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Perspective Open Access

Julie Willmon

Department of Medical Oncology, University of Yale University, New Haven, USA

***Corresponding author**

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Endometrial cancer, a cancer that forms in the tissue lining the uterus, is one of the most common gynecological malignancies. While surgery, radiation, and chemotherapy have traditionally been the primary treatment modalities, recent advances in cancer research have guided in a new era of treatment options. Among these breakthroughs, immunotherapy and targeted therapies have emerged as encouraging method for improving outcomes and enhancing the quality of life for endometrial cancer patients. Before examine into the field of immunotherapy and targeted therapies, it's crucial to grab the fundamentals of endometrial cancer. The endometrium, the inner lining of the uterus, undergoes cyclical changes throughout a woman's menstrual cycle. However, when cells in this tissue begin to grow uncontrollably, it can lead to the development of endometrial cancer. Historically, the treatment landscape for endometrial cancer revolved around surgery, radiation therapy, and chemotherapy. Surgery involves the removal of the uterus and surrounding tissues, often supplemented by lymph node dissection. Radiation therapy uses high-energy beams to target and destroy cancer cells, while chemotherapy makes use of drugs to kill rapidly dividing cells throughout the body. These approaches have been effective to some extent, but they also come with significant side effects and limitations. An important paradigm change in cancer treatment is immunotherapy. Instead of directly attacking cancer cells, it harnesses the power of the body's immune system to recognize and destroy cancer cells. One of the most potential immunotherapy approaches for endometrial cancer is immune checkpoint inhibitors. Immune checkpoint inhibitors are drugs that block certain proteins on the surface of immune cells or cancer cells. By inhibiting these proteins, known as checkpoints, the immune system can be "forming" to attack cancer cells more effectively. Two checkpoint proteins commonly targeted in immunotherapy are programed death-1 (PD-1) and Programmed Cell Death Ligand 1 (PD-L1). Clinical trials have shown that immunotherapy can be effective in treating a subset of endometrial cancer patients, particularly those with certain genetic mutations or Microsatellite Instability-High (MSI-H) tumors. Pembrolizumab and nivolumab are two immune checkpoint inhibitors that have received Food and Drug Administration (FDA) approval for the treatment of MSI-H endometrial cancer. In addition to immunotherapy, targeted therapies have gained traction as a personalized approach to treating endometrial cancer. Targeted therapies are designed to specifically interfere with the molecules and pathways involved in the growth and spread of cancer cells. One of the key players in endometrial inhibitors can block the effects of estrogen, which fuels the growth of hormone receptor-positive endometrial cancers. The future of endometrial cancer treatment likely lies in combining various treatment modalities. Combinations of immunoh m.AxNt l" a promising frontier in the battle against endometrial cancer. These innovative approaches offer renewed optimism for patients and highlight the potential for more effective and less toxic treatments in the future. As research progresses, the treatment landscape for endometrial cancer continues to evolve, bringing us closer to more precise, personalized, and ultimately successful interventions for this disease.