
UROLOGICAL SURVEY

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STONE DISEASE

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Is there an adjunctive role of tamsulosin to extracorporeal shockwave lithotripsy for upper ureteric stones: results of an open label randomized nonplacebo controlled study

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Objectives: To investigate the role of tamsulosin as an adjunct to management of upper ureteric stones (UUS) with extracorporeal shock wave lithotripsy (SWL).

Methods: In this prospective, randomized, open label study, patients with single UUS (for SWL) were randomly assigned into 2 groups based on whether they received 0.4 mg tamsulosin (group A and B, respectively) during treatment. Repeat SWL was performed at week 1, 3, and 5 after first session. Primary outcome variables were success rate and pain intensity.

Results: A total of 40 patients (20 each group) completed the requisite follow-up. Success rate was higher in group A after 1 SWL-session (55% vs 25%, respectively; $P = .05$). There was an insignificant trend of decreased number of days (30.7 +/- 19.7 vs 39.0 +/- 19.9; $P = .19$), number of SWL sessions (1.6 vs 2.0; $P = .10$), and pain experienced (score on visual analog scale, 25.3 +/- 17.9 vs 38.3 +/- 28.0, respectively; $P = .41$) in group A. Three in group A and 6 in B developed steinstrasse ($P = .69$). Overall, 1 in group A required auxiliary procedures as compared with 3 in control group ($P = .60$).

Conclusions: Tamsulosin improves clearance rate of UUS after single SWL. However, it does not provide significant advantage in terms of decreasing pain associated with this treatment.

Editorial Comment

The study is limited by a lack of placebo control - this would be a bigger issue had the authors noted an improvement in pain scores with tamsulosin. The study is also limited by the reliance on KUB for stone-free results.

The authors note that stone size correlated with the number of sessions required, days needed for stone passage and level of pain intensity. In view of this, it would be useful to perform a multivariate logistic regression to confirm that the use of alpha-blockers remains a significant variable to explain stone-free rates. Alternatively, it may be useful to evaluate the results stratified by stone size to determine if the impact of alpha-blockers is seen primarily with larger stones as compared to smaller stones. Indeed, it was noted that steinstrasse developed in 2/3 of patients with stones larger than 10 mm. The authors approach to repeat shockwave at 1 week diverges from common practice in the United States. It would be helpful to evaluate the impact of tamsulosin on stone-free rates and ancillary procedure rates at 2-4 weeks following single session SWL.

The authors have not adapted the techniques of ramp-up in energy settings or slow-treatment rates that have been demonstrated to improve stone fragmentation and decrease fragment size. With smaller fragment size, it is possible that the advantage of alpha-blockers may diminish.

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The effects of tolterodine extended release and alfuzosin for the treatment of double-j stent-related symptoms

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Aim: To evaluate the effects of tolterodine extended release (ER) and alfuzosin for the treatment of Double-J stent-related lower urinary tract symptoms.

Materials and Methods: Fifty-two patients (33 men and 19 women; mean age 52.0 years) who underwent insertion of a Double-J stent after urological surgery were prospectively randomized into three groups. Group 1 included 20 patients who received 10 mg of alfuzosin, once daily for 6 weeks; group 2 included 20 patients who received 4 mg of tolterodine ER, once daily for 6 weeks; group 3 included 12 patients who received a placebo for the same protocol. All patients completed a validated Ureteral Stent Symptom Questionnaire at 6 weeks after the stent placement.

Results: The mean urinary symptom index was 22.1 in group 1, 22.1 in group 2, and 28.1 in the placebo group ($p = 0.032$). The mean pain scores were 8.2, 11.7, and 16.2, respectively ($p = 0.020$). There were no significant differences in urinary symptoms and pain between the alfuzosin and tolterodine ER groups. In addition, there was no significant difference in the general health, work performance, and sexual performance scores among the groups.

Conclusions: Tolterodine ER and alfuzosin improve stent-related urinary symptoms and body pain.

Editorial Comment

The authors present a heterogeneous group of patients undergoing ureteroscopy, percutaneous nephrolithotomy or ureteroplasty. Indeed, the associated pain, morbidity, incisional discomfort, and risk of urinary or irrigant extravasation vary greatly between these three surgical groups. However, evaluating the primary endpoint at six-weeks would most likely minimize the variability induced by this limitation of the study.

Unfortunately evaluating the primary endpoint at six-weeks introduces a different limitation of the study. Typically ureteral stents are left indwelling for only 5-10 days after an endoscopic urologic procedure, therefore the impact of adjunct medical therapy on pain and urinary symptoms must be evaluated earlier in the postoperative course than was conducted in this study.

The authors do not report their method of randomization or allocation - indeed; there is imbalance in numbers between the treatment and placebo groups. It is not reported as to whether patients and physicians were blinded to the treatment allocation. The authors do not present a power analysis to justify their sample size, yet they do note that the study was terminated early due to difficulty with recruitment.

A study evaluating combination therapy would be a natural extension of this clinical trial.

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ENDOUROLOGY & LAPAROSCOPY

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Laparoscopic management of ureteral endometriosis: the Stanford University hospital experience with 96 consecutive cases

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J Urol. 2009; 182: 2748-52

Purpose: We report the clinical characteristics and the principles of laparoscopic management of ureteral endometriosis at our institution.

Materials and Methods: We retrospectively reviewed the charts of patients with ureteral endometriosis.

Results: Preoperatively 97% of patients complained of pain but only a third had urinary symptoms. The left ureter was affected in 64% of cases and disease was bilateral in 10%. Four patients had hydroureter and 2 had hydronephrosis.

Conclusions: To our knowledge this report represents the largest series of laparoscopically treated, pathologically confirmed ureteral endometriotic cases to date. It confirms that laparoscopic diagnosis and management of ureteral endometriosis are safe and efficient. All patients who undergo laparoscopy for endometriosis should be evaluated for possible ureteral involvement regardless of the presence or absence of urinary symptoms, or prior radiological evaluation since undiagnosed ureteral disease may result in loss of renal function.

Editorial Comment

The authors described the largest series of ureteral endometriosis managed laparoscopically. The authors' recommendations are very useful depicting a practical algorithm to evaluate and manage this not very common pathology.

In case of non-dilated ureter, one may even consider placement of stents if ureter is compromised (dusky ureteral color, poor peristaltic activity and devascularized serosa).

The aim of treatment should be to remove all endometriotic lesions, relieve ureteral compression and avoid recurrence while minimizing the morbidity associated with radical surgery. Moreover, the laparoscopic approach is feasible and allows the surgeon to treat optimally this disease.

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Salvage robotic-assisted radical prostatectomy: initial results and early report of outcomes

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Objective: To evaluate the initial results of salvage robotic-assisted radical prostatectomy (SRARP) after recurrence following primary radiotherapy (RT) for localized prostate cancer.

Patients and Methods: Between December 2002 and January 2008, 11 patients had SRARP with pelvic lymph node dissection by one surgeon from one institution. Six patients had brachytherapy, three had external beam

RT (EBRT), one intensity-modulated RT, and one received brachytherapy with an EBRT boost. All patients had prostate cancer on biopsy after RT, with negative computed tomography and bone scan. The mean (range) follow-up was 20.5 (1-77) months.

