to severe anaemia with a hemoglobin of <10 g/dL.

Women with moderate to severe anaemia were more likely to be older, have cardiovascular disease or diabetes, have a hemoglobin <10 g/dL in the previous year, and have a longer bleeding episode than women with mild anaemia and no anaemia.

**Table 2:** Haemoglobin concentration, divided into moderate to severe anaemia, mild anaemia, and no anaemia

Characteristic	Hemoglobin (g/dL)			p-value
	<10.0	10.0–11.9	12.0+	
<b>Total population</b>	15	24	76	-
<b>Median Age [IQR]</b>	40	35	28	0.0002
<b>Received outpatient care for AUB in past 3 months</b>				
<b>No</b>	10	18	56	0.1
<b>Yes</b>	6	6	17	
<b>Cumulative number of days of bleeding, Median</b>	19	16	7	0.006
<b>Any medical condition</b>				
<b>No</b>	4	12	41	<0.0001
<b>Yes</b>	12	12	20	
<b>Any hemoglobin in previous year &lt;10 g/dlc</b>				
<b>No</b>	2	8	23	<0.0001
<b>Yes</b>	5	4	3	
<b>Duration of bleeding episode</b>				
<b>5</b>	5	8	38	0.008
<b>7+ days</b>	10	16	38	
<b>Bleeding symptoms reported</b>				
<b>Neither irregular or heavy</b>	3 (17.7)	5 (29.4)	9 (52.9)	0.1
<b>Irregular bleeding only</b>	5 (7.6)	10 (15.2)	51 (77.3)	
<b>Heavy bleeding only</b>	7 (17.1)	5 (12.2)	29 (70.7)	
<b>Both heavy &amp; irregular bleeding</b>	33 (14.6)	54 (23.9)	139 (61.5)	

**Table 3:** Pervasiveness of moderate to severe anaemia

Characteristic	Relative Risk (95% CI)
Cumulative number of weeks of bleeding	1.03 (1.00–1.06)
Duration of bleeding episode	
7+ days	1.69 (0.94–3.01)
Bleeding symptoms reported	
Irregular bleeding only	0.45 (0.12–1.64)
Heavy bleeding only	0.94 (0.27–3.29)
Both heavy & irregular bleeding	0.80 (0.25–2.39)
Passing clots or flooding	0.9 (0.5–1.59)
Amount of bleeding on exam	
Moderate	1.71 (0.81–3.5)
Heavy	1.89 (0.32–10.74)
Present, NOS	1.35 (0.59–3.04)
No speculum exam	0.22 (0.03–1.59)

The sensitivity and specificity of symptoms and past medical history for the detection of moderate to severe anaemia are presented in Table 4.

**Table 4:** Sensitivity and specificity of clinical history and physical examination findings for the detection of moderate to severe anaemia

	Sensitivity	(95% CI)	Specificity	(95% CI)
Any Concurrent or Previous Medical Condition	76.7	(62.3–87.6)	53.8	(48.0–59.6)
Any hemoglobin of < 10 g/dl in previous year	67.9	(44.8–85.8)	81.1	(72.7–87.8)
Received outpatient care for AUB past 3 months	36.1	(22.4–51.5)	74.4	(69.1–79.1)
Current bleeding episode of 7+ days	67	(51.8–79.8)	45.7	(40.9–51.6)
Passing clots or flooding	51	(36.1–65.6)	46.6	(40.8–52.4)
Amount of bleeding recorded on exam				
Any amount	94.7	(85.2–98.3)	12.2	(9.2–17.5)
Moderate or heavy	18.5	(9.2–32.7)	88.7	(85.9–93.1)
Heavy	2	(0.5–11.1)	97	(97.2–99.1)

The sensitivity and specificity of symptoms and past medical history for the detection of moderate to severe anaemia are presented in Table IV. Although only 38% of patients had a hemoglobin evaluation in the year prior to presentation to the ED for AUB, having a hemoglobin <10 g/dL in the previous year had fair sensitivity (67%) and specificity (80%) for severe anaemia.

Although the symptom of heavy bleeding had fair sensitivity (82%) for moderate to severe anaemia, it had very low specificity (25%).

