Yes!—this is the short answer to the question of whether prostate artery embolization (PAE) is ready for prime time. In order to evaluate a new technology or procedure and its application in health care, we must consider a few variables before acceptance into mainstream medicine. The most important is scientific evidence, with training, adoption, and the political landscape rounding out the rest.

RESULTS OF RANDOMIZED CONTROLLED TRIALS

Since we began investigating PAE and its effects on benign prostatic hyperplasia (BPH) in 2011, more than 100 peer-reviewed articles have been published. At least three randomized controlled trials (RCTs) from three different continents have found that improvements in lower urinary tract symptoms with PAE and transurethral resection of the prostate (TURP) are comparable.

One RCT of 114 patients by Gao et al comparing TURP and PAE was published in 2014, which showed similar clinical outcomes at 2 years with respect to International Prostate Symptom Score (IPSS), maximum urinary flow rate (Qmax), quality of life, and postvoid residual. In 2016, Carnevale et al published their RCT comparing TURP and PAE in 30 patients with a matched cohort of 15 patients with specialized technique. Both PAE and TURP demonstrated a significant reduction in IPSS, and TURP resulted in greater improvements in Qmax but with a higher complication rate.

Six-month results from the most recent RCT comparing TURP with PAE were presented at CIRSE 2017 by de Ocariz Garcia et al. Interestingly, their primary endpoint was Qmax, and results indicated no significant difference between PAE and TURP at 6 months. Although evidence exists for short and intermediate outcomes, Pisco et al published the largest long-term experience in more than 1,000 patients with follow-up beyond 5 years.

This study demonstrated the long-term effectiveness of PAE in the treatment of lower urinary tract symptoms from BPH.

BENEFITS OF A MINIMALLY INVASIVE APPROACH

TURP has long been the standard treatment for lower urinary tract symptoms from BPH, but unfortunately, the procedure comes with significant side effects including impotence, incontinence, or retrograde ejaculation. Over the past 20 years, numerous minimally invasive...
urologic procedures have been proposed, and some have been short lived because of complications or lack of efficacy (eg, urethral stents). Advances in technology have allowed urologists to perform less invasive surgery for BPH, but they may come with less successful clinical results than TURP (eg, laser energy, retraction clips, and "steam ablation"), while still placing the patient at risk of transurethral complications.

PAE offers an innovative and unique approach to the treatment of lower urinary tract symptoms from BPH, as this is the first treatment to target the prostate from a vascular or whole glandular approach (Figures 1 and 2). This alternative, which can potentially mitigate the risk of transurethral complications, cannot be understated. According to one study, more than half of men avoid treatment for BPH altogether due to their fear of complications.

PAE is believed to work by decreasing central glandular volume and thus improving urinary flow, which is a prime example of an obstructive symptom. It is also felt that PAE may reduce the amount of α-adrenergic-sensitive tissue, which is predominantly located in the periurethral gland and the bladder neck. This "hypersensitivity" of prostatic tissue is thought to be related to the irritative symptoms of BPH, such as urgency. PAE aims to target both the obstructive and irritative symptoms of BPH, with evidence suggesting it succeeds in the treatment of both.

TRAINING FOR PAE AND CHALLENGES TO WIDESPREAD ADOPTION

Beyond scientific evidence, the physicians who perform the procedure must be willing and able to bring this advancement to mainstream health care. Interventional radiologists possess the inherent expertise with advanced microcatheter and wire skills, and given the innovations in embolization over the past 20 years, interventional radiologists are well positioned to bring PAE to the forefront. Training and education dedicated to PAE has been an increasing focus of multiple continuing medical education meetings, including GEST and SYNERGY, and dedicated PAE meetings such as STREAM are also making the push to train interventionalists as well. A growing number of interventionalists around the country are starting PAE programs, adding to the list of communities that can offer this minimally invasive treatment for BPH.

There is no doubt that the success and growth of PAE can be threatening to the urologic community. This last and most difficult variable is unfortunately part and parcel with interventional radiology as a subspecialty. It is incumbent on interventionalists to work both in an integrative nature with urology, as well as an independent specialty, to offer patients minimally invasive options for their health. This can be the most challenging aspect of PAE and biggest hurdle for widespread adoption. Although interventional radiology has transformed over the past 15 years into a clinically oriented specialty, it is incumbent on interventional radiologists to lead and become key stakeholders in the treatment of conditions affecting men’s health, alongside other specialties. Our ability to advance modern health care with proven, less invasive options will allow the interventional radiology community to bring PAE into prime time.


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