Results: The mean interval from RT to SRARP was 53.2 months; the mean preoperative prostate-specific antigen (PSA) level was 5.2 ng/mL, the operative duration 183 min and the estimated blood loss 113 mL. One patient had prolonged lymphatic drainage, one had an anastomotic leak, and one had an anastomotic stricture requiring direct vision internal urethrotomy at 3 months. The mean duration of catheterization was 10.4 days and the hospital stay 1.4 days. Three patients had a biochemical recurrence, at 1, 2 and 43 months. In one of two patients with node-positive carcinoma of the prostate the PSA level failed to reach a nadir of zero after surgery. In patients with a minimum follow-up of 2 months, eight of 10 are continent (defined as zero to one pad per day) and two have erections adequate for intercourse with the use of phosphodiesterase-5 inhibitors.

Conclusion: SRARP after RT-resistant disease recurrence is feasible with minimal perioperative morbidity. Early functional outcomes appear to be at least equivalent with historical salvage RP series. Robotic extended pelvic lymph node dissection is safe and can improve the accuracy of surgical staging. A longer follow-up is necessary to better assess the functional and oncological outcomes.

Editorial Comment

The authors described their experience performing robotic-assisted radical prostatectomy (SRARP) after recurrence following primary radiotherapy (RT) for localized prostate cancer. Traditionally, open series have demonstrated the difficulties of the technique and the serious complications that may occur. The mean interval from Radiation therapy (RT) to SRARP was 53.2 months; the mean preoperative prostate-specific antigen (PSA) level was 5.2 ng/mL, the operative duration 183 min and the estimated blood loss 113 mL. Surprisingly, in patients with a minimum follow-up of 2 months, eight of 10 are continent (defined as zero to one pad per day) and two have erections adequate for intercourse with the use of phosphodiesterase-5 inhibitors. Ultimately, the surgical experience will dictate the complication rates and outcomes of patients. There is no doubt that longer and larger series will dissect the use of robotic surgery in the surgical management of RT resistant prostate cancer patients.

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IMAGING

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Segmental enhancement inversion at biphasic multidetector CT: characteristic finding of small renal oncocytoma

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Radiology. 2009; 252: 441-8

Purpose: To retrospectively determine the usefulness of segmental enhancement inversion during the cortico-medullary phase (CMP) and early excretory phase (EEP) of biphasic multidetector computed tomography (CT) in differentiating small renal oncocytoma from renal cell carcinoma (RCC).

Materials and Methods: This retrospective study was institutional review board approved; informed consent was waived. Between January 2004 and December 2006, 98 patients with pathologically confirmed renal masses smaller than 4 cm (10 renal oncocytomas and 88 RCCs) were included in this study. Segmental enhancement inversion was defined as follows: In a mass with two segments showing different degrees of enhancement during CMP, the relatively highly enhanced segment became less enhanced during EEP, whereas the less-enhanced segment during CMP became highly enhanced during EEP. Two experienced radiologists retrospectively assessed the presence of segmental inversion in all masses and measured attenuation with consensus. The Fisher exact test was used to determine the significance of segmental enhancement inversion in differentiating small renal oncocytoma from RCC.

Results: Eight of 10 renal oncocytomas and only one of 88 RCCs showed segmental inversion during CMP and EEP, which significantly differentiated small renal oncocytomas and RCCs ($P < .0001$). For differentiating oncocytoma from RCC, segmental inversion was found to have a sensitivity of 80% (eight of 10), a specificity of 99% (87 of 88), a positive predictive value of 89% (eight of nine), and a negative predictive value of 98% (87 of 89). The mean values of the attenuation differences shown by two segments during CMP and EEP were 62.75 HU +/- 36.96 (standard deviation) and -36.88 HU +/- 20.02, respectively.

Conclusion: Segmental enhancement inversion during CMP and EEP was found to be a characteristic enhancement pattern of small renal oncocytoma at biphasic multidetector CT and it may help in differentiating small oncocytoma from RCC.

Editorial Comment

The authors described an interesting imaging feature that might be useful as an adjunct finding for adequate characterization of small oncocytomas. Small oncocytomas are usually homogeneously hyperdense solid lesion on unenhanced phase, presenting moderate to high contrast enhancement. These features however are not specific since can also be found in chromophobic renal cell carcinoma and angiomyolipoma without macroscopic fat. The authors showed that the presence of segmental enhancement inversion within a small renal mass has a specificity of 99% and a sensitivity of 80% for adequate characterization of oncocytoma. In their protocol however, all patients were submitted to three-phasic multidetector CT examination: unenhanced, cortico-medullary (30-40") and excretory (120-180"). As we know to optimize detection and characterization, renal masses are best examined during nephrographic phase that occurs 80-100" after intravenous injection of contrast. It is obvious that one could simply add the nephrographic phase to the proposed protocol. However, adding an extra phase must be a matter of concern since we will be increasing 4 to 5 mSv to the total amount of effective dose of irradiation to the patient. Perhaps it would be advisable to obtain additional CMP only in patients in whom unenhanced scans showed the presence of a small homogeneously hyperdense renal mass. Further studies with multiphase CT are warranted to confirm these findings. In our institution after knowledge of this publication, a dedicated protocol with multiphase contrast enhanced MRI, was initiated with the purpose to confirm these findings using a method without radiation risk.

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Prostate tumor volume measurement with combined T2-weighted imaging and diffusion-weighted MR: correlation with pathologic tumor volume

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Purpose: To retrospectively determine the accuracy of diffusion-weighted (DW) magnetic resonance (MR) imaging for identifying cancer in the prostate peripheral zone (PZ) and to assess the accuracy of tumor volume measurements made with T2-weighted imaging and combined T2-weighted and DW MR imaging by using surgical pathologic examination as the reference standard.

Materials and Methods: The institutional review board issued a waiver of informed consent for this HIPAA-compliant study. Forty-two patients underwent endorectal MR at 1.5 T before undergoing radical prostatectomy for prostate cancer and had at least one PZ tumor larger than 0.1 cm(3) at surgical pathologic examination. On T2-weighted images, an experienced radiologist outlined suspected PZ tumors. Two apparent diffusion coefficient (ADC) cutoff values were identified by using the Youden index and published literature. Image cluster analysis was performed on voxels within the suspected tumor regions. Associations between volume measurements from imaging and from pathologic examination were assessed by using concordance correlation coefficients (CCCs). The sensitivity and specificity of ADCs for identifying malignant PZ voxels were calculated.

Results: In identifying malignant voxels, respective ADC cutoff values of 0.0014 and 0.0016 mm(2)/sec yielded sensitivity of 82% and 95% and specificity of 85% and 65%, respectively. Sixty PZ cancer lesions larger than 0.1 cm(3) were found at pathologic examination; 43 were detected by the radiologist. CCCs between imaging and pathologic tumor volume measurements were 0.36 for T2-weighted imaging, and 0.46 and 0.60 for combined T2-weighted and DW MR imaging with ADC cutoffs of 0.0014 and 0.0016 mm(2)/sec, respectively; the CCC of combined T2-weighted and DW MR imaging (ADC cutoff, 0.0016 mm(2)/sec) was significantly higher ($P = .006$) than that of T2-weighted imaging alone.