As the spectrum of symptoms increased, sensitivity decreased and specificity increased. Two of the clinical findings had good specificity for moderate to severe anaemia, despite poor sensitivity. Among women without moderate to severe anaemia, 98% also did not have both hypotension and tachycardia, and 99% did not have bleeding categorized as “heavy” on the physical examination.

## DISCUSSION

Gynaecologists and emergency room physicians frequently deliver medical care to women asking for urgent evaluation and treatment of their AUB [1, 2]. Studies concerning women presenting for urgent care for heavy menstrual bleeding are limited. Our

study to expansively describe this patient population in terms of medical history, examination findings, and probability of anaemia was intended as a first step to planning research and clinical care guidelines for acute uterine bleeding. We found that 47.6% of women had a concurrent medical condition and 52% had been on previous therapy for AUB, which both can affect treatment options for acute uterine bleeding. 49 were anaemic and 15 were moderately to severely anaemic with a haemoglobin of <10 g/dL. However, clinical symptoms and findings when examined all had suboptimal sensitivity and specificity for diagnosing moderate to severe anaemia.

The objective of treatment of AUB is to diminish bleeding to enhance personal satisfaction and abatement the danger of either intensifying effectively present iron deficiency or growing clinically significant anaemia. Both AUB and anaemia are extremely common conditions influencing up to 30% and 5% of ladies, separately, amid their conceptive years [14, 15].

In our survey, we discovered a case that provides details regarding AUB and iron deficiency in a pressing consideration setting. In our examination populace, half of the ladies displayed for treatment of draining could have a contraindication to generally prescribed

medications. In terms of anaemia, we found that 39 of women presented for urgent evaluation of uterine bleeding were anaemic and nearly 15 were moderately to severely anaemic.

Conversely, clinical symptoms and bleeding history were ineffectively prescient for moderate to severe anaemia in this populace of women looking for care in an emergency department for AUB. Of course, a history of past treatment of AUB with iron, transfusion, or hormonal treatment or a haemoglobin <10 g/dL in the past year were all allied with increased risk of severe anaemia. Though, this study presented that no one presenting symptom is sufficient to rule in or out moderate to severe anaemia. However, two clinical exam findings, amount of bleeding noted on examination and the presence of both tachycardia and hypotension, had rational specificity for prevention of moderate to severe anaemia. Even though documented severe anaemia in the past year was allied with severe anaemia on presentation to the ER, a large amount of this patient population did not have a haemoglobin test in the previous year which might limit the utility of this factor in determining which patients have severe anaemia on presentation to the ER. Physicians still should utilize their clinical decision in defining which patients need an expeditious assessment of hemoglobin and because of the poor sensitivities for all presenting symptoms and clinical signs a low verge ought to be preserved for performing a hemoglobin concentration.

Passing blood clots throughout menstrual bleeding is a very worrying symptom for patients with AUB [16, 17]. Evaluating the passage of blood clots and staining of clothes is serious to assessing the quality of life of these patients [18, 19]. Physiologically, it would make sense that passing blood clots and a longer duration of bleeding episode would be linked with moderate to severe anaemia. We found that women who reported passage of blood clots were no more likely to have moderate to severe anaemia than women who did not report passage of blood clots. Though, longer period of the bleeding episode (7 or more days) looked to be connected with moderate to severe anaemia, which was confirmed with our sensitivity analyses. Future prospective studies investigating the association between clinical

symptoms, for example, period of the bleeding episode, and anaemia could further evaluate symptoms for their clinical usefulness in screening women with AUB for coexisting anaemia.

## CONCLUSION

Patients passing blood clots were no more likely to have moderate to severe anaemia than women who were not passing blood clots. However, those women with both hypotension and tachycardia and women with more than one week of bleeding were at higher risk for moderate to severe anaemia. In the absence of these clinical findings, health care providers must use their clinical judgment in deciding when to assess for anaemia and how immediately to treat women with heavy menstrual bleeding. This is particularly important outside of the urgent care setting when immediate laboratory resources may not be available and patient scheduling may be challenging.

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