

Heavy Menstrual Bleeding (Kasrat-e-Tams) and Its Association with Hemoglobin and Serum Ferritin: An Integrative Review

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Abstract—Heavy menstrual bleeding (HMB) represents one of the most common gynecological complaints among women of reproductive age and constitutes a major contributor to iron deficiency and iron deficiency anemia worldwide. Modern clinical research has consistently demonstrated a strong association between excessive menstrual blood loss, reduced hemoglobin concentration, and depletion of iron stores as reflected by serum ferritin levels. Parallel to contemporary biomedical understanding, Unani medicine describes excessive menstrual bleeding under the entities of Kasrat-e-Tams or Kathrat-e-Hayd and attributes its pathogenesis to humoral imbalance, altered uterine temperament, and weakness of uterine vasculature. Classical Unani physicians also recognized the systemic consequences of prolonged menstrual blood loss, including generalized weakness and conditions resembling anemia. This narrative review aims to integrate modern evidence on the relationship between HMB, hemoglobin, and ferritin with classical Unani concepts, highlighting points of convergence and the potential role of an integrative approach in clinical practice.

Index Terms—Heavy menstrual bleeding; Iron deficiency anemia; Serum ferritin; Hemoglobin; Kasrat-e-Tams; Unani medicine.

I. INTRODUCTION

Heavy menstrual bleeding (HMB) is a chronic gynecological condition characterized by excessive

menstrual blood loss that negatively affects a woman's physical health, emotional well-being, social functioning, and quality of life. The National Institute for Health and Care Excellence (NICE) defines HMB as excessive menstrual bleeding that interferes with quality of life, irrespective of the measured volume of blood loss [1]. This definition acknowledges the subjective burden of the condition and reflects a shift away from strict volumetric criteria.

Epidemiological studies indicate that HMB affects approximately 20–30% of women during their reproductive years, making it one of the leading reasons for gynecological consultations [2], [3]. One of the most clinically significant consequences of HMB is chronic iron loss, which may progress from iron depletion to iron deficiency and eventually iron deficiency anemia (IDA) [4]–[6]. Despite its high prevalence, iron deficiency related to HMB often remains underdiagnosed and undertreated.

Long before the advent of hematological investigations, classical Unani physicians described excessive menstrual bleeding as a pathological entity associated with systemic weakness and loss of vitality [7]–[9]. Their observations underscore the long-standing recognition of the link between excessive menstrual blood loss and deterioration of general health. This review explores the correlation between HMB, hemoglobin, and ferritin from a modern

scientific perspective and integrates it with Unani medical concepts.

II. HEAVY MENSTRUAL BLEEDING AND IRON METABOLISM: MODERN VIEW

Under physiological conditions, menstruation results in a blood loss of approximately 30–40 mL per cycle, corresponding to an iron loss of around 10–15 mg [10]. This loss is typically compensated by dietary iron absorption. However, in women with HMB, menstrual blood loss may exceed 80 mL per cycle, leading to iron loss that surpasses the body's compensatory capacity [10].

Hemoglobin concentration reflects the oxygen-carrying capacity of blood, while serum ferritin serves as the most reliable indicator of body iron stores. Ferritin levels decline early in iron deficiency, often before hemoglobin levels fall below the diagnostic threshold for anemia [11]. This makes ferritin a critical biomarker in women with HMB, many of whom may present with iron deficiency without overt anemia.

Numerous observational studies have demonstrated significantly lower hemoglobin and ferritin levels in women with HMB compared to those with normal menstrual patterns [12]–[14]. Warner et al. reported that women with objectively measured menorrhagia exhibited substantially reduced iron stores, emphasizing the cumulative impact of menstrual blood loss [13]. Similar findings have been replicated across diverse populations, reinforcing the consistency of this association [14]–[16].

III. CORRELATION BETWEEN MENSTRUAL BLOOD LOSS, HEMOGLOBIN, AND FERRITIN

Several studies have explored the quantitative relationship between menstrual blood loss and hematological parameters. Increased menstrual blood loss has been shown to correlate inversely with serum ferritin concentrations and hemoglobin levels [15], [16]. This relationship is particularly important as iron deficiency without anemia may still result in clinically significant symptoms.

Iron deficiency, even in the absence of anemia, has been associated with fatigue, reduced exercise tolerance, impaired cognitive performance, and

diminished quality of life [17], [18]. These effects are especially relevant in women with HMB, who may experience substantial morbidity despite having hemoglobin levels within the normal range [17], [18].