Conclusion: Adding DW MR to T2-weighted imaging can significantly improve the accuracy of prostate PZ tumor volume measurement. Supplemental Material: <http://radiology.rsnajnl.org/cgi/content/full/252/2/449/DC1>.

Editorial Comment

The authors showed that the combination of anatomic information obtained with conventional T2-weighted image and functional study technique, obtained with diffusion-weighted image, significantly improves the accuracy of prostate peripheral zone tumor volume measurement. This information is interesting since multivariate analysis performed in other study showed that tumor volume, but not pathologic stage or baseline PSA level, was independently predictive of post-prostatectomy disease recurrence (1). In other words, measurement of prostate cancer tumor volume may provide information on prognosis that is independent of direct morphologic assessment of extraprostatic extension. Other studies have shown that pathologic tumor volume correlates also with pathologic stage, Gleason score, margin status, vascular invasion and metastases (2). So far, imaging estimation of prostate cancer tumor volume has been obtained with the combination of conventional MRI and spectroscopic imaging (3). This combined technique however is more effective in tumors larger than 0.5 cm³. Although the results of this study might be useful in daily clinical practice, we agree with the authors that determination of tumor volume should be better accomplished by using of multiparametric MRI prostate evaluation (combination of conventional T2-weighted image, diffusion-weighted image and dynamic contrast-enhanced studies).

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UROGENITAL TRAUMA

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Radiographic predictors of need for angiographic embolization after traumatic renal injury

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J Trauma. 2009; 67: 578-82; discussion 582.

Background: Although the American Association of the Surgery for Trauma Organ Injury Scale is the gold standard for staging renal trauma, it does not address characteristics of perirenal hematomas that may indicate significant hemorrhage. Angiographic embolization has become well established as an effective method for achieving hemostasis. We evaluated two novel radiographic indicators--perirenal hematoma size and intravascular contrast extravasation (ICE)--to test their association with subsequent angiographic embolization.

Methods: Among 194 patients with renal trauma between 1999 and 2004, 52 having a grade 3 (n = 33) or grade 4 (n = 19) renal laceration were identified. Computed tomography scans were reviewed by a staff radiologist and urologist blinded to outcomes. ICE was defined as contrast within the perirenal hematoma during the portal venous phase having signal density matching contrast in the renal artery. Hematoma size was determined in four ways: hematoma area (HA), hematoma to kidney area ratio (HKR), difference between hematoma and kidney area (HKD), and perirenal hematoma rim distance (PRD).

Results: Of the 52 patients, 8 had ICE and 4 of these (50%) required embolization, whereas none of the 42 (0%) patients without ICE needed embolization (p = 0.001). Likewise, all four measures of perirenal hematoma size assessed were significantly greater in patients receiving embolization [HA (128.3 vs. 75.4 cm, p = 0.009), HKR (2.75 vs. 1.65, p = 0.008), HKD (76.5 vs. 30.2 cm, p = 0.006), and PRD (4.0 vs. 2.5 cm, p = 0.041)].

Conclusion: Perirenal hematoma size and ICE are readily detectible radiographic features and are associated with the need for angiographic embolization.

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Minimally invasive endovascular techniques to treat acute renal hemorrhage

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J Urol. 2008; 179: 2248-52; discussion 2253

Purpose: We evaluated the effectiveness of endovascular therapy for severe renal hemorrhage.

Materials and Methods: We retrospectively reviewed cases compiled from the trauma database, billing records and interventional radiology logs at our institution from 1990 to 2007. Technical success was defined as the

cessation of bleeding after angiographic embolization. Clinical success was defined as the absence of recurrent hematuria without the need for additional embolization.

Results: A total of 26 patients underwent angiography and endovascular treatment for renal hemorrhage. Mean patient age was 42 years (median 37, range 7 to 70). There were 20 males and 6 females. Mean clinical followup was 11.7 months. The mechanisms of injury were iatrogenic in 6 cases (renal biopsy in 5 and post-percutaneous nephrostomy placement in 1), trauma in 16 (blunt in 10 and penetrating in 6) and spontaneous rupture of a renal mass in 4. At presentation 16 patients (62%) were hemodynamically stable, while 10 (38%) were in shock. A total of 11 patients (42%) presented with gross hematuria, 7 (27%) had microscopic hematuria and 8 (31%) had no evidence of hematuria. A total of 16 patients (62%) had kidney injuries alone, while 10 (38%) also had significant concurrent injuries. Treatment failed in all 5 grade 5 acute renal injuries (100%) caused by external trauma. Technical and clinical success was achieved in 22 (85%) and 17 patients (65%), respectively.

Conclusions: Superselective embolization therapy for renal trauma provides an effective and minimally invasive means to stop bleeding. Overall our complication rate was minimal. Most renal traumas, including most grade 4 injuries, were effectively managed by conservative therapy. Embolization proved effective for grade 4 renal trauma for which conservative therapy failed. In our series embolization failed when applied to grade 5 injuries.

Editorial Comment

The concept on controlling arterial renal bleeding with transcatheter embolization is a concept that has been around since the 1970s. However, over the years the technical skills of interventional radiologists, imaging equipment and their ability to perform superselective embolization of even the smallest vessels has gradually improved. In general, renal injuries that do not involve avulsion of the renal hilum can typically be managed nonoperatively. The assumption is that nearly 85-90% of Grade 3 and 4 renal injuries will have venous bleeds (or very small arterial bleeds) that will fill the confined space of Gerota's fascia and tamponade. When the bleeds are arterial, and if they involve larger segmental vessels, the bleeding will not tamponade and thus require subsequent embolization. The key is how do we predict who will not stop bleeding and need either a surgical exploration or transcatheter embolization? Can we tell by signs on the CT?

The San Francisco General and the Parkland Hospital Groups advocate an early and aggressive policy of embolization for renal injuries. As an out growth of the success of selective embolization has had with blunt splenic injuries over the years, where signs like the presence of a vascular blush suggested a significant bleed – embolization can equally be used for the blunt kidney injury. In general I feel we under utilize angiography and selective embolization for our major blunt renal trauma patients.

Embolization coils that are in common use today are made of platinum and highly radio-opaque. Platinum is a softer metal so the coils can be tighter packed and cause less vessel wall injury. Each coil also has multiple Dacron side fibers which markedly increase thrombogenicity. The coils are 0.018", 0.035" and 0.038" in diameter and thus can typically be deployed via a 5Fr Angiocath.

The San Francisco General Group addresses more the patient who you admit and follow conservatively and who do you decide to send to interventional radiology in a delayed fashion. Most delayed renal bleeding occurs after 5 or more days as it takes time for the tamponaded hematoma to start to lyse and then release some of the tamponade effect. When the delayed bleed is from an arterial injury it typically is a pseudo-aneurysm. Breyer et al. concluded that potential criteria for angiography are persistent bleeding from segmental artery with or without parenchymal laceration, an unstable patient with Grade 3 or 4 injury, persistent and significant gross hematuria, or a rapidly declining HCT – needing > 2 u pRBC transfused in 24 hours. In our experience at Barnes Hospital experience, we use > 3 u RBC/ 24 hr transfused period to decide on further renal intervention. However, these are not hard fast rules just guidelines for intervention.

