Recent Advances in the Management of Genitourinary Neoplasms

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The varying stage presentations and evolutions of kidney, bladder, prostate and testis neoplasms have motivated the philosophy of multidisciplinary management. Surgery, irradiation, chemotherapy and immunotherapy, individually and in various combinations, constitute the principal basis of treatment strategies but modifications and innovations provide a continuously changing arena for laboratory and clinical investigations. Impressive technological advances have permitted progressive insights into molecular, cell and immunobiology and cyto-genetics, exposing new targets for diagnostic and therapeutic strategies which may ultimately provide the basis for more rational and less empiric therapeutic choices. General advances relative to anesthesia, antibiotics and pre- and postoperative care continue to reduce the mortality and morbidity of the surgical patient. Improvements in treatment planning, radiation therapy equipment, and new methods of irradiation are altering radiation therapy. New concepts in chemotherapy and the availability of granulocyte colony-stimulating factors are impacting on chemotherapy. Advances in immunobiology have provided a progressively more rational basis for immunotherapy. Quality of life issues are being increasingly addressed.

This brief summary will necessarily focus on some of the more important recent advances in management, recognizing that it is impossible to cover all areas of potential progress and that an unquantified proportion of such putative advances may not survive the tests of time and experience.

Kidney Cancer

Surgery remains the keystone of treatment of renal cancer with radical nephrectomy the standard treatment for local or locoregional renal cancers but with consideration of partial nephrectomy in selected cases. Irradiation has only focal and generally palliative indications. The presence of the MDR-1 gene in proximal tubular cells and derived renal cancers provides a potential explanation for at least some of the resistance to chemotherapy exhibited by renal cancers and suggests potential strategies for more effective drug treatment. The earlier recognition of renal cancer made possible by modern imaging techniques raises questions regarding screening and regarding the management of small (3 cm) renal masses. Interferons, interleukin 2 and lymphokine-activated killer cells have advanced the immunotherapy of patients with advanced renal cancer. Monoclonal antibodies have contributed insights into renal embryogenesis and morphogenesis and continue to be investigated for potential uses in diagnosis and therapy.

Bladder Cancer

Endoscopic treatment variously coupled with some form of intravesical therapy or prophylaxis is the keystone of management of superficial bladder tumors. BCG appears to be the most effective

of the agents thus far studied and has been shown not only to reduce superficial recurrences but to at least delay progression to muscle infiltration or metastasis. For muscle infiltrating bladder tumors TUR, segmental resection and radical cystectomy are the surgical considerations, full course irradiation with salvage cystectomy is a radiation option, and various programs incorporating chemotherapy with or without irradiation and/or with or without surgery are the subjects of numerous pilot studies with variously encouraging early results. Systemic chemotherapy has produced response rates in patients with metastatic disease that have justified investigation of the adjuvant and neoadjuvant approaches

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utilized in patients with muscle infiltrating tumors. Overall, the plethora of treatment approaches available in patients with bladder tumors serves to justify the broad interest in the study of bladder tumor markers with the objective of providing a basis for more rational treatment selection. On the other hand, the development of techniques of continent urinary diversion has made cystectomy a more acceptable treatment to both patient and physician.

Prostate Cancer

Better understanding of the zonal anatomy of the prostate, characterization of precursor lesions of prostatic cancer, the usefulness of prostatic specific antigen as a prostatic marker, and the development of transrectal prostatic ultrasonography promise to contribute to the management of prostatic cancer. The search for reliable indicators of the biologic potential of prostatic cancer has been expanded. Although management of early stage prostatic cancer remains controversial, the development of a low morbidity technique of radical prostatectomy has increased its use in the treatment of clinically localized tumors; a variety of new techniques of irradiation are being explored for similar indications. Endocrine therapy remains the most effective palliation for patients with advanced disease but whether total androgen blockade is superior to more conventional therapy and whether early is superior to delayed endocrine therapy remains controversial.

Testis Tumors

Germinal tumors of the testis provide a paradigm of multidisciplinary therapy and one in which the traditional treatments of surgery and irradiation have been progressively supplanted by evolving chemotherapy. The principal recent management efforts in patients with such neoplasms have been to define risk factors at clinical presentation which justify on the one hand a reduction in the therapeutic burden for good risks and on the other hand an increase in therapeutic aggressiveness for those judged to be poor risks. For good risk patients this translates into either omission of retroperitoneal lymph node dissection (RPLND) or a limited RPLND in stage I an omission of adjuvant chemotherapy after RPLND or perhaps chemotherapy alone in stage II and less chemotherapy for stage III. For poor risk patients treatment might include aggressive RPLND in stage I adjuvant chemotherapy after RPLND in stage II and aggressive chemotherapy possible with autologous marrow transplantation in stage III.