percent area immunostained for AR protein and the intensity of expression (mean optical density). Visual scoring was performed to compare results with automated values.

Results: In black compared with white men malignant nuclei were 27% more likely to immunostain for AR ($p = 0.005$) and in immunopositive nuclei AR protein expression was 81% greater ($p = 0.002$). Visual scoring of malignant nuclei revealed that AR immunostaining was significantly increased in black vs white men (171 ± 40 vs 149 ± 37, $p = 0.048$). In immunopositive benign nuclei AR protein expression was 22% greater in black than in white men ($p = 0.027$). Visual scoring of benign nuclei revealed 20% increased immunostaining in black vs white men, although this difference did not attain statistical significance ($p = 0.065$). Racial differences in AR protein expression were not explained by age, pathological grade or stage, although serum prostate specific antigen levels were higher in black men (9.7 ± 7.5 vs 15.5 ± 12.2 ng/ml, $p = 0.049$).

Conclusions: AR protein expression was 22% higher in the benign prostate and 81% higher in the CaP of black African compared with white men. CaP may occur at a younger age and progress more rapidly in black than in white men due to racial differences in androgenic stimulation of the prostate.

Editorial Comment

Although some controversies still exist, data on age adjusted deaths from CaP obtained from the Surveillance, Epidemiology, and End Results database from 1990 to 1998 in the USA revealed that Black American men have 2.3 times greater mortality from CaP than white American men. Previous works demonstrated that Black men are more frequently diagnosed with higher tumor volume, more advanced tumor stage, higher Gleason grade and higher prostate specific antigen (PSA) levels than white men are. The reasons for such findings are still not well understood.

This is the first study measuring and comparing androgen receptor (AR) protein expression in malignant and benign prostate tissue from black and white men who underwent radical prostatectomy for clinically localized CaP. The authors found that AR protein expression was 22% higher in the benign prostate and 81% higher in the CaP of black compared with white American men. Based on these findings, the authors speculated that CaP might occur at a younger age and progress more rapidly in black than in white men due to racial differences in androgenic stimulation of the prostate.

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RECONSTRUCTIVE UROLOGY

Gastrocystoplasty in patients with an areflexic low compliant bladder

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Aim: This study was performed with the aim of evaluating gastrocystoplasty as a method of management of patients with an areflexic low compliant bladder.

Patients and Methods: We performed gastrocystoplasty in 30 patients (19 males and 11 females) with an areflexic low compliant bladder. The mean age of the patients was 23.4+/-11 years (range 4-32). The etiology

of lower urinary tract dysfunction was myelodysplasia in 26 patients and spinal cord injury in 4. Twenty-three patients had normal renal function and 7 had impaired renal function (creatinine 2.0-5.0mg%). Additionally, 4 patients had an artificial urinary sphincter implanted and seven had an antireflux procedure performed.

Results: Renal function remained stable or improved in 29 patients. Postoperatively, there was a 225% increase from mean preoperative capacity and a 52% decrease from the preoperative end filling pressure. Nineteen patients voided spontaneously and 11 used clean intermittent catheterization to empty the bladder. Twenty-five patients were continent with augmentation alone, four with augmentation and artificial sphincter implantation while one remained incontinent, as sphincter implantation could not be performed due to the young age of the patient. Five patients (17%) had transient hematuria and dysuria after augmentation. There were no mortalities and complications included prolonged urinary leakage in one patient and mild gastric bleeding in another two.

Conclusion: The use of the stomach for augmenting the areflexic low compliant bladder is clearly advantageous over other tissues as it increases bladder capacity and compliance with consequent achievement of continence and preservation of upper tracts. An artificial urinary sphincter can be safely implanted in the same session. Because of its inherent fibromuscular properties, the gastric patch contributes to the force of urination resulting in better bladder emptying. Patients with impaired renal function are protected from hyperchloremic metabolic acidosis.

Editorial Comment

For a long time the areflexic low compliant urinary bladder with a dysfunctional urinary sphincter due to spinal cord trauma or congenital diseases such as myelodysplasia was treated with supravesical continent or incontinent urinary diversion. The rationale for treating patients with a supravesical diversion was to preserve renal function in the long term as well as to avoid further incontinence and its sequelae.

Ileal and colonic segments are mainly used to augment small capacity bladders with an intact sphincter. However, colo- or ileocystoplasty alone can rarely restore volitional voiding in truly neurogenic lower urinary dysfunction and may be contraindicated in patients with impaired renal function.

The authors of this paper tried to functionally restore the lower urinary tract in 30 young patients with myelodysplasia or spinal cord injury by using a pedicled gastric patch instead of an ileocolonic segment. It is remarkable that postoperatively 19/30 patients could void spontaneously with insignificant residual urine, incontinence was reduced to 1/30 patients with the help of an artificial urinary sphincter and deterioration of renal function occurred only in 1/30 patients.

Whether the good results obtained in this study are due to the better compliance, different innervation and a larger smooth muscle mass of gastric patches compared to lower intestinal segments is difficult to judge from such a small study. But it clearly shows that we successfully can and therefore should make every effort to restore function of the native lower urinary tract instead of simply doing a supravesical urinary diversion in patients with a long life expectancy knowing the long term complications and socioeconomic consequences of a stoma bag in these patients.