They further state that Grade 5 renal injuries, main renal artery or vein avulsion injuries - which by definition are life-threatening injuries should not be managed by an attempt at embolization but rather prompt

surgery. The Parkland Group addresses more the acute CT findings and need for embolization. Just as with blunt splenic injuries, the presence of intravascular contrast extravasation (“a contrast blush”) on the arterial phase of a CT scan and the presence of a large perirenal hematoma (> 4 cm from renal capsule to hematoma edge) greatly predicted the likelihood for persistent bleeding and thus a significant vascular injury. The Parkland group argues that the AAST injury grading scale for major renal injuries should be subclassified into Grade 4, A = low risk and G4 B = High Risk, where a blush and large hematoma were present. I think that such a suggestion is a good one and would help to better guide therapy. Overall, I think we need to be more vigilant about identifying early signs of significant arterial renal injuries and early and quickly sending these patients to the interventional radiologist for super selective embolization.

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PATHOLOGY

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The significance of a positive bladder neck margin after radical prostatectomy: The American Joint Committee on Cancer pathological stage T4 designation is not warranted

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Purpose: The American Joint Committee on Cancer currently designates invasion of the bladder neck as a pT4 lesion. However, retrospective analyses have not demonstrated biochemical recurrence-free survival after radical prostatectomy to be consistent with other T4 lesions. We examined biochemical recurrence-free survival and cancer specific survival in men with a positive bladder neck margin.

Materials and Methods: Of nearly 17,000 patients in the Johns Hopkins Institutional radical prostatectomy database (1982 to 2008) 198 (1.2%) were identified with a positive bladder neck margin. Kaplan-Meier analyses were used to evaluate biochemical recurrence-free survival and cancer specific survival. A multivariate proportional hazards model predicting biochemical recurrence-free survival and cancer specific survival was fit with prostate specific antigen, Gleason sum and pathological stage to determine the significance of a positive bladder neck margin.

Results: Of the 198 men with a positive bladder neck margin 79 had an isolated bladder neck margin without seminal vesicle or lymph node involvement. The 12-year biochemical recurrence-free survival of men with organ confined disease, extraprostatic extension, seminal vesicle invasion and lymph node involvement without a positive bladder neck margin was 91.1%, 61.1%, 24.5% and 8.1%, respectively. For men with a positive bladder neck margin and those with an isolated positive bladder neck margin biochemical recurrence-free survival was 16.8% and 37.1%, respectively. The 12-year cancer specific survival for men with organ confined disease, extraprostatic extension, seminal vesicle invasion and lymph node involvement without a positive bladder neck margin was 93.5%, 89.0%, 77.0% and 66.8%, respectively. For men with a positive bladder neck margin and

those with an isolated positive bladder neck margin cancer specific survival was 78.2% and 92.5%, respectively. A positive bladder neck margin was not a significant predictor of outcome ($p = 0.4$) on multivariable analysis. Conclusions: The incidence of an isolated positive bladder neck margin is low. Men with an isolated positive bladder neck margin after radical prostatectomy experienced a 12-year biochemical recurrence-free survival of 37% and cancer specific survival of 92%, similar to patients with seminal vesicle invasion (pT3b) and extraprostatic extension (pT3a), respectively. The existing American Joint Committee on Cancer classification for prostate cancer should be reconsidered.

Editorial Comment

According to the tumor, node, and metastasis (TNM) classification, prostate cancer with bladder neck invasion is considered a significantly advanced disease next to rectal involvement and/or external sphincter involvement (pT4). However, most studies evaluating the positive margins of radical prostatectomy specimens do not consider bladder neck involvement with such an advanced stage as defined by the TNM classification (1-5).

Within the TNM system the T4 category was initially intended for tumors noted on clinical assessment to invade adjacent organs, such as the rectum or bladder. Such tumors were thought to be aggressive with a high propensity to recur and metastasize. However, presently clinical stage T4 cancer is rarely if ever treated surgically and, therefore, the corresponding pathological definition of stage pT4 disease has come to refer almost exclusively to the microscopic involvement of smooth muscle bundles of the bladder neck (6).

We found similar results of Pierorazio's et al. study from 290 patients submitted to radical prostatectomy (7). We compared the time to biochemical (PSA) progression-free outcome for patients with bladder neck (BN) invasion to patients with extraprostatic extension (EPE) or seminal vesicle invasion (SVI). A univariate Cox proportional hazards model was created and a final multivariate Cox proportional hazards model was developed to assess the influence of several variables simultaneously. BN invasion was present in 55/290 (18.96%) surgical specimens and 18/290 (6.2%) also showed positive surgical margins. Patients with microscopic BN invasion had significantly higher preoperative PSA, higher Gleason score, higher apical and circumferential positive surgical margins, more advanced pathological stage, and more extensive tumors. At 5 years 42%, 40% and 27% of the patients with BN invasion, extracapsular extension (EPE), and seminal vesicle invasion (SVI), respectively, were free of biochemical recurrence following RP. In multivariate analysis, BN invasion did not contribute for a higher relative hazard of PSA recurrence when added to EPE or SVI. We concluded that BN invasion is associated to adverse clinicopathological findings. However, the biochemical-free outcome following radical prostatectomy is similar to patients with EPE but significantly better than patients with SVI. The findings of our study did not favor considering microscopic bladder neck invasion as stage pT4 but, probably, stage pT3a.

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Radical prostatectomy findings in patients in whom active surveillance of prostate cancer fails

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J Urol. 2009; 182: 2274-8

Purpose: Little data are available on radical prostatectomy findings in men who experience disease progression following active surveillance.

Materials and Methods: A total of 470 men in our active surveillance program underwent annual repeat needle biopsies to look for progression defined as any Gleason pattern grade 4/5, more than 50% cancer on any core or cancer in more than 2 cores. Slides were available for review in 48 of 51 radical prostatectomies with progression.

Results: The average time between the first prostate biopsy and radical prostatectomy was 29.5 months (range 13 to 70), with 44% and 75% of the patients showing progression by the second and third biopsy, respectively. There were 31 (65%) organ confined cases, of which 25 (52%) were Gleason score 6. Of 48 cases 17 (35%) had extraprostatic extension, 3 had seminal vesicle/lymph node involvement and 7 (15%) had positive margins. Mean total tumor volume was 1.3 cm³ (range 0.02 to 10.8). Of the 48 tumors 13 (27%) were potentially clinically insignificant (organ confined, dominant nodule less than 0.5 cm³, no Gleason pattern 4/5) and 19% (5 of 26) of the radical prostatectomies with a dominant tumor nodule less than 0.5 cm³ demonstrated extraprostatic extension, 4 with Gleason pattern 4. All 10 tumors with a dominant nodule greater than 1 cm³ were located predominantly anteriorly.

Conclusions: Most progression after active surveillance occurs 1 to 2 years after diagnosis suggesting under-sampling of more aggressive tumor rather than progression of indolent tumor. Even with progression most tumors have favorable pathology (27% potentially insignificant). A small percentage of men have advanced stage disease (pT3b or N1). The anterior region should be sampled in men on active surveillance.

