

Interventional radiology: Zapping uterine fibroids with heat from high-energy sound waves

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There's a new interventional radiology tool showing promise in the treatment of uterine fibroids: magnetic resonance-guided focused ultrasound (MRgFUS), a minimally invasive treatment that uses high-energy ultrasound waves to generate heat at a specific point to destroy uterine fibroid tissue and relieve symptoms. A study of more than 100 patients shows that women can get lasting relief from uterine fibroid-related symptoms with MRgFUS—thus avoiding myomectomy, the surgical removal of uterine fibroids, or hysterectomy, major abdominal surgery to remove the uterus, say researchers at the Society of Interventional Radiology's 35th Annual Scientific Meeting in Tampa, Fla.

"Our 119-patient study shows that magnetic resonance-guided focused ultrasound is highly effective and can provide lasting relief from uterine fibroid-related symptoms," said Gina Hesley, M.D., Mayo Clinic in Rochester, Minn. In the 12 months following MRgFUS treatment, 97 percent of the women reported improvement of their symptoms, with 90 percent of women rating their improvement as either considerable or excellent. "MRgFUS is newer than another interventional radiology fibroid treatment—uterine fibroid embolization or UFE—a widely available treatment that blocks blood flow to fibroid tumors. Our results with effectiveness of MRgFUS technology are promising and comparable with that of UFE, but its longer-term effectiveness needs continued study," said Hesley. "Today, women have interventional

radiology options that do not involve the use of a scalpel incision. Women should ask for a consult with an interventional radiologist who can determine from MR imaging whether they are candidates for either procedure," she added.

[Uterine fibroids](#) are very common noncancerous (benign) growths that develop in the muscular wall of the uterus. They can cause prolonged, heavy menstrual bleeding that can be severe enough to cause anemia or require transfusion, disabling pelvic pain and pressure, urinary frequency, pain during intercourse, miscarriage, interference with fertility and an abnormally large uterus resembling pregnancy. Twenty to 40 percent of women age 35 and older have uterine fibroids of a significant size. African-American women are at a higher risk for fibroids: as many as 50 percent have fibroids of a significant size.

MRgFUS is performed as an outpatient procedure; it uses high-intensity focused [ultrasound waves](#)—that can pass through skin, muscle, fat and other soft tissues—to destroy (ablate) fibroid tissue. During treatment, the physician uses [magnetic resonance](#) imaging (MRI) to see inside the body to deliver the treatment directly to the fibroid. MRI scans identify the tissue in the body to treat and are used to plan each patient's procedure. MRI provides a three-dimensional view of the targeted tissue, allowing for precise focusing and delivery of the ultrasound energy. MRI also enables the physician to monitor tissue temperature in real-time to ensure adequate—but safe—heating of the target. Immediate imaging of the treated area following MRgFUS helps the physician determine the success of the treatment. The procedure was approved by the Food and Drug Administration for treating uterine fibroids in October 2004; however, it is still considered new, is not widely available and not all insurance carriers cover it.

In the nearly three-year study, 119 women completed MRgFUS treatment at the Mayo Clinic and were followed for 12 months using

phone interviews to assess fibroid-related symptoms and symptomatic relief. Of the 89 patients who were available for phone interviews at 12 months, 69 indicated they received from the following relief from symptoms: excellent (74 percent), considerable (16 percent), moderate (9 percent) and insignificant (1 percent). The rate of additional treatments needed post-MRgFUS was 8 percent, which is within values reported for myomectomy and uterine fibroid embolization, said Hesley.

The Mayo researchers will continue to study two-year and three-year results of symptom relief. They will also compare their current results with those reported for myomectomy and uterine artery embolization and investigate the efficacy of MRgFUS in treating other uterine conditions, such as adenomyosis, a condition in which tissue that normally lines the uterus also grows within the muscular walls of the uterus, said Hesley.

Provided by Society of Interventional Radiology

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