

'Light in the darkness': After years of painful seizures, this Houston teen's life changed forever

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Isla Ritchie, 17, was diagnosed with epilepsy at age 11, now she uses a unique, non-medication treatment that delivers mild pulses to areas of the brain associated with seizures

Isla Ritchie describes her absence seizures as standing on her tiptoes to peek through a tiny window. Everything looks white, except for a small light, and five minutes feels like an eternity. Ritchie's brain becomes a tiny world where she is trapped inside. And no one can tell.

As a student at Houston Christian High School, Ritchie was prone to weekly generalized convulsive seizures (formerly called grand mal), which affected her entire body and left her in pain for days afterward. She also suffered from absence seizures, which is when a person with epilepsy stares blankly and zones out for seconds or minutes.

"Some absence seizures you remember, and some you don't," said Ritchie, 17. "It put me behind in class, and I had to borrow notes from someone else. I was crying from the inside, but nobody could tell what was happening."

Ritchie's last seizure was 17 months ago. Through a combination of medication and the implantation of a vagus nerve stimulator (VNS), she has been able to keep the seizures at bay.

A year of debilitating seizures passed before the family found a treatment that worked in 2016. She was 12.

Seizure after-effects left her feeling achy, dizzy and nauseated; her arms shook and she hurt for days afterward, especially if she fell during the episode. She didn't know how to tell her classmates or teachers about her condition. She remembers feeling sick and useless, or worse, she felt that she was a burden to her family.

Ritchie was prescribed a high dose of Keppra, a common medication used to treat epilepsy, but the seizures kept coming. Her mother, Lisa Ritchie, administered a separate epilepsy rescue medication (fast-acting drugs that help stop a seizure quickly), but that left her exhausted and, sometimes unable to walk.

“Isla was losing three-four days of her life every week trying to recover from the rescue medicine. It’s strong,” said Lisa Ritchie. “She was missing out on everything. It was hard on her memory and her body. It was really tough.”

One-third of epilepsy patients do not respond well to medications alone, according to Dr. Gretchen Von Allmen, pediatric neurologist with UT Physicians and McGovern Medical School at UTHealth. Von Allmen is Ritchie’s neurologist and specializes in helping children who have difficulty controlling their epilepsy.

There is a 1-2 percent chance that a patient who doesn’t respond well to one medication will find success controlling their seizures with another medication, Von Allmen said. There are more than 30 medications used to treat the disease.

“The first step is to understand what type of epilepsy they have and the type of seizures they’re having, and what other treatments can be used to control their epilepsy better,” Von Allmen said. “Making them seizure-free is the goal, if possible.”

By the time Ritchie met Von Allmen, she had tried multiple medications and treatments to no avail. The neurologist admitted her to the hospital for continuous electromyography (EMG) monitoring, which captures where the seizures originate in the brain, and MRI scans.

Ritchie’s seizures were coming from multiple areas of her brain, so she wasn’t a candidate for epilepsy surgery, in which a specific area of the brain is removed. A ketogenic diet can also help control seizures, but Ritchie opted for the VNS implant.

VNS implants are like pacemakers, but instead of pacing the heart, they pace the vagus nerve, said Dr. Manish Shah, pediatric neurosurgeon with UT Physicians and Children’s Memorial Hermann. He implanted Ritchie’s VNS.

The vagus nerve is located in the neck between the carotid artery and the jugular vein. The nerve serves different functions, but Shah calls it the “chill nerve,” meaning it calms the brain when it is overstimulated.

The VNS continuously stimulates the nerve and changes the brain in a way that doctors don’t fully understand yet, Shah said. After it’s first inserted, seizure frequency typically reduces by half; after five years, it can become 70 percent effective in seizure reduction. The device can be used for patients with epilepsy and depression.

If Ritchie tastes pennies, as is common in seizures, and becomes nauseated, a family member or classmate can swipe a remote magnet across the VNS to send another impulse to the nerve in hopes it will stave off the seizure.

Only 7 percent of people with a VNS implant are cured of their epilepsy, so it is not an expected outcome, Shah said. But the repetitive stimulation of the nerve can lower the severity and duration of a person's seizures from minutes to seconds.

Ritchie, fed up with having painful weekly seizures, saw the VNS as her passport to a new life.

In the past 17 months, she has joined the swim team and competed in discus and shot put during track season. She danced on the drill team last year, and this year, she is enjoying musical theater. During the summer, she said she was able to bicycle for 20 miles straight.

When she graduates from high school in 2022, Ritchie hopes to study medicine. She feels as though she grew up in the hospital and is appreciative of every nurse, doctor and surgeon she has met along the way.

She wants to help people like she was helped, she said. She is considering studying physical therapy or nursing.

"Going to doctor to doctor can be tiring and draining, but there is always a light in the darkness," Ritchie said. "I really want to give back to the people who have helped me."

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