Editorial Comment

The criteria for insignificant prostate cancer in the present study were absence Gleason pattern grade 4 or 5, less than 50% cancer on any core or cancer in no more than 2 cores (1,2). It is better to consider these criteria as probabilistic predictors of small volume cancer with favorable pathologic findings. The term insignificant may be interpreted as the latent carcinoma of the prostate. Unfortunately, there is no marker so far to predict the biologic behavior of the prostate cancer. Even small volume cancers with favorable pathologic findings at the time of diagnosis may progress as clinically significant cancers.

The study showed that most progression after active surveillance occurred 1 to 2 years after diagnosis and even with progression most tumors had favorable pathology (27% potentially insignificant). The authors

suggest that occurred under sampling in the needle biopsy of more aggressive tumors by the time of diagnosis rather than progression of indolent tumor.

This is an important observation. The pathologist must be aware and inform if a sample is representative of the region biopsied. The criteria for insignificant prostate cancer (or small volume cancer with pathologic findings) should be applied only in well representative needle biopsies otherwise a rebiopsy should be performed.

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BASIC AND TRANSLATIONAL UROLOGY

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Uropathogen interaction with the surface of urological stents using different surface properties

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J Urol. 2009; 182: 1194-200

Purpose: Ureteral stents commonly become infected or encrusted. Various coatings have been developed to decrease bacterial adherence. To our knowledge there has been no in vitro testing of coating with heparin to date. We determined the effects of heparin coating on bacterial adherence of common uropathogens and physical stent properties.

Materials and Methods: Heparin coated Radiance ureteral stents (Cook) and noncoated Endo-Sof control stents were tested against triclosan eluting Triumph(R) stents and noneluting Polaris control stents for adherence of *Escherichia coli*, *Klebsiella pneumoniae*, *Enterococcus faecalis*, *Staphylococcus aureus* and *Pseudomonas aeruginosa* for 7 days. Adherent bacteria were determined and biofilms were visualized using fluorescent dyes. Radial, tensile and coil strength of the Radiance and Polaris stents was compared to determine the effect of heparin coating on physical stent characteristics.

Results: Heparin coating did not decrease bacterial adhesion compared to its control. *E. coli* adhesion was limited by all stents tested. The Polaris stent showed significantly greater resistance to bacterial adherence for *Klebsiella*, *Pseudomonas* and *Enterococcus* than the Endo-Sof and Radiance stents but was more susceptible to *S. aureus* adherence. The Triumph stent resisted all bacteria except *Pseudomonas* and *Enterococcus*. Mature biofilms were observed on all stents with lower viability on the Triumph stent. Radiance stents showed higher tensile and lower compression strength than its control.

Conclusions: Heparin coating does not decrease bacterial adherence to ureteral stents. Drug eluting antimicrobials have an inhibitory effect on bacterial adherence and the Polaris stent showed the least bacterial adherence of the nondrug eluting ureteral stents tested.

Editorial Comment

This is an important study on the ability of five common urological pathogens (*Escherichia coli*, *Enterococcus faecalis*, *Klebsiella pneumoniae*, *Staphylococcus aureus* and *Pseudomonas aeruginosa*) to adhere and form biofilms on commercially available ureteral stents. Also, it was evaluated the impact of heparin coating on stent compression, tensile and coil strength.

This research opens new avenue to a very common and up-to-date problem that is bacterial encrustation and adhesion to stents. It could help modifications in stent design and also in developing drugs to inhibit bacterial adhesion and biofilm formation. I recommend this article as a reference for study design and methodology to all researchers interest in the issue of stent incrustation by bacteria.

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Cryptorchidism with short spermatic vessels: staged orchiopexy preserving spermatic vessels

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J Urol. 2009; 182: 1163-7

Purpose: Patients with cryptorchidism can have such short spermatic vessels that it is impossible to place the testicle in a satisfactory scrotal position using conventional orchiopexy. In these cases the most commonly used operation is 1 to 2-stage Fowler-Stephens orchiopexy. We present our surgical experience using staged inguinal orchiopexy without section of the spermatic vessels in patients with short spermatic vessels.

Materials and Methods: We used 2-stage inguinal orchiopexy in 38 children with intra-abdominal testis or testis peeping through the internal ring and short spermatic vessels (7 bilateral). Spermatic vessels were not sectioned, but were lengthened through progressive traction of the spermatic cord wrapped in polytetrafluoroethylene pericardial membrane (Preclude). In the first stage we mobilized the spermatic cord in the retroperitoneal space and then wrapped it in the polytetrafluoroethylene membrane. We subsequently attached the testis to the invaginated scrotal bottom. At 9 to 12 months we performed the second stage, which involved removing the polytetrafluoroethylene membrane.

Results: From the first to the second stage we observed progressive descent of the testicle toward the scrotum. At 1 to 8-year followup after the second stage all 45 testicles were palpable in a satisfactory scrotal position with stable or increased testicular volume.

Conclusions: This technique represents an alternative to Fowler-Stephens orchiopexy, which can be associated with a greater risk of testicular ischemia.

Editorial Comment

The authors present their experience with cryptorchidism with short spermatic vessels, where they applied a staged inguinal orchiopexy without sectioning the spermatic vessels. The spermatic vessels were involved in an anti-adhesion polytetrafluoroethylene pericardial membrane and were progressively lengthened through traction. Of note, at long-term follow-up all children demonstrated a gonad with a positive echo color Doppler signal of spermatic vessels and stable or increased testicular volume.

It was claimed by Snyder III (1,2) that the spermatic vessels and vas are not short but embedded in the endopelvic fascia, in children with cryptorchidism. This paper would be in line with this belief. Also, extended

mobilization could move the testis to the scrotum in almost all cases (2). The present surgical technique would be a better alternative to the Fowler-Stephens procedure, which can cause unacceptable rates of testicular atrophy and therefore is out of use in most pediatric urology departments.

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RECONSTRUCTIVE UROLOGY

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Clinical outcome and quality of life assessment in patients treated with perineal urethrostomy for anterior urethral stricture disease

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J Urol. 2009; 182: 548-57

Purpose: We performed a quality of life assessment for patients treated with perineal urethrostomy for anterior urethral stricture disease.

Materials and Methods: We retrospectively reviewed 173 patients (median age 55 years) who underwent perineal urethrostomy (from 1978 to 2007) as part of a plan for a staged urethroplasty repair for a complex anterior urethral stricture. The perineostomy was made using flap urethroplasty. The clinical outcome was considered a failure when postoperative instrumentation was needed. A questionnaire was used to evaluate patient quality of life and satisfaction.

