

THE ROLE OF HORMONAL THERAPY IN THE MANAGEMENT OF ADENOMYOSIS

Ibragimova Nodira Shovkatovna

Assistant

Urgench State Medical Institute, Uzbekistan

Abstract: Adenomyosis is a common estrogen-dependent gynecological disorder characterized by the presence of endometrial glands and stroma within the myometrium. The disease is frequently associated with heavy menstrual bleeding, dysmenorrhea, chronic pelvic pain, infertility, and impaired quality of life. Hormonal therapy has become the cornerstone of conservative management due to its ability to suppress estrogen-dependent proliferation and reduce inflammatory activity within adenomyotic lesions. This review analyzes the role of hormonal therapy in the treatment of adenomyosis, focusing on its mechanisms of action, clinical efficacy, and therapeutic benefits. Current evidence indicates that levonorgestrel-releasing intrauterine systems (LNG-IUS), progestins such as dienogest, gonadotropin-releasing hormone (GnRH) agonists, and combined oral contraceptives effectively control symptoms, reduce uterine volume, and preserve reproductive function. Individualized treatment strategies based on patient age, symptom severity, reproductive goals, and disease extent are essential for achieving optimal outcomes.

Keywords: adenomyosis, hormonal therapy, LNG-IUS, dienogest, GnRH agonists, dysmenorrhea, menorrhagia, infertility, reproductive health, gynecology.

Introduction: Adenomyosis is a chronic benign gynecological condition characterized by the invasion of endometrial glands and stroma into the uterine myometrium. The condition predominantly affects women of reproductive and perimenopausal age and is increasingly recognized due to advances in diagnostic imaging techniques, particularly transvaginal ultrasonography and magnetic resonance imaging (MRI).

The clinical manifestations of adenomyosis include heavy menstrual bleeding, severe dysmenorrhea, chronic pelvic pain, dyspareunia, and infertility. These symptoms significantly impair physical, emotional, and social well-being. Historically, hysterectomy was considered the definitive treatment; however, increasing demand for fertility preservation and uterine conservation has shifted therapeutic strategies toward conservative medical management.

Recent international clinical guidelines, including Guideline No. 437: Diagnosis and Management of Adenomyosis (2023), recommend hormonal therapy as the first-line treatment for symptomatic patients. Hormonal agents reduce estrogen stimulation, suppress lesion growth, and improve symptom control while preserving reproductive potential.

Role of Hormonal Therapy in Adenomyosis Levonorgestrel-Releasing Intrauterine System

The levonorgestrel-releasing intrauterine system (LNG-IUS) is among the most effective conservative treatment options for adenomyosis. By continuously releasing levonorgestrel within the uterine cavity, LNG-IUS suppresses endometrial proliferation, decreases menstrual blood loss, and alleviates pain.

Clinical studies have demonstrated significant reductions in menorrhagia and dysmenorrhea following LNG-IUS insertion. Furthermore, long-term use contributes to improved hemoglobin levels in patients suffering from chronic anemia secondary to excessive menstrual bleeding. Due to its favorable safety profile and sustained therapeutic effect, LNG-IUS is widely recommended as a first-line treatment for women seeking uterine preservation.

Progestins and Dienogest: Progestins represent another important therapeutic option in adenomyosis management. Among these agents, dienogest has shown considerable effectiveness in reducing pain and suppressing adenomyotic activity. Dienogest exerts its effects through antiproliferative, anti-inflammatory, and antiangiogenic mechanisms. By enhancing progesterone-mediated responses within ectopic endometrial tissue, it reduces lesion progression and improves symptom control. Clinical observations indicate that prolonged treatment with dienogest decreases dysmenorrhea severity, reduces myometrial thickening, and may improve reproductive outcomes in women experiencing infertility associated with adenomyosis.

Gonadotropin-Releasing Hormone Agonists: GnRH agonists are particularly valuable in patients with severe symptoms, enlarged uterine volume, or infertility requiring assisted reproductive technologies. These agents initially stimulate and subsequently suppress pituitary gonadotropin secretion, resulting in profound hypoestrogenism. Reduced estrogen levels lead to regression of adenomyotic lesions, decreased angiogenesis, and suppression of inflammatory pathways.

Several studies have reported reductions in uterine volume ranging from 30% to 60% following GnRH agonist therapy. Significant improvements in pain symptoms and menstrual bleeding have also been documented. Nevertheless, prolonged treatment may be limited by adverse effects such as bone mineral density loss, hot flashes, mood disturbances, and other menopausal symptoms.

Combined Oral Contraceptives: Combined oral contraceptives (COCs) are frequently used for long-term symptom management, particularly among younger women who do not currently desire pregnancy.

By suppressing ovulation and stabilizing hormonal fluctuations, COCs reduce menstrual bleeding, alleviate dysmenorrhea, and improve overall quality of life. Although they may not significantly reduce lesion size, they remain a practical and effective option for symptom control.

Clinical Implications: The management of adenomyosis should be individualized according to patient characteristics and treatment goals. Factors including age, reproductive plans, uterine size, symptom severity, and coexisting infertility should guide therapeutic decision-making.

In women seeking fertility preservation, hormonal therapy can serve as a bridge to conception or assisted reproductive technologies. Pretreatment with GnRH agonists for three to six months before in vitro fertilization (IVF) has been associated with improved implantation and pregnancy outcomes. Similarly, LNG-IUS and dienogest offer effective symptom relief while maintaining reproductive potential. The integration of hormonal therapies into comprehensive treatment protocols has significantly reduced the need for hysterectomy and enhanced long-term patient outcomes.

Conclusion: Adenomyosis is a prevalent estrogen-dependent gynecological disorder that substantially affects women's reproductive health and quality of life. Hormonal therapy has emerged as the cornerstone of conservative treatment by targeting the underlying pathophysiological mechanisms of the disease.

Current evidence supports the use of LNG-IUS, dienogest, GnRH agonists, and combined oral contraceptives as effective therapeutic options for controlling symptoms, reducing uterine enlargement, and preserving fertility. Individualized treatment approaches based on patient-specific factors remain essential for optimizing

clinical outcomes. Continued research is necessary to further refine therapeutic strategies and improve long-term management of adenomyosis.

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