

Bladder Cancer; Advances in Diagnosis, Treatment, and Future Prospects

Bladder cancer remains a significant health concern, with a high global incidence and a substantial impact on patients' quality of life. In this editorial, we discuss recent advances in the understanding, diagnosis, and treatment of bladder cancer and explore promising avenues for future research.

Bladder cancer is the 10th most common cancer worldwide, with approximately 573,000 new cases and 213,000 deaths reported in 2020 (Ferlay et al., 2021). The majorities of bladder cancers are transitional cell carcinomas (TCC), and while it often present as non-muscle-invasive; it can progress to muscle-invasive disease, which has a more aggressive clinical course and higher mortality.

Diagnosis and Staging

The standard diagnostic tool for bladder cancer has been cystoscopy. However, advancements in non-invasive diagnostics, such as urinary biomarkers (Grossman et al., 2017), have gained attention for early detection. Liquid biopsy techniques, including urine-based assays, show promise in identifying genetic and molecular markers, enabling personalized treatment strategies (Chai et al., 2021).

One of the important aspects in the management of this disease is to have a proper histological diagnosis. There are numerous studies available in the literature, evaluating various aspects of having an accurate histological assessment. Similarly, the present study has been conducted to investigate the discrepancy between preoperative and postoperative histology in terms of the presence of variant histology (VH) following Robot-Assisted Radical Cystectomy (RARC) and its impact on oncologic outcomes.

Treatment

Management of bladder cancer has also witnessed notable advancements. For non-muscle-invasive bladder cancer

(NMIBC), the use of *Bacillus Calmette-Guérin* (BCG) therapy remains a cornerstone in preventing recurrence (Lerner et al., 2020). However, alternatives like intravesical chemotherapy and novel immunotherapies are being explored. In muscle-invasive bladder cancer (MIBC), neoadjuvant chemotherapy and radical cystectomy have been the standard of care, but the emergence of immune checkpoint inhibitors, such as pembrolizumab and atezolizumab, is transforming treatment paradigms (Balar et al., 2017; Rosenberg et al., 2016).

Future Directions

The future of bladder cancer research holds exciting potential. Genomic profiling is paving the way for precision medicine, allowing the identification of specific molecular subtypes and targeted therapies (Necchi et al., 2021). Additionally, ongoing clinical trials and the development of next-generation immunotherapies are expected to enhance patient outcomes further (Balar et al., 2021). Exploring the role of artificial intelligence in radiology and pathology for early detection and treatment planning is another promising avenue (Rossin et al., 2023).

In conclusion, bladder cancer continues to challenge the medical community, but recent advances in diagnosis, treatment, and ongoing research efforts offer hope for improved outcomes and a better quality of life for patients. By embracing the evolving landscape of bladder cancer management, we are moving closer to a future where this disease can be effectively controlled and treated.

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