Progress in Treatment of Genitourinary Malignancies

Prostate, bladder, and kidney cancers represent 37% of all cancers in men in the United States. Several advances in the knowledge of these tumors have allowed for more personalized care of patients afflicted by these conditions. This issue of Cancer Control addresses these salient advances that impact the care of our patients.

Prostate cancer is currently the most common cancer and the second leading cause of cancer mortality in American men. Several management options are available including surgery, radiation therapy, cryosurgery, and active surveillance. High-intensity focused ultrasound, which is widely available in Europe, Canada, and several other countries, may soon be approved for use in the United States. The articles in this issue focus on the anatomy of prostate cancer, on the two most common treatment modalities, and on the promising role of epigenetic research.

While adenocarcinoma is the most common histologic type of prostate cancer, the finding of rare types presents a diagnostic and management challenge. Dr. Dickinson describes these rare subtypes of prostate cancer and reviews their histologic characteristics. She also discusses the implications of finding high-grade intraepithelial neoplasia (HGPIN) or atypical small acinar proliferations (ASAP).

Drs. Biagioli and Hofe review clinical outcomes in patients with prostate cancer treated with newer radiation therapy modalities, including intensity-modulated radiation therapy with image guidance, proton beam radiation therapy, and both low- and high-dose brachytherapy. It is now possible to deliver higher radiation doses to the prostate to maximize the therapeutic effect while reducing toxicity to adjacent normal tissue.

Dr. Correa and I describe factors to consider in determining how much of the neurovascular bundles responsible for erectile function can be preserved while maximizing cancer control. We review technical improvements to decrease the positive margin rate with the use of robotic technology. This robotic approach is a disruptive technology that allows surgeons to maximize cancer control while preserving urinary and sexual function in carefully selected men with early prostate cancer.

Dr. Park reviews his research on epigenetic changes in prostate cancer. DNA methylation in the promoter region of tumor suppressor genes occurs through carcinogenesis. These tumor suppressor genes function in DNA repair, apoptosis, cell cycle, corticosteroid hormonal response, and invasion/metastasis. Defected function of these genes by promoter hypermethylation may contribute to carcinogenesis and progression of prostate cancer. These changes have the potential to be used as biomarkers of cancer diagnosis, prognosis, and treatment.

Bladder cancer is the second most common urologic cancer affecting men and women. Although superficial, the majority of newly diagnosed bladder cancers represent a management challenge as most are recurrent and some become invasive and eventually metastasize. Dr. Sexton and colleagues address the current knowledge regarding the etiology, diagnosis, pathologic evaluation, prognosis, and management strategies in this type of cancer.

The management of kidney cancer has significantly improved over the last decade due to a better understanding of its various subtypes and the discovery of targeted therapies. These discoveries, together with the improvements in surgical technique and the application of ablative technology, require a multidisciplinary approach. Drs. Spiess and Fishman discuss the role of surgery in the context of the newly available targeted therapies including tyrosine kinase inhibitors and antiangiogenic agents. They recommend an individualized approach based on therapeutic goals.

This issue of Cancer Control reflects the rapidly evolving field of genitourinary oncology. We are just scratching the surface in new discoveries that will lead to improved treatments in patients afflicted with these genitourinary malignancies.

Julio M. Pow-Sang, MD
Chair, Department of Genitourinary Oncology
Chief, Surgery Service
Director of Moffitt Robotics Program
Deputy Editor, Cancer Control
H. Lee Moffitt Cancer Center & Research Institute
Tampa, Florida