The recognition of iron deficiency as a continuum rather than a binary state has led to increased emphasis on early detection and intervention [11]. Modern guidelines therefore recommend evaluation of iron status, including ferritin assessment, in women presenting with HMB [1], [20].

IV. CLINICAL AND PUBLIC HEALTH IMPLICATIONS

HMB-associated iron deficiency and anemia impose a significant burden on healthcare systems and society. Women affected by HMB report reduced work productivity, increased absenteeism, and impaired social functioning [18]. From a public health perspective, the World Health Organization identifies menstrual blood loss as a major contributor to iron deficiency among women of reproductive age globally [19].

Clinical guidelines emphasize the importance of addressing both menstrual blood loss and iron deficiency simultaneously. Failure to correct iron deficiency may lead to persistent symptoms even when bleeding is controlled, underscoring the need for a comprehensive management strategy [21].

V. UNANI CONCEPT OF HEAVY MENSTRUAL BLEEDING

In Unani medicine, excessive menstrual bleeding is described under the terms *Kasrat-e-Tams* or *Kathrat-e-Hayd*. Classical Unani literature attributes this condition to abnormalities in uterine temperament (*su-e-mizaj al-rahim*), weakness of the uterine retentive faculty (*Quwwat-e-Masika*), and derangement of humors, particularly *Dam* and *Safra* [7], [8], [22].

Ibn Sina, in *Al-Qanoon fi'l-Tibb*, described excessive menstrual bleeding as a pathological state that leads to depletion of vital substances and results in symptoms such as weakness, dizziness, palpitations, and loss of stamina [7]. Jurjani and Razi similarly emphasized that prolonged menstrual blood loss could predispose

women to chronic debility and systemic disorders [8], [9].

VI. UNANI INTERPRETATION OF BLOOD LOSS AND ANEMIA-LIKE STATES

Although Unani medicine does not describe iron metabolism in biochemical terms, blood (Dam) is regarded as a vital humor essential for nourishment and vitality. Persistent loss of blood is believed to disturb humoral equilibrium and weaken bodily faculties [23]. This conceptualization closely parallels the modern understanding of chronic blood loss leading to iron deficiency and anemia.

Classical Unani physicians stressed the importance of early intervention in Kasrat-e-Tams to prevent progression to severe weakness and chronic disease [7], [24]. This preventive emphasis aligns with modern recommendations for early diagnosis and management of iron deficiency in women with HMB.

VII. UNANI THERAPEUTIC PRINCIPLES AND MODERN EVIDENCE

The Unani management of Kasrat-e-Tams is based on correcting humoral imbalance, strengthening uterine vasculature, and employing Habis (hemostatic) and Qabid (astringent) drugs [8], [25]. Several medicinal plants traditionally used in Unani practice have been evaluated in experimental and clinical studies.

Symplocos racemosa has demonstrated hemostatic and uterotonic properties and has been shown to reduce menstrual blood loss in women with menorrhagia [26]. Clinical studies of Unani compound formulations report significant improvement in bleeding patterns and overall well-being [27], [28]. Some studies have also observed improvements in hemoglobin levels following Unani treatment, suggesting a beneficial effect on secondary anemia [27], [29].

VIII. INTEGRATION OF MODERN AND UNANI PERSPECTIVES

Modern gynecology and Unani medicine approach HMB from different conceptual frameworks, yet both recognize excessive menstrual bleeding as a pathological condition with systemic consequences. Modern medicine relies on objective laboratory

markers such as hemoglobin and ferritin to assess severity and guide treatment, while Unani medicine focuses on humoral balance and restoration of uterine function.

An integrative approach that combines evidence-based hematological assessment with Unani therapeutic principles may offer a holistic strategy for managing HMB and its sequelae [30]–[32]. Such an approach may be particularly valuable in settings where traditional medicine is widely accepted and accessible.

IX. CONCLUSION

Heavy menstrual bleeding is strongly associated with depletion of hemoglobin and serum ferritin, leading to iron deficiency and anemia with significant clinical and public health implications. Classical Unani medicine provides a coherent conceptual framework for understanding excessive menstrual blood loss and its systemic effects. Integration of modern diagnostic methods with Unani therapeutic principles offers a comprehensive perspective that may enhance patient-centered care and improve outcomes.