Results: Stricture etiology was unknown in 50.3% of the cases, lichen sclerosus in 17.3%, catheter in 13.3%, instrumentation in 8.7%, failed hypospadias repair in 4.6%, trauma in 4.1% and infection in 1.7%. Stricture length was 1 to less than 2 cm in 1.2% of cases, 2 to less than 3 cm in 3.5%, 3 to less than 4 cm in 12.1%, 4 to less than 5 cm in 13.8%, 5 to less than 6 cm in 7.5%, greater than 6 cm in 4.1% and panurethral in 57.8%. Of 173 patients 91 (52.6%) underwent prior urethroplasty. Median follow-up length was 62 months (range 12 to 361). Of 173 cases 121 (70%) were successful and 52 (30%) were failures, requiring revision of the perineostomy. Of 173 patients 135 (78%) were satisfied with the results obtained with surgery, 33 (19.1%) were very satisfied, 127 (73.4%) with a median age of 57 years (range 23 to 85) refused to do the second stage of urethroplasty and 46 (26.6%) with a median age of 47.5 years (range 27 to 72) are currently on a waiting list for the second stage of urethroplasty.

Conclusions: Perineostomy is a necessary procedure for patients with complex urethral pathology and satisfaction rates are high.

Editorial Comment

The authors describe herein their results with perineal urethrostomy as a permanent solution for complex stricture disease. In men such as those with hypospadias who have undergone multiple prior failed procedures it avoids the physical and psychological trauma of yet another attempt at repair. In men with long segment dense stricture disease, especially if due to lichen sclerosis, it avoids the morbidity of a 2- or 3-stage repair with several grafts. I have also found this procedure to be a good option in elderly men with multiple comorbidities who have moderate strictures and would not be able to tolerate a substitution urethroplasty under general anesthesia. Additionally, if suffer stenosis of their perineal urethrostomy it is far simpler for them to perform serial dilation through this short tract than through the penis. I commend the authors for working to assess patient satisfaction and quality of life. As they state, patient-derived outcomes assessment will become the standard of care in this field as it has in many others.

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Urinary side effects and complications after permanent prostate brachytherapy: the MD Anderson Cancer Center experience

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Urology. 2009; 74: 601-5

Objectives: To evaluate acute and long-term urinary morbidity after permanent prostate brachytherapy at a single tertiary care center. To minimize the risk of long-term urinary morbidity, it is important for clinicians to be able to distinguish acute urinary side effects after prostate brachytherapy from longer-term treatment-related urinary complications.

Methods: The medical records of 351 consecutive patients who underwent prostate brachytherapy at the MD Anderson Cancer Center between 1998 and 2006 were analyzed. To evaluate the short-term urinary side effects, the Expanded Prostate Cancer Index Composite questionnaire was administered at baseline and at 1,4,8, and 12 months. Long-term urinary complications were scored using a modified Radiation Therapy Oncology Group scale.

Results: All 4 urinary subdomain scores evaluating acute urinary side effects after treatment (bother, function, incontinence, and irritation or obstruction) had returned to baseline levels by 8 months after implantation. At 5 years, the cumulative risks of late urinary complications by grade were 8.6% for grade 1 complications, 6.5% for grade 2, 1.7% for grade 3, and 0.5% for grade 4. The most common grade 2 late urinary complications were urethral stricture (4 patients), incontinence requiring daily pads (3 patients), and intermittent hematuria (3 patients). Grade 3 complications were urinary retention requiring self-catheterization (2 patients) and severe frequency with dysuria (2 patients). The only grade 4 event was severe hemorrhagic cystitis.

Conclusions: Short-term urinary side effects after prostate brachytherapy are common, follow a predictable course, and typically resolve within 1 year. Conservative management of short-term urinary side effects is recommended to minimize the risk of long-term urinary complications.

Editorial Comment

The authors describe the cumulative incidence of acute urinary side effects and delayed urinary complications of prostate brachytherapy. The cumulative incidence of urethral stricture was similar to what has been previously reported - just under 5% (1). A review of the grade 2-4 complications reveals them all to be problems that are very difficult to manage. Urethral strictures in radiated tissue rarely have a durable response to optical urethrotomy. Urinary incontinence after brachytherapy is much more troublesome to treat than after radical prostatectomy. Moderate to severe dysuria has no good solution. When examining Figure-2 in the article - a graph of the cumulative incidence of late urinary complications - one sees a trend common to most radiation series. That trend is that complications continue to accrue at a steady rate through the end of the follow-up period. To measure the true risk of these complications the follow-up needs to be carried out much further. Urethral complications of radiation therapy are not rare and continue to be a vexing problem to manage.

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UROLOGICAL ONCOLOGY

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Long-term efficacy of maintenance bacillus Calmette-Guérin versus maintenance mitomycin C instillation therapy in frequently recurrent TaT1 tumours without carcinoma in situ: a subgroup analysis of the prospective, randomised FinnBladder I study with a 20-year follow-up

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Eur Urol. 2009; 56: 260-5

Background: The long-term prospective data on bacillus Calmette-Guérin (BCG) and mitomycin C (MMC) instillation therapy are limited. **Objective:** To compare the long-term benefit of BCG and MMC maintenance therapy in patients with recurrent bladder carcinoma.

Design, Setting, and Participants: Eighty-nine patients with frequently recurrent TaT1 disease without carcinoma in situ (CIS) were eligible. Originally, the patients were enrolled in the prospective FinnBladder I study between 1984 and 1987 and randomised to receive BCG or MMC. Both regimens involved five weekly instillations, followed by monthly instillations for 2 yr. Because of alkalinising the urine and adjusting the dose to bladder capacity, the average concentration of MMC was low: 30-40 mg in 150-200 ml of phosphate buffer. Overall median follow-up time was 8.5 yr, whereas the median follow-up time of the patients who were still alive was 19.4 yr.

Measurements: Primary end points were time to first recurrence and overall mortality. Secondary end points were progression and disease-specific mortality.

Results and Limitations: Thirty-six of 45 patients (80.0%) in the MMC group experienced recurrence in contrast to 26 of 44 patients (59.1%) in the BCG group. This finding was reflected in significantly lower cumulative

incidence estimates in the BCG group ($p=0.005$). There was a weak trend for fewer progressions ($p=0.1$) and cancer-specific deaths ($p=0.2$) in the cumulative incidence analysis, as 4 patients versus 10 patients progressed and 4 patients versus 9 patients died from the disease in the BCG group versus the MMC group, respectively. No difference existed in the overall mortality. The study population, however, was too small for conclusive evidence about progression or survival.

Conclusions: An intensive intravesical BCG immunotherapy results in a sustained and significant long-term reduction in recurrence in frequently recurrent bladder carcinoma. The relatively low progression rate during the long follow-up suggests that it may be difficult to show significant differences in overall mortality with a substantially larger but otherwise similar study population.

Trial Registration: Registration was not considered to be necessary at this stage of the follow-up because the study was initiated as early as 1984 and the last randomisation took place in July 1987, that is, long before the current requirements concerning study registrations were implemented.

