

TRANSCRIPT

A Surprising New Treatment for Rheumatoid Arthritis

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[Heard on All Things Considered](#)

Report by Jon Hamilton

People with rheumatoid arthritis usually depend on drugs to control pain in their joints. But this summer, the Food and Drug Administration approved a different sort of treatment. It's a device that activates the body's own system for regulating inflammation.

NPR's John Hamilton reports on one of the first patients to get this device.

JON HAMILTON

In the summer of 2019, just after her 30th wedding anniversary, Lynn Milam's life took a sudden turn.

LYNN MILAM

I had bent down in front of my kitchen sink and noticed this unusual pain in my knees.

HAMILTON

It was the first sign of rheumatoid arthritis, which occurs when the immune system starts attacking the lining of joints. Milam says, pretty soon, everything hurt.

MILAM

My back, my knees, my ankles, my shoulders, my neck, my whole body had become affected.

HAMILTON

Milam tried physical therapy, acupuncture, steroids, and even the latest costly immune drugs. Nothing worked. Stairs were a no-go. Even a gentle touch sent pain radiating throughout her body.

MILAM

My children could not hug me. You know, I couldn't hold my husband's hand.

HAMILTON

So, when her rheumatologist suggested a clinical trial, Milam said yes. The trial involved a device that delivers pulses of electricity to the vagus nerve, which carries signals between the brain and internal organs. Dr. Peter Konrad, a neurosurgeon at West Virginia University, was part of a nationwide study of the device.

PETER KONRAD

It's the size of a lima bean. I mean, that's cool when you think about an implant. It doesn't have wires going places. Everything's all built on a little chip. And then it's contained in a little silicone jacket.

HAMILTON

The stimulator, made by Setpoint Medical, is placed through a small incision in the neck. Conrad says it's a lot like devices used to control epileptic seizures.

KONRAD

Neurosurgeons have been putting vagus nerve stimulators in for epilepsy for two decades. So, it's not like we didn't know how to put a device on the vagus nerve.

HAMILTON

For Milam, the operation itself was easy.

MILAM

I've had dental surgery that was more of a process than this surgery was.

HAMILTON

There was a hitch, though. Because the device sits so close to the vocal cords, Milam's voice was temporarily limited to a whisper. A second procedure fixed that but left her voice slightly lower than it had been. Milam says she'll accept that for a treatment that did what drugs could not.

MILAM

Three weeks in, my elbow pain was completely gone. Then my hands. My hands didn't hurt anymore. The swelling started going away. Everything started, like, going away.

HAMILTON

The idea that electrical impulses could alter the immune system was not immediately embraced by the medical community. Dr. John Tesser is a rheumatologist in Phoenix.

JOHN TESSER

I, like probably all of my colleagues, was somewhat skeptical.

HAMILTON

Then Tesser began to look at how the device works. By stimulating the vagus nerve, it activates a reflex in the brain. That reflex instructs cells in the spleen to stop making inflammatory proteins called cytokines.

TESSER

This treatment is utilizing the body's own mechanism of managing inflammation.

HAMILTON

It rarely produces the sort of recovery that Lynn Milam experienced. But Tesser says the pivotal clinical trial found that patients who had not responded to even the most powerful drugs often saw meaningful improvement.

TESSER

Thirty-five percent of the patients did achieve that in this very difficult-to-treat group.

HAMILTON

Significantly more than in a comparison group whose stimulators had not yet been switched on. Tesser says rheumatoid arthritis may be just the first disease treated by stimulating the vagus nerve.

TESSER

There are implications for all kinds of systemic autoimmune diseases. So, we're talking multiple sclerosis, psoriatic arthritis, and inflammatory bowel disease, just to name a few.

HAMILTON

For Lynn Milam, the stimulator has restored her ability to climb stairs, cook, and travel. It's also restored a bond with her husband, Donnie, who wanted to celebrate her recovery by renewing their vows.

MILAM

So that's what we did. And that night, to me, meant more than our wedding. It was like a rebirth of everything.

HAMILTON

Donnie Milam says he's just happy to be back doing everyday activities with his wife.

DONNIE MILAM

Walking the dogs, holding hands, just the simple things, and hugs.

HAMILTON

Jon Hamilton, NPR News.