



## Hormonal Therapy and Endometrial Cancer: Latest Advancements

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Endometrial cancer ranks as the sixth most common malignancy among women worldwide and fourth most common cancer of female reproductive system, with an incidence rate that has increased by 132% over the last 30 years [1]. It is uterine cancer which develops in inner lining of uterus (endometrium). Common symptoms include abnormal uterine bleeding, pelvic pain, and an enlarged uterus. The factors that have increased risk of getting endometrial cancer are obesity, diabetes, hypertension, menopause age, infertility, hormonal imbalance and polycystic ovary syndrome (PCOS). According to a report in 2023, it was projected that there would be over 66,000 new cases and more than 13,000 deaths attributed endometrial cancer in United States [2]. The high incidence and mortality rates are fueling growing concerns among women globally. The pathological mechanism involves invasion of stromal and myometrial tissues, often associated with Phosphatase and tensin homolog (PTEN) mutations, KRAS2 mutations, and microsatellite instability. Endometrial cancer has been categorized into type 1 and type 2 based on histological features.

Traditional methods for treatment of endometrial cancer (surgery, chemotherapy) are effective and essential but recent advancements in the field of endometrial oncology have raised hopes of people, particularly hormonal therapy is emerging as promising option for non-toxic treatment in type 1 (estrogen dependent) and recurrent endometrial cancer. Estrogen and progesterone work antagonistically and the endometrium, which is responsive to hormones, grows when exposed to estrogen and stops growing when exposed to progesterone during the menstrual cycle. The exposure to estrogen hormone for long time causes hormonal imbalance which increases thickness of uterus walls and provide site for cancerous cell growth. As a result, hormone therapy uses progesterone to counter the effects of estrogen and decrease tumor growth. The success of hormone therapy relies on the existence of hormone receptors such as progesterone receptors (PRs) in cancer cells. Patients with grade 1 and 2 endometrial cancer undergo standard hormonal therapy which yields high response rates such as progestin and aromatase inhibitors. Tamoxifen is considered as second line hormonal agent due to low response rate. These medications play a key role in targeting specific hormonal pathways in endometrial carcinoma treatment and management. Hormonal therapies offer a favorable safety profile to manage recurrent tumors after chemotherapy.

As the landscape of hormonal therapy for endometrial cancer evolves rapidly, the integration of traditional hormonal treatment with targeted therapies represents a significant advance. Personalized medicine—understanding the distinctive hormonal characteristics of each tumor—will shape hormonal therapy for the future. Endometrial cancer research and clinical trials hold promise for developing more effective and less invasive treatments.

### REFERENCES

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