Editorial Comment

These data show the long-term results of a comparative trial that was initiated in 1984 in patients with intermediate risk bladder cancer. The present publication with roughly 20 years of overall follow-up focuses on the durability of the response and the possible impact of instillation therapy on progression and mortality. The recurrence rate before therapy was 2.54 and 1.99 in the BCG and the MMC arms, respectively, showing more rapidly recurrent patients in the BCG arm. The results are impressive; even with this extremely long follow-up and as few as 45 patients in the MMC arm and 44 patients in the BCG arm there was a statistically sound advantage of BCG therapy with regard to recurrence. Furthermore, this advantage was sustained over time with the probability of recurrence in the BCG arm vs. MMC was 50 vs. 70% after 5 years, 57 vs. 80% after 10 years and 59 vs. 80% after 15 years of follow-up, respectively ($p = 0.005$). Due to the low numbers of patients, data on progression and mortality should be regarded with caution and lack significance. Still, fewer patients had progression (4 vs. 10 pts.) and died of bladder cancer in the BCG arm than in the MMC trial arm. In retrospective, one might criticize the suboptimal monthly maintenance regimen in the BCG arm and the quite low concentration of MMC used in this trial. Still, these data support other results on the sustained long-term efficacy of BCG.

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An individual patient data meta-analysis of the long-term outcome of randomised studies comparing intravesical mitomycin C versus bacillus Calmette-Guérin for non-muscle-invasive bladder cancer

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Eur Urol. 2009; 56: 247-56

Background: Patients with non-muscle-invasive bladder cancer with an intermediate or high risk need adjuvant intravesical therapy after surgery. Based largely on meta-analyses of previously published results, guidelines

recommend using either bacillus Calmette-Guérin (BCG) or mitomycin C (MMC) in these patients. Individual patient data (IPD) meta-analyses, however, are the gold standard.

Objective: To compare the efficacy of BCG and MMC based on an IPD meta-analysis of randomised trials.

Design, Setting, and Participants: Trials were searched through Medline and review articles. The relevant trial investigators were contacted to provide IPD.

Measurements: The drugs were compared with respect to time to recurrence, progression, and overall and cancer-specific death.

Results and Limitations: Nine trials that included 2820 patients were identified, and IPD were obtained from all of them. Patient characteristics were 71% primary, 54% Ta, 43% T1, 25% G1, 58% G2, and 16% G3, and 7% had prior intravesical chemotherapy. Based on a median follow-up of 4.4 yr, 43% recurred. Overall, there was no difference in the time to first recurrence ($p=0.09$) between BCG and MMC. In the trials with BCG maintenance, a 32% reduction in risk of recurrence on BCG compared to MMC was found ($p<0.0001$), while there was a 28% risk increase ($p=0.006$) for BCG in the trials without maintenance. BCG with maintenance was more effective than MMC in both patients previously treated and those not previously treated with chemotherapy. In the subset of 1880 patients for whom data on progression, survival, and cause of death were available, 12% progressed and 24% died, and, of those, 30% of the deaths were due to bladder cancer. No statistically significant differences were found for these long-term end points.

Conclusions: For prophylaxis of recurrence, maintenance BCG is required to demonstrate superiority to MMC. Prior intravesical chemotherapy was not a confounder. There were no statistically significant differences regarding progression, overall survival, and cancer-specific survival between the two treatments.

Editorial Comment

Randomized comparative clinical trials (RCT) allow us to come closer to the “truth” in therapy. Data from meta-analyses, which comprise several of such RCTs, are regarded even more meaningful as they may compensate for flaws of single trials, e.g. lack of sufficient numbers of patients or “events” (e.g. tumor recurrence, progression or death). Thus, meta-analyses may have enough “power” to detect differences between treatment groups that had not been detectable in the included trials alone. The problem is that meta-analyses usually refer to the published data of individual trials which themselves are a surrogate of the “truth” within hundreds of individual patient data. The authors of the present meta-analysis tried to omit this particular flaw by going back into the primary data of the different trials and performing the meta-analytic calculations on this special set of data. Thus, the authors managed to share with us a deeper look into the truth of superficial bladder cancer therapy and answered some questions that had been raised in the meantime.

First, and to my opinion most importantly, the importance of BCG maintenance therapy was confirmed which resulted in a 32% reduction in recurrence in comparison to MMC.

Second, the issue of previous chemotherapy biasing the results in favor of BCG can be neglected. There was no such influence detectable.

Third, the issue of BCG effectiveness in intermediate risk patients is answered. BCG with maintenance therapy is superior to chemotherapy in this analysis comprising (as the authors state themselves) 74% intermediate risk patients.

Forth, the data on progression and death supporting the superiority of maintenance BCG did not approach the level of statistic significance due to the low numbers of “events” (namely, progression and death of disease) in this intermediate risk group cohort of patients.

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NEUROLOGY & FEMALE UROLOGY

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Prevalence of incontinence and incontinence-specific quality of life impairment in women with cystic fibrosis

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Neurourol Urodyn. 2009; 28: 986-9

Aims: Cystic fibrosis (CF) is the commonest autosomal recessive disorder in Caucasians. With advancing medical technology, the life expectancy has more than double in the last twenty years. This has led to new unforeseen health problems like urinary incontinence. The aim was to establish the prevalence, symptomatic typology, and quality of life impact of incontinence in a population of women with CF.

Methods: Women were recruited from two London tertiary referral centres for CF. They were asked to fill in a self-completed anonymous King's Health Questionnaire (KHQ) for assessment of symptoms and quality of life Impairment. Their age was also noted. Descriptive statistics are reported. Correlation was assessed using Pearson's Product Moment Correlation Coefficient (r).

Results: One hundred and forty six women were approached for enrolment. 98(67%) consented to take part in study. Their mean age was 28. Seventy three (74%) reported symptoms of urinary incontinence, which in all cases was perceived as stress urinary incontinence. Of these 44(60%) reported mild stress incontinence, 16(22%) moderate stress incontinence and 13(18%) severe stress incontinence. Continent and incontinent women perceived their general health to be similarly poor (mean score 40 vs. 44 points). Strong positive correlations were found between age and stress urinary incontinence severity ($r = 0.742$; $P < 0.001$) and between age and total King's Health Questionnaire score ($r = 0.828$; $P < 0.001$).

Conclusions: Women with CF have a higher prevalence of stress urinary incontinence than the general population, with both the prevalence and associated quality of life impairment increasing with age.

Editorial Comment

Modern medicine has been able to alter the natural course of many diseases including that of cystic fibrosis. The authors note the benefit of an increased life expectancy for this patient population has brought about an associated higher prevalence for urinary incontinence and subsequent affectations on the quality of life. The report identifies the urinary incontinence as primarily stress as opposed to urge. The discussion section identified that the magnified respiratory symptoms associated with the disease may be the contributing factor to the increased incidence of urinary incontinence. The increased association of stress urinary incontinence in a population of females that challenge the pelvic floor (though perhaps not secondary to coughing), elite athletes, has been previously noted (1). That the patients with cystic fibrosis experienced an adverse effect on their quality of life parallels the findings by other authors when reviewing psychological and somatic status in patients with bronchial asthma (2).

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Do women with pure stress urinary incontinence need urodynamics?

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Urology. 2009; 74: 278-81

Objectives: To evaluate the value of performing urodynamic investigations in the assessment of women with a history of pure stress urinary incontinence (SUI).

Methods: Consecutive women with lower urinary tract symptoms were studied retrospectively. Urinary symptoms were determined from the frequency-volume chart and symptom section of the King's Health Questionnaire. Only women with pure SUI symptoms were included.

