



Management Options of Abnormal Uterine Bleeding in Chronic Kidney Disease: A Brief Review

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ABSTRACT

The global prevalence of Chronic Kidney Disease (CKD) is increasing, with a slight female predominance. Hormonal changes associated with CKD facilitate the development of Abnormal Uterine Bleeding (AUB) in these patients. CKD is linked to menstrual irregularities, leading to complications such as severe anemia and the need for multiple blood transfusions. These conditions significantly affect the quality of life for patients with CKD. Selecting appropriate management options for AUB in CKD patients is highly challenging. Although there are both medical and surgical options for managing AUB, medical management often becomes erratic due to worsening kidney function and the clearance of administered drugs. The management of AUB in CKD is sparsely discussed in the literature. This paper discusses the pros and cons of various treatment plans to aid in appropriate selection.

Keywords: Chronic kidney disease; Female; Anemia; Quality of life

INTRODUCTION

Chronic Kidney Disease (CKD) is an emerging global concern. Kidney disease causes hormonal dysfunction, leading to abnormal hypothalamic-pituitary-ovarian function, reduced clearance of prolactin, inhibition of pulsatile secretion of Gonadotropin Releasing Hormone (GnRH), and inhibition of Luteinizing Hormone (LH) and Follicle-stimulating Hormone (FSH) surges [1]. CKD is associated with various menstrual irregularities, ranging from amenorrhea to heavy menstrual bleeding [2,3]. A prospective cohort study showed that over 50% of adolescent girls with stage 4 CKD and kidney failure treated with dialysis reported abnormal uterine bleeding [4]. AUB, especially heavy menstrual bleeding, is a significant concern in the CKD population, as potential implications include worsening anemia and increased need for erythropoietin-stimulating agents and blood transfusions [5]. Managing AUB in these patients presents a challenge that differs from the general population.

We searched electronic databases such as Web of Science, PubMed, Cochrane Library, and Google Scholar using the keywords "AUB" and "CKD." Relevant articles were then gathered for review.

DISCUSSION

Causes of AUB in CKD Patients

Various factors contribute to the presentation of AUB in CKD patients, including reduced renal clearance of prolactin, decreased sensitivity to dopaminergic activity, and inhibition of LH and FSH surges [1]. High-dose corticosteroid-induced immunosuppression also affects the hypothalamic-pituitary-ovarian axis. A prospective study of 57 female adolescents with stage 4 CKD and kidney failure treated with hemodialysis and peritoneal dialysis found that 49% had hyperprolactinemia [4]. Impaired pulsatile release of GnRH results in a lack of FSH and LH cyclicity [6].

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Medical Methods

Nonsteroidal Anti-inflammatory Drugs (NSAIDs): They reduce Heavy Menstrual Bleeding (HMB) compared to placebo but are less effective than tranexamic acid, danazol, or the levonorgestrel intrauterine system (LNG-IUS) [7]. It is contraindicated in CKD patients due to the risk of nephrotoxicity. Tranexamic acid, an anti-fibrinolytic agent used to treat AUB, requires dosage adjustment in CKD patients to avoid complications such as neurotoxicity and rare thrombotic events [8,9].

Conjugated estrogens: Conjugated estrogens have shown safety in improving bleeding time in CKD patients with acute heavy bleeding caused by endometrial atrophy or uremia. The dose needed to produce these effects is 0.6 mg/kg intravenously over 30 min-40 min once daily for 5 consecutive days. The time to onset of action is about 6 hours, maximum effect is evident at 5 days-7 days with a duration of approximately 14-21 days [3,10].

Options for Management of Uremic Bleeding

Desmopressin: Doses for uremic bleeding ranges from 0.3 µg/kg to 0.4 µg/kg intravenously or subcutaneously as a single injection. It helps in rapid control of uremic bleeding. But it acts for only 24 hours duration. The side effects are tachyphylaxis, headache, facial flushing, and rarely thrombotic events [10]. Correction of uremic bleeding is also accomplished by recombinant human erythropoietin or darbepoetin alpha, dialysis, cryoprecipitate, and tranexamic acid. Cryoprecipitate is indicated when the patient is hemodynamically stable who warrants emergency surgery and also for patients who are hemodynamically unstable who cannot tolerate excess fluid [3,10].

Levonorgestrol Intrauterine System (LNG IUS): It has shown promising results in patients with CKD in the treatment of AUB, it is a method of medical endometrial ablation. There were not many documented cases of pelvic infection in women using the device. LNG-IUS has dual use as a contraceptive and also in heavy menstrual bleeding in renal transplant recipients [11]. Study conducted by Fong et al reported a case of successful treatment of heavy menstrual bleeding caused by uterine myoma in a renal transplant recipient with the use of an LNG-IUS [12].

Minimally invasive methods: Trans Cervical Resection of Endometrium (TCRE), radio-frequency ablation, etc., have also been proven to be equally successful in CKD patients as compared to LNG IUS. Amenorrhoea has been achieved in the treated patients. Radio-frequency endometrial ablation is a safe and an effective option for the treatment of HMB in women with CRF. The average amenorrhea rate achieved was 89.7%. Only two (3.4%) patients required additional gynecologic surgery after endometrial ablation [8,13].

Endometrial ablation techniques: Hysteroscopic endometrial ablation is an effective and safe procedure in patients with CKD, In a study 54 out of 62 patients (87.0%) who had undergone hysteroscopic endometrial ablation experienced decreased bleeding, amenorrhoea in 25 (40.3%), spotting in 19 (30.6%), and eumenorrhoea in 10 (16.1%), 8 patients who had recurrent bleeding post-ablation were offered LNG IUS,

5 had a successful outcome, one had the pelvic infection for which it was removed [14]. It might be taken into consideration for patients who have no desire for future fertility; however, these patients are in high-risk groups for minimally invasive surgery. But by strengthening peri-operative management and improving surgical techniques, Laparoscopic hysterectomy can be performed successfully. In the pre-operative period, dialysis is indicated to correct acid-base imbalance, electrolyte abnormalities, volume status, optimize the blood loss and anesthesia complications followed by postoperative dialysis at 48 hours [15]. End Stage Renal Disease (ESRD) patients experience higher postoperative mortality, complication rates, longer length of stay, and higher costs following hysterectomy when compared to non-ESRD counterparts. Interventions targeting better control of postoperative wounds and infectious complications may allow for improvement in outcomes of kidney transplant candidates following hysterectomy [16].

CONCLUSION

While there are various options for managing AUB in CKD patients, the precise treatment choice varies from patient to patient. Hysterectomy is recommended for those who do not wish to retain fertility, whereas LNG-IUS and endometrial ablation techniques are effective for those who do. Further detailed studies are needed to compare the effectiveness of LNG-IUS versus endometrial ablation in these patients.

ETHICAL APPROVAL

This study does not require approval of the Institutional Review Board because no patient data is contained in this article. The study was performed in accordance with the principles of the Declaration of Helsinki.

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CONFLICT OF INTEREST

Authors declare no conflict of interest.

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