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Is there a role for bladder preserving strategies in the treatment of muscle-invasive bladder cancer?

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Single modality bladder sparing therapy for muscle-invasive bladder cancer, including transurethral resection, systemic chemotherapy or radiotherapy have been demonstrated to result in insufficient local control of the primary tumor as well as decreased long-term survival of the patients when compared to radical cystectomy. Therefore, multimodality treatment protocols that aim at bladder preservation and involve all of the aforementioned approaches have been established. Arguments for combining systemic chemotherapy with radiation are to sensitize tumor tissue to radiotherapy and to eradicate occult metastases that have already developed in as many as 50% of patients at the time of first diagnosis. It has been shown that the clinical outcome observed with this approach approximates that after radical cystectomy. Additionally, a substantial number of patients survive with an intact bladder. However, bladder preserving approaches are costly, and require close co-operation between different clinical specialists as well as very close follow-up. The good long-term results obtained after cystectomy and creation of an orthotopic neobladder make the possible advantage of a bladder preservation strategy questionable in consideration of quality of life issues. Additionally, side effects related to bladder sparing therapy may result in an increased morbidity and mortality in those patients who in fact need to undergo surgery due to recurrent or progressive disease. Multimodality bladder sparing treatment is a therapeutic option that can be offered to the patient at centers that have a dedicated multidisciplinary team at their disposal. However, radical cystectomy remains the standard of care for muscle-invasive bladder tumors.

Editorial Comment

In the majority of cases bladder reconstruction is necessary after radical cystectomy due to bladder neoplasms. Despite the fact that the majority of both male and female patients with bladder cancer are nowadays eligible for an orthotopic bladder substitution the search for bladder preserving strategies thus avoiding any bladder reconstruction continues.

The review by Kuczyk et al. outlines the results of the more recent protocols of multimodality bladder preservation in locally advanced transitional cell cancer of the bladder. All studies lack a control group – cystectomy monotherapy – to which patients were randomly assigned. But in selected patients, 5-year survival rates with an intact bladder between 36 and 41 % was obtained. However, the multimodality strategies to achieve a complete long term response were complex, costly, cumbersome for patients and treating physicians, and required a certain infrastructure available usually only in large centers. Despite all the efforts some patients still required a salvage cystectomy, which tends to be technically more difficult and often does not allow features which might be important for the patients' future quality of life such as nerve preservation for potency, or an orthotopic neobladder with good results regarding continence. Another aspect are recurrent superficial tumors in the initially successfully treated preserved bladders which may be seen even beyond 5 years.

Surprisingly mortality in the multimodality therapy group was higher in some series than in contemporary radical cystectomy studies (up to 4 % due to chemotherapy vs. 1-2% due to perioperative mortality). A quality of life advantage in the bladder preserved patients has not been substantiated to date. In fact it may be difficult to prove in some series were patients suffer from reduced bladder capacity, severe urgency, and repeat surgery due to superficial tumor recurrences in the long term. Therefore one may conclude that cystectomy in combination with a refined technique of bladder reconstruction to date remains the best option to treat locally advanced bladder cancer. We should continue to search for ways to treat these with

bladder preserving strategies, however, only under strict protocols and only in large centers with good interdisciplinary cooperation.

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UROLOGICAL ONCOLOGY

Practical considerations in permanent brachytherapy for localized adenocarcinoma of the prostate

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Prostate brachytherapy has become an accepted treatment modality for localized prostate cancer. Long-term biochemical and biopsy data confirm the early positive impressions that brachytherapy is as valid a treatment option as radical prostatectomy or EBRT. Quality-of-life data also look promising, but more follow-up data are needed. Is brachytherapy as good as or perhaps better than radical prostatectomy? This question cannot be answered yet. Well-controlled, randomized studies are needed. In the meantime, the clinician will have to rely on the available published data.

Permanent interstitial brachytherapy for the management of carcinoma of the prostate gland

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Purpose: We summarize the permanent prostate brachytherapy literature, including biochemical outcomes, quality of life parameters and areas of controversy.

Materials and Methods: The permanent prostate brachytherapy literature was reviewed using Medline searches to ensure completeness.

Results: Using various planning and intraoperative techniques the majority of the brachytherapy literature demonstrates durable biochemical outcomes for patients with low, intermediate and high risk features. For low risk patients there is no advantage to combining supplemental external beam radiation therapy with brachytherapy. In addition, supplemental external beam radiation therapy may not improve biochemical outcomes for patients at intermediate and high risk if the target volume consists of the prostate with a generous periprostatic margin. There is no defined role for adjuvant hormonal manipulation. Although a reliable set of pretreatment criteria to predict implant related morbidity is not available, severe urinary and rectal morbidity is rare. The incidence of brachytherapy induced erectile dysfunction is significantly greater than initially reported but the majority of patients respond favorably to sildenafil.

Conclusions: Continued refinements in brachytherapy planning and implementation techniques, postimplantation evaluation and continued elucidation of the etiology of urinary, bowel and sexual dysfunction should result in further improvements in biochemical and quality of life outcomes.