No scalpel: Minimally invasive breakthrough for men's enlarged prostates improves symptoms

March 29 2011

A new interventional radiology treatment that blocks blood supply to men's enlarged prostate glands shows comparable clinical results to transurethral resection of the prostate (or TURP), considered the gold standard (or most common) treatment. However, this minimally invasive treatment—prostatic artery embolization—has none of the risks associated with TURP, such as sexual dysfunction, urinary incontinence, blood loss and retrograde ejaculation, noted researchers at the Society of Interventional Radiology's 36th Annual Scientific Meeting in Chicago.

"Benign prostatic hyperplasia or BPH is so common that it's been said that all men will have an enlarged prostate if they live long enough. I believe that a minimally invasive interventional radiology treatment—prostatic artery embolization or PAE—will be the future treatment for benign prostatic hyperplasia or men's noncancerous enlarged prostates," noted João Martins Pisco, M.D., chief radiologist at Hospital Pulido Valente and director of interventional radiology at St. Louis Hospital, both in Lisbon, Portugal. "Prostatic artery embolization blocks blood supply to treat noncancerous benign prostatic hyperplasia. This study is significant because it shows comparable clinical results to transurethral resection of the prostate or TURP—without the risks of surgery, such as sexual dysfunction, urinary incontinence, blood loss and retrograde ejaculation (or entry of semen into the bladder)," added Pisco, who is a professor at the Faculty of Medical Sciences, New University of Lisbon. "While the gold standard treatment for enlarged

prostates has been TURP, minimally invasive prostatic artery embolization is safe, performed under local anesthesia and has comparable clinical results—without TURP's limitations and risks," said Pisco. The interventional radiologist indicated that PAE patients experienced symptom improvement comparable to TURP; however, certain urodynamic results (such as flow rate of the urinary stream) did not improve as much as with TURP.

TURP can be performed only on prostates smaller than 60□□ cubic centimeters (cc); there is no size limitation for PAE treatment, said Pisco. "The best results are obtained on patients with prostates larger than 60 cubic centimeters and with very severe symptoms," he added. "Pelvic arterial embolization may be the only feasible and effective treatment for benign prostatic hyperplasia in those men who cannot have TURP due to the size of their prostate (80+ cubic centimeters) or because it is inadvisable for them to undergo general anaesthesia," said Pisco.

BPH is not cancer; it is a condition that affects a man's prostate, a gland found between the bladder and the urethra. As a man ages, the prostate gland slowly grows bigger (or enlarges) and may press on the urethra and cause the flow of urine to be slower and less forceful. BPH is characterized by urinary frequency, urgency, passing urine more often (particularly at night), weakened stream and incomplete bladder emptying. "Such symptoms can have significant negative impact in quality of life, leading many men to seek treatment," said Pisco. "We need innovative technologies, such as prostatic artery embolization, to continue to improve outcomes and minimize patient discomfort and morbidity when managing enlarged prostates," he added.

An estimated 19 million men in this country have symptomatic BPH, (14 million undiagnosed; 2 million diagnosed but untreated). Statistics show that a small amount of prostate enlargement is present in many men over

age 40, as many as 50 percent experience symptoms of an enlarged prostate by age 60 and more than 90 percent of men over the age of 85 will report symptoms.

"The men who were treated with prostatic artery embolization showed significant clinical improvement," said Pisco. In this study, 84 men (ranging in ages from 52 to 85) with symptomatic BPH underwent prostatic artery embolization after failing other medical treatments for at least six months, said Pisco. The men were followed for more than nine months (on average), and PAE was found to be technically successful in 98.5 percent of the patients—with 77 men showing "excellent" improvement, six men "slight improvement" (but needing no medications) and one experiencing no improvement (due to receiving an incomplete embolization), he added. Two hours after PAE, most men were passing urine less frequently. It was impossible to embolize both prostate arteries in the men showing "slight improvement" due to advanced atherosclerosis, said Pisco. According to Pisco, he used angiography (by pelvic magnetic resonance and computed tomography) to evaluate the possibility of embolizing prostatic blood vessels.

Prostatic artery embolization is performed by an interventional radiologist, a physician who is trained to perform this and other types of embolization and minimally invasive procedures. An interventional radiologist makes a tiny nick in the skin in the groin and inserts a microcatheter into the femoral artery. Using real-time imaging, the physician guides the catheter through the artery and then releases tiny particles, the size of grains of sand, into the prostatic arteries that supply blood to the tumor. These tiny particles block blood flow to the tumor, causing it to shrink. Following PAE treatment, most men experience no pain to light pain and leave the hospital four to eight hours after intervention. "There is no sexual dysfunction following prostatic artery embolization, and a quarter of our patients report that sexual function improved after the procedure," added Pisco.

BPH can be treated by TURP, a procedure in which a scope is inserted through the penis and the prostate is removed piece by piece, or surgery through an abdomen incision (prostatectomy). During surgery, a man generally undergoes general anaesthesia and needs to spend several days in a hospital. Major complications are frequent, such as blood loss, severe pain, sexual dysfunction, impotence, retrograde ejaculation, urinary incontinence, pain, infections and urethral stricture, said Pisco.

Other treatments for enlarged prostrates—besides prostatic artery embolization, TURP and prostatectomy—include watchful waiting, drugs (to relax muscles near prostate to ease symptoms or help shrink the prostate) and other minimally invasive therapies (such as transurethral needle ablation and laser surgery), which have major disadvantages, such as providing less effective improvement in symptoms, poorer durability of symptomatic benefit, and greater risk of continued catheterization and reoperation. "Additional research is needed to explain why some patients improve better than others," said Pisco.

Provided by Society of Interventional Radiology