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# Role of Chronic Stress in Abnormal Uterine Bleeding Leading to Hysterectomy

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## **Dear Editor**

Abnormal uterine bleeding (AUB) is a common gynecological condition that significantly impacts women's quality of life and often necessitates surgical intervention, including hysterectomy (1). While AUB is multifactorial in origin, emerging evidence suggests that chronic stress may play a critical role in its pathogenesis and progression (2). This letter highlights the potential link between chronic stress and AUB, emphasizing the need for further research to explore this association and its implications for clinical management.

Chronic stress, characterized by prolonged activation of the hypothalamic-pituitary-adrenal (HPA) axis, has been implicated in various reproductive health disorders. Stress-induced hormonal dysregulation, particularly elevated cortisol levels, can disrupt the delicate balance of reproductive hormones, leading to menstrual irregularities and AUB (3, 4). Additionally, chronic stress is associated with systemic inflammation and immune dysregulation, which may exacerbate endometrial dysfunction and contribute to abnormal bleeding patterns (5, 6).

Several studies have explored the relationship between psychological stress and gynecological

conditions. For instance, a study by Dubol et al. (2021) found that women with high perceived stress levels were more likely to report heavy menstrual bleeding and require medical intervention (7). Similarly, a prospective cohort by Vitale et al. (2022) demonstrated that stress and anxiety were significant predictors of AUB in premenopausal women (8). These findings suggest that chronic stress may not only contribute to the onset of AUB but also increase the likelihood of severe bleeding episodes that necessitate surgical management, including hysterectomy.

Despite these insights, the mechanisms underlying the stress-AUB relationship remain poorly understood. Potential pathways include stress-induced alterations in ovarian function, endometrial receptivity, and vascular integrity (9). Furthermore, the role of stress in exacerbating comorbidities such as obesity, polycystic ovary syndrome (PCOS) (10), and endometriosis—known risk factors for AUB—warrants further investigation (11).

The clinical implications of this association are profound. If chronic stress is indeed a significant contributor to AUB, integrating stress management strategies into gynecological care could reduce the need for invasive interventions like hysterectomy.

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Cognitive-behavioral therapy (CBT), mindfulnessbased stress reduction (MBSR), and other psychosocial interventions have shown promise in improving menstrual health and reducing stressrelated symptoms (12, 13). However, more robust clinical trials are needed to evaluate their efficacy in preventing or managing AUB.

According to the latest recommendations, it is generally advisable to pursue medical treatment as the first line of therapy before considering surgical intervention. The primary objective of any treatment approach is to alleviate symptoms while carefully balancing the risks and benefits of the available options (14). Therefore, prioritizing lower-risk treatment options during preoperative decision-making could facilitate shared the identification of the most appropriate and personalized treatment strategies for premenopausal women with AUB (8).

In conclusion, the potential link between chronic stress and AUB leading to hysterectomy is an area of growing interest that warrants further exploration. Understanding the biological and psychological mechanisms underlying this relationship could pave the way for innovative, non-invasive treatment strategies. We urge researchers and clinicians to prioritize this topic in future studies, as it holds significant promise for improving women's health outcomes and reducing the burden of surgical interventions.

#### **Conflict of Interest**

The authors declare that there is no conflict of interest.

### References

- 1. Leal CRV, Vannuccini S, Jain V, Dolmans MM, Sardo ADS, Al-Hendy A, et al. Abnormal uterine bleeding: the well-known and the hidden face. J Endometr Uterine Disord. 2024;6:100071.
- Sharma S, Chawla S, Kumar P, Ahmad R, Verma PK. The chronic unpredictable mild stress (CUMS) paradigm: bridging the gap in depression research from bench to bedside. Brain Res. 2024; 1843:149123.
- Mbiydzenyuy NE, Qulu LA. Stress, hypothalamicpituitary-adrenal axis, hypothalamic-pituitarygonadal axis, and aggression. Metabolic brain disease.

Metab Brain Dis. 2024;39(8):1613-1636.

- 4. Banerjee D, Mukherjee J, Das PK, Ghosh PR, Das K. Impact of chronic stress on reproductive functions in animals. Indian J Anim Health. 2024;63(2):94-101.
- 5. Cuffaro F, Russo E, Amedei A. Endometriosis, pain, and related psychological disorders: unveiling the interplay among the microbiome, inflammation, and oxidative stress as a common thread. Int J Mol Sci. 2024;25(12):6473.
- 6. Mokhtari T, Irandoost E, Sheikhbahaei F. Stress, pain, anxiety, and depression in endometriosis-targeting glial activation and inflammation. Int Immunopharmacol. 2024;132:111942.
- 7. Dubol M, Epperson CN, Sacher J, Pletzer B, Derntl B, Lanzenberger R, et al. Neuroimaging the menstrual cycle: a multimodal systematic review. Front Neuroendocrinol. 2021;60:100878.
- 8. Vitale SG, Watrowski R, Barra F, D'Alterio MN, Carugno J, Sathyapalan T, et al. Abnormal uterine bleeding in perimenopausal women: the role of hysteroscopy and its impact on quality of life and sexuality. Diagnostics. 2022;12(5):1176.
- 9. Immediata V, Ronchetti C, Spadaro D, Cirillo F, Levi-Setti PE. Oxidative stress and human ovarian response—from somatic ovarian cells to oocytes damage: a clinical comprehensive narrative review. Antioxidants. 2022;11(7):1335.
- 10. Mukherjee P, Sanyal S, Chadha S, Mukherjee S. The impact of polycystic ovary syndrome (PCOS) on the risk of developing ovarian cancer and thyroid disorders: a comprehensive review. Endocr Metab Immune Disord Drug Targets. 2024;24(5):562-572.
- 11. Sinclair P. Modelling the impact of high fat diet feeding and intentional weight loss on type 1 endometrial cancer in the BDII/Han rat. Univ College Dublin. Sch Med. 2021.
- 12. Shchaslyvyi AY, Antonenko SV, Telegeev GD. Comprehensive review of chronic stress pathways and the efficacy of behavioral stress reduction programs (BSRPs) in managing diseases. Int J Environ Res Public Health. 2024;21(8):1077.
- 13. Carmona NE, Millett GE, Green SM, Carney CE. Cognitive-behavioral, behavioural and mindfulnessbased therapies for insomnia in menopause. Behav Sleep Med. 2023;21(4):488-499.
- 14. Vitale SG, Caruso S, Carugno J, Ciebiera M, Barra F, Ferrero S, et al. Quality of life and sexuality of postmenopausal women with intrauterine pathologies: a recommended three-step multidisciplinary approach focusing on the role of hysteroscopy. Minim Invasive Ther Allied Technol. 2021;30(5):317-325.