REFERENCES

- [1] NICE, “Heavy menstrual bleeding: assessment and management (NG88),” London, 2018.
- [2] I. S. Fraser et al., “The prevalence of heavy menstrual bleeding,” *Hum. Reprod. Update*, vol. 15, no. 2, pp. 179–189, 2009.
- [3] M. Shapley et al., “Epidemiology of HMB,” *BJOG*, vol. 111, no. 12, pp. 1243–1248, 2004.
- [4] M. G. Munro et al., “The relationship between HMB and iron deficiency,” *Am. J. Obstet. Gynecol.*, vol. 229, no. 1, pp. 1–9, 2023.
- [5] C. Camaschella, “Iron deficiency,” *N. Engl. J. Med.*, vol. 372, pp. 1832–1843, 2015.
- [6] P. Peuranpää et al., “Iron deficiency in women with HMB,” *Acta Obstet. Gynecol. Scand.*, vol. 93, pp. 740–745, 2014.
- [7] Ibn Sina, *Al-Qanoon fi'l-Tibb*, vol. 3, New Delhi, 2010.
- [8] Jurjani IS, *Zakheera-e-Khwarzam Shahi*, vol. 2, New Delhi, 2010.
- [9] Razi Z, *Al-Hawi fi'l-Tibb*, Beirut, 2000.
- [10] L. Hallberg et al., “Iron loss and requirements,” *Am. J. Clin. Nutr.*, vol. 72, pp. 102–110, 2000.

- [11] G. H. Guyatt et al., "Diagnosis of iron deficiency anemia," *Am. J. Med.*, vol. 92, pp. 272–278, 1992.
- [12] P. A. Kouides et al., "Menorrhagia and anemia," *Haemophilia*, vol. 15, pp. 181–188, 2009.
- [13] P. E. Warner et al., "Menorrhagia II: blood loss and iron deficiency," *BJOG*, vol. 111, pp. 741–747, 2004.
- [14] I. S. Fraser et al., "Estimation of blood loss," *Contraception*, vol. 92, pp. 82–87, 2015.
- [15] C. M. Pirkle et al., "Menstrual blood loss and ferritin," *J. Women's Health*, vol. 23, pp. 829–836, 2014.
- [16] J. L. Beard et al., "Iron deficiency without anemia," *Am. J. Clin. Nutr.*, vol. 63, pp. 843–850, 1996.
- [17] J. C. McCann and B. N. Ames, "Iron deficiency and cognition," *Nutr. Rev.*, vol. 65, pp. 403–415, 2007.
- [18] I. Cote et al., "Impact of HMB on quality of life," *J. Obstet. Gynaecol. Can.*, vol. 24, pp. 102–112, 2002.
- [19] WHO, "Worldwide prevalence of anemia," Geneva, 2008.
- [20] ACOG Practice Bulletin No. 128, "Diagnosis of abnormal uterine bleeding," *Obstet. Gynecol.*, 2012.
- [21] A. F. Goddard et al., "Guidelines for iron deficiency anemia," *Gut*, vol. 60, pp. 1309–1316, 2011.
- [22] Azam Khan, Akseer-e-Azam, New Delhi, 2011.
- [23] Kabeeruddin M, Kulliyat-e-Qanoon, New Delhi, 2006.
- [24] Baghdadi IH, *Kitab al-Mukhtar*, Beirut, 2005.
- [25] A. H. Ansari, *Unani System of Medicine*, New Delhi, 2008.
- [26] S. A. Ganie et al., "Symplocos racemosa in menorrhagia," *J. Ethnopharmacol.*, vol. 143, pp. 602–608, 2012.
- [27] K. Rahman et al., "Clinical evaluation of Unani formulation in menorrhagia," *AYU*, vol. 37, pp. 44–49, 2016.
- [28] S. Ahmad et al., "Role of Phoenix dactylifera in anemia," *J. Herb. Med.*, vol. 14, pp. 45–50, 2018.
- [29] A. H. Lone et al., "Effect of Unani drugs on hemoglobin," *J. Res. Unani Med.*, vol. 2, pp. 1–7, 2019.
- [30] A. Sharma et al., "Integrative approaches in gynecology," *J. Altern. Complement. Med.*, vol. 23, pp. 1–8, 2017.
- [31] CCRUM, *Standard treatment guidelines for gynecological disorders*, New Delhi, 2020.
- [32] Ministry of AYUSH, *National policy on integrative healthcare*, New Delhi, 2017.