EDITORIAL: BENIGN PROSTATIC HYPERPLASIA—WHICH TESTS PREDICT GOOD OUTCOMES FOLLOWING TRANSURETHRAL RESECTION OF THE PROSTATE AND THE ROLE OF LASER VAPORIZATION IN TREATMENT

The practicing urologist has been inundated with new data and therapies for the treatment of patients with bladder outlet obstructive symptoms. The reference guide produced by McConnell et al is widely used by clinicians as an aid in selecting patients for various therapies.1

In the past cystoscopy has been widely used as an aid in selecting patients for possible transurethral resection of the prostate. In the article by Bruskewitz et al (page 1304) cystoscopy was found not to be helpful when used as a tool for selecting patients for possible transurethral resection of the prostate. In the article of Bruskewitz et al cystoscopy was not helpful in this regard. However, it did detect 2.9% of strictures and 0.7% of bladder cancers for a total positive rate of 4%. These findings excluded patients from the study. This 4% rate is not sufficient to justify cystoscopy on all such candidates. I believe that cystoscopy is indicated when one is expecting to use a therapy, such as thermotherapy or transurethral needle ablation of the prostate, that does not treat the prostatic urethra to decide whether to use a modality, such as laser versus conventional transurethral resection of the prostate, or when open prostatectomy is a possibility.

Many urologists use the American Urological Association (AUA) symptom score, maximum flow rate and post-void residual urine measurement to help decide who and how to treat. Many use less invasive therapies, that is medical, for those with perceived lesser problems although medical therapy is often used for those with higher symptom scores and post-void residual, as well as those with decreased maximum flow rate. In the United States urodynamics studies are often omitted in benign prostatic hyperplasia evaluations unless patients are perceived to have possibly a neurogenic component to the symptoms, whereas in Europe such testing is more common. Urodynamic testing on all patients with high symptom scores would significantly increase the cost of evaluating such patients. These authors do not support its use.

Finally, the confusion created by having female patients complete the AUA symptom score sheets has been considerable. Bruskewitz et al concluded that patients with the highest symptom scores had the most symptom improvement and those most bothered by the symptoms were most likely to have improved quality of life. They also concluded that objective tests, such as post-void residual and maximum flow rate, made no clinically significant contribution toward predicting these outcomes.

After transurethral resection of the prostate 71% of patients had significantly decreased symptoms and 66% had significantly decreased bother. The obstructive symptom score correctly classified 72% of patients as to whether they would have a significant decrease in symptoms. Baseline bother was the most meaningful contribution to whether the patient had significantly decreased bother (78% of cases). Therefore, those with the most symptoms or bother preoperatively profited most from the operation.

Regarding maximum flow rate, those with low flow rates of less than 10 ml per second achieved a greater decrease in symptoms (mean plus or minus standard deviation 10.8 ± 5.0) than did those with a medium flow rate (9.6 ± 4.3) and those with a high flow rate of more than 15 ml per second (8.6 ± 5.0). The authors state that this is of slight clinical significance since these differences would not be clinically discernible by patients. I would argue that the difference in the symptom reduction of 2.2 between the low and high flow groups might be clinically discernible. Fortunately there were only 31 patients in this transurethral prostatectomy study with flow rates of more than 15 ml per second versus 105 in the low flow group. I would be uncomfortable performing transurethral resection of the prostate on a patient with a flow rate of more than 15 ml per second. Finally, it is interesting to note that patients with a baseline post-void residual of less than 100 ml had a statistically significant decrease in bother (p = 0.0076) and a nearly significant decrease in symptoms (p = 0.0607).

Another question is what type of transurethral resection results could one expect in a patient with a moderate symptom score, a flow rate of more than 15 ml per second, a wide open prostatic urethra from the verumontanum into the bladder and a bladder with no visible trabeculation? I would be extremely wary in subjecting such a patient to transurethral resection of the prostate. Most studies using invasive techniques in treating benign prostatic hyperplasia exclude those with flow rates of more than 15 ml per second.

Narayan et al (page 1309) report their data on 168 patients undergoing transurethral evaporation of the prostate using a side-firing neodymium:YAG laser at 80 degrees to the fiber axis with a high power density at 60 to 80 watts power setting. It should be carefully noted that they used the laser to vaporize tissue and not to achieve coagulation necrosis such as the Urolase fiber has been used. These authors create an instant channel similar to conventional transurethral resection of the prostate, and therein lies the difference between vaporization and coagulation laser prostatectomy. They also used approximately 2,000 J/cc tissue. The glands averaged 60 cc. Of the patients 37 were in retention, and 17% had a well-defined median lobe (a statistic left out in many articles). Patients must have had a flow rate of less than 15 ml per second and an AUA symptom score of more than 13 to qualify for study.

The authors used the slow pull and mild rotation techniques of vaporization, moving from the bladder neck distally to the verumontanum at the rate of 1 cm./20 to 30 seconds. Median lobes were vaporized. The authors achieved a 65% mean decrease in symptom scores and a 122% mean maximum flow rate increase from 8.2 to 18.2 ml per second. Eighty-one percent achieved at least a 50% improvement in symptom score, 78% achieved at 50% or greater improvement in maximum flow rate and 71% achieved more than a 50% improvement in both parameters.

For several years I have strongly urged that investigators reporting on invasive techniques use the 50% rule, that is at least a 50% improvement in maximum flow rate and/or symptom score, and how many achieve such scores. If only mean data are reported it is easy to hide patients who have not had success in these criteria. Also if one achieves less than 50% improvement, one is perilously close to the placebo effect of 30 to 40% found in many medical studies.
We used the same fiber reported by Narayan et al with a different technique of vaporization. We dwell at the 2, 4, 8 and 10 o'clock positions, and create a series of 8 to 10 mm. deep acorn shaped cavities at 60 to 70 watts for 60 to 75 seconds, which are then connected, and we also create a vaporized groove 1 cm. wide from the bladder neck to the verumontanum, and leave a 16F Foley catheter indwelling for 7 days. The procedure is done on an outpatient basis. We have performed more than 60 of these operations with minimal morbidity and minimal irritative symptoms. Leaving the catheter in situ for 7 days appears to obviate these irritative symptoms in nearly all patients.

The vaporization technique has many advantages. Efficacy appears equivalent or nearly equivalent to that of standard transurethral resection of the prostate. An instant channel is created, no bleeding occurs, no absorption of fluid is noted, it can be used on ill patients, including those anticoagulated with heparin, coumadin, nonsteroidal anti-inflammatory drugs and aspirin, no tissue is obtained, no pathology report expense is generated and no postoperative irrigation is required. It deserves wider use. Coagulation necrosis techniques, with their prolonged evolution of final results, has given neodymium-YAG laser therapy a somewhat tarnished image. Vaporization techniques have more rapid results and better earlier voiding. Narayan et al have reported excellent results with acceptable morbidity.

Finally, the quest for the optimal means of selecting patients for therapy at the lowest cost and morbidity, and the delivery of minimally invasive therapy continues. Old ideas and methods are gradually yielding to new ones. The patient desires the correct diagnosis to be made with the least bother and cost, and the subsequent therapy delivered with the least morbidity and greatest effectiveness. These studies are a step in these directions.

David L. McCullough
Department of Urology
Bowman Gray School of Medicine of Wake Forest University
Winston-Salem, North Carolina

REFERENCES