Results: A total of 3428 women aged 24-81 years were studied. Only 308 women (8.9%) could be classified as having pure SUI from the questionnaire. Of these, 241 of women (78.2%) had urodynamic stress incontinence, 23 women (7.5%) had detrusor overactivity, 9 women (2.9%) had mixed urodynamic diagnosis, and 35 women (11.4%) had inconclusive urodynamics. Postvoid residual volumes greater than 100 mL were noted in 24 (7.8%) women.

Conclusions: Our results show that urodynamic investigations provide useful information in the assessment of women with a history of pure SUI, because as many as 20% of them might not need surgery as the first line of treatment.

Editorial Comment

The authors review their experience in 3428 women who were evaluated with lower urinary tract symptoms. Patients with a history of daytime frequency, nocturia, urgency and urinary urge incontinence were excluded from this study. The remaining less than 10% (308 women - 8.9%) were evaluated urodynamically. It was noted that 78.2% had urinary stress incontinence, 2.9% had both urinary stress incontinence and detrusor overactivity while 7.5% had detrusor overactivity while the remaining 35 patients (11.4%) had negative diagnostic urodynamics. Later ambulatory urodynamic studies showed that all these patients had detrusor overactivity. Further evaluation of the study group revealed a poor correlation between severity of the urinary incontinence based on bladder diary and that quantified by urodynamic study.

This paper presents the very contemporary debate on which patients need what studies and how much evaluation is required prior to proceeding with surgery. This topic is not new as evidenced by past papers on same by thought leaders such as McGuire et al three decades ago (1). It is noteworthy to see that the rate of patients with detrusor overactivity from the reviewed paper and that quoted from the paper by McGuire et al is almost identical (1). The debate on the evaluation of the incontinent patient may be expanded to multi-channel fluoroscopic urodynamics studies versus clinical acumen combined with eyeball urodynamics. The facility and economic utility of eyeball urodynamics is such that a review of this technique merits discussion (2).

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PEDIATRIC UROLOGY

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Adherence in children with nocturnal enuresis

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Objective: The treatment of enuresis requires adherence to several guidelines often over a long period of time. The aims of this study were 1) to investigate adherence to the medical treatment regime for enuresis and its influence on therapeutic success, and 2) to gain insight into the socio-demographic, medical, familial and psychological predictors of adherence.

Materials and Methods: For 41 children (6-12 years) with nocturnal enuresis, adherence to four common guidelines (drinking and voiding schedule, toilet posture and medication intake) was measured at 1, 3 and 5 months after treatment.

Results and Conclusions: Mean adherence to the medical regime is about 70% according to both child and parent reports at the 24-h recall interview. Greater adherence, particularly to the drinking schedule, was associated with greater therapeutic success after 6 months. The best predictor of good adherence was a positive perception of one's physical appearance and to a lesser extent low levels of stress related to the treatment of the disorder.

Editorial Comment

The authors determined if four guidelines that were given to nocturnal enuresis patients and parents were complied with.

1. Compliance with a drinking schedule to increase functional bladder capacity. 2. Going to the toilet with adequate body posture (sitting) in order to get adequate relaxation of pelvic floor muscles. 3. Adherence to medication intake to reduce nocturnal diuresis in patients with documented polyuria (desmopressin). 4. Compliance with a voiding schedule to become aware of bladder sensations and to increase functional bladder capacity.

Interviews tried to assess the characteristics of the physician and that of the treatment on adherence. Age, demographic factors, socioeconomic status, positive direct parental involvement and psychological variables were evaluated. The study included children 6-12 years of age, 32 males and 9 females, over six months follow up. A 24 hour post-visit telephone interview was done and then questionnaires at 1, 3, and 5 months formed the database.

The adherence to all the guidelines averaged about 74% for the parents and 72.6% for the children that were assessed separately. The conclusions were that the adherence was relatively high and stable. Adherence was increased by explaining the aim of each guideline and stressing the importance of the contribution of both the child and the family.

Many of the problems in pediatric urology are short-term, treated with either medications of short duration or with surgery. Nocturnal enuresis is a long-term problem that adherence to guidelines has a significant impact. These authors with their interesting interview and questionnaire follow-up show that explaining the "whys" for the recommended guidelines, evaluating the stress of the child and the parents and emphasizing follow-up and contact show the best success over the long term.

They did find that the greater adherence particularly to the drinking schedule was associated with the greatest therapeutic success at six months and that the best predictor of good adherence was positive perception of one's physical appearance and to a lesser extent, low levels of stress related to the treatment.

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Mitrofanoff continent catheterizable conduits: top down or bottom up?

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Objective: During augmentation and Mitrofanoff procedures, conduits are usually implanted into the posterior bladder wall. Anatomical considerations may necessitate an anterior conduit. To compare the relative drainage efficiency in patients with posterior and anterior conduits, we studied their rates of bladder stone formation and urinary tract infection (UTI).

Materials and Methods: A retrospective chart review identified exstrophy patients who underwent augmentation and Mitrofanoff between 1991 and 2003. Patients with 3 years or greater follow-up were included. Fifty-four patients fit this criterion, with a conduit implanted anteriorly (33) or posteriorly (21). We compared rates of bladder stone formation and UTI. Stomal revisions and the status of the bladder neck were also noted.

Results: Stone formation and UTI rates were higher in the anterior conduits, although only UTI showed a statistically significant difference. Patient demographics were similar between the two groups, including age and sex. The rates of stomal complications and the bladder neck status were also similar.

Conclusions: Patients with anterior conduits had an increased risk of UTI and bladder stone formation compared to those with posterior conduits, although this was not significant in the case of bladder stone rate. This may indicate sub-optimal bladder drainage and should be addressed with careful preoperative counseling and close follow-up.

Editorial Comment

A 12-year period from 1991-2003 was chosen and Mitrofanoff conduits were reviewed. All patients had greater than 3 years of continuous follow up. Fifty-four patients fit the criterion and 33 had the conduit anastomose to the augmented bladder anteriorly and 21 had their Mitrofanoff conduit placed posteriorly. Patients with cloacal exstrophy and spina bifida were excluded from this data base because it was felt that they had a higher risk of stone formation, which was one of the study criteria. Stomas were placed at the umbilicus. Patients were told to irrigate their augmented bladders daily with saline and had renal and bladder ultrasounds every three months for the first year and every six months thereafter.

Results showed that urinary tract infections were 36.3% in the anterior placed stomas and 9.5% in the posterior group and that was statistically significant. Bladder stones were also higher in the anterior placed conduit group at 48.4%, but this did not reach statistical significance. Stomal complications were not statistically different and most of these were at the skin level. Stomal complications were common happening in over 42% of the patients, with an average of over 3 years of waiting for the stomal complications. The authors felt that the bladder was drained more poorly with the anterior placement of the conduits increasing the infection risk and the risk of stone disease. Many times placement of the conduit was dictated by the disease of the patient and the type of bowel utilized and prior scar tissue.

Augmentations in conduit placements are still fraught with complications. They solve many problems and bring on new problems. This is quite a high stone complication rate in these patients and stomal complications, although they are becoming more commonly noted. It seems that placing the catheterizable stoma in the most dependent portion in the augmented bladder has the best advantage and should be considered by urologic surgeons.

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