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THE CUTTING EDGE

The Micra: Little Pacemaker, Big Impact

BY AGENT ERIN HOLDEN

The world's smallest pacemaker, the Micra Transcatheter Pacing System, was approved by the FDA in 2016, and, in April of this year, 88 year old Carol Dupre of Eunice was the first patient to receive it in the Acadiana area.

He suffered from an irregular heartbeats, but after having the Micra implanted by Dr. Patrick Welch at Heart Hospital of Lafayette, his quality of life improved dramatically. Already an active person, Dupre said, "I still walk good, cut my grass, and do everything I used to do with this little thing. I don't have to worry about a stroke."

Welch, the first doctor in Acadiana to implant the pacemaker, said there are many benefits of the Micra versus traditional pacemakers. "There's no lead (wires)," Welch said. "The device is completely self-contained. The leads are typically the weak link in the chain in terms of durability," he said. "They tend to deteriorate over time. They dangle in the blood stream, so it's a potential source of infection. Most of the thorny problems I have to deal with regarding pacemakers are lead problems."

With the Micra, the risk of infection is extremely low because it is inside a subcutaneous pocket. There are what Welch describes as "barbed fish hooks" in place of the wires. The pacemaker is implanted through a vein in the leg, leaving no chest incision or scar compared to traditional pacemakers. "We deploy it through a catheter, and it has a suture that is about six feet long. We cut the suture and leave the pacemaker in the heart," Welch said.

Not all patients in need of a pacemaker are candidates for the Micra. It's only for patients who need a single lead pacemaker in the bottom chamber of the heart, which is a "relatively small subset of pacemaker patients," Welch explained. He was trained to implant the Micra in October, and has so far implanted five. Dupre was a perfect candidate, because, with his atrial fibrillation, he only needs pacing in one heart chamber, Welch said.

"This is the direction that pacing is going," Welch said. "Implantable devices, trying to minimize the number of leads...we're likely to see dual chamber patients that will have two of these (Micras) that talk to each other wirelessly: one in the atrium and one in the ventricle," Welch expounded.

Patients with traditional pacemakers have check-ups three times per month to monitor their incision, whereas Micra patients only have to check in once a year, because risk of infection is extremely low with the Micra. Making the post-surgical experience even more convenient, there is a transmitter that wirelessly communicates with the Micra, uploading data. "I can wirelessly follow the patient," Welch said, "and I can see them in the office once a year, but it is being checked every day with the wireless follow-up."

There may be engineering limitations due to the size of the device, but the advancements will continue over the next couple of decades, according to Welch. Whatever the future brings, Dupre is grateful today's technology has improved the quality of his life. "It's the most wonderful thing that ever happened," he said.

The world's
smallest
pacemaker:



Dr. Patrick Welch,
Heart Hospital of Lafayette