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Hypothesis / Aims of Study

The advent of aggressive treatments for gynecological cancers, such as radiotherapy and chemotherapy, while offering a lifeline for cancer survival, has introduced a spectrum of secondary challenges, particularly bladder dysfunction. This systematic review hypothesizes that the anatomical and systemic repercussions of these treatments contribute to a range of bladder complications, affecting survivors' quality of life. This study systematically reviews the nature, extent, and prevalence of bladder complications among women treated for these malignancies, underscoring the influence of treatment modalities on bladder function.

Study Design, Materials and Methods

Employing a rigorous systematic review methodology, this study canvassed several major databases including EMBASE, Scopus, PubMed/MEDLINE, CINAHL, and the Cochrane Library up to October 2023. The search was meticulously planned to capture studies that report on bladder complications among women undergoing RT, chemotherapy, or a combination of these treatments for gynecological cancers. Eligibility criteria were predefined, focusing on adult female populations diagnosed with any form of gynecological cancer and who received the specified treatments. The methodological approach was underpinned by meta-regression analyses using random-effect models, aiming to quantify the impact of different treatments on bladder function across varied study designs, patient demographics, and cancer types.

Results

From 15,081 citations, 12 studies with a total of 12,469 participants were included. Our analysis revealed a broad spectrum of bladder complications, with urinary incontinence and overactive bladder symptoms being common, alongside more severe issues such as radiation cystitis and anatomical defects like fistulas. The prevalence of these complications varied, reflecting the complexity of treatment modalities, cancer types, and patient characteristics. Specifically, the review found that urinary incontinence rates ranged from 2.6% to 84%, while the incidence of fistula formation and ureteral stenosis remained relatively low but clinically significant. Urodynamic findings further highlighted alterations in bladder function, with reports indicating a reduction in bladder capacity and increased detrusor overactivity in up to 44% of evaluated patients, underscoring the impact of treatments on bladder dynamics.

Interpretation of Results

This review highlights the profound bladder complications stemming from gynecological cancer treatments, revealing how radiotherapy and chemotherapy drastically affect bladder function and significantly impair survivors' quality of life. It not only points out the prevalence of such complications but also the significant changes in bladder dynamics post-treatment, advocating for proactive and tailored care. The need for early detection, preemptive strategies, and customized interventions is clear. However, the findings are moderated by several limitations: the heterogeneity of the studies, the reliance on retrospective and self-reported data, the absence of baseline bladder function assessments, and the variability in follow-up periods, which may lead to an underestimation of long-term complications. Despite these challenges, the review underscores the critical need for integrated care that encompasses both cancer treatment and bladder health management for improved survivor care.

Conclusions

This systematic review illuminates the critical issue of bladder complications as a consequence of gynecological cancer treatments, which remains a significant concern for survivors. The findings advocate for an integrated, multidisciplinary approach to patient care, encompassing not only the oncological treatment but also proactive management of potential urological sequelae. It calls for a concerted effort in the medical community to prioritize research in this area, aiming to improve preventive strategies, therapeutic interventions, and ultimately, the quality of life for these patients. As we advance in our fight against cancer, ensuring the holistic well-being of survivors by addressing treatment-induced bladder complications becomes paramount, highlighting an area ripe for innovation and further investigation.