

### Neuro-Intensivist Does the *'Unthinkable'* to Defeat Dual-Threat Stroke



Debi Shackelford is so glad her heart unexpectedly went into overdrive. “If it hadn’t started beating really hard,” she said, “I probably wouldn’t have gone to see my doctor.”

That’s because Debi’s always been healthy and active. Even though in the past year she’d noticed her blood pressure was starting to climb, she was so used to being just fine that she couldn’t imagine anything seriously wrong with her.

That’s why she thought the splitting headache, nausea and vomiting that hit her a week later were symptoms of a flu bug. When symptoms persisted for five days, she figured it was a virus that just wouldn’t go away. Reluctant to see her doctor again, she finally went into a new walk-in clinic at her doctor’s office, where she saw the nurse practitioner.

“My 17-year-old son was with me,” she said. “I don’t remember exactly what happened, but I do remember him telling me that he thought I flunked the (neurology) test and needed to go to the Emergency Department.”

When she arrived at John C. Lincoln North Mountain Hospital, an accredited Stroke Center, the 24/7 stroke team kicked into high gear. Debi had a rare kind of stroke that all too frequently is fatal.

To understand Debi’s condition, you need to know most strokes are caused by blood clots that block the flow of oxygen through the brain’s network of arteries. Clots can be treated with an intravenous drug called tPA. The drug dissolves the clot, restores blood flow and – if this happens quickly enough – the patient’s ability to function resumes.

A small percentage of strokes are caused when a blood vessel breaks and bleeds into the brain. Sometimes, surgery is required to fix this kind of problem. Ordinarily, you wouldn’t want this kind of stroke to be treated with intravenous tPA, because that would just make the bleeding worse.

But Debi had both problems, according to John C. Lincoln’s board-certified stroke expert, neuro-intensivist Victor Zach, MD.

Debi had a type of brain bleed known as an “intraventricular hemorrhage,” Dr. Zach explained. The hemorrhage filled her brain with blood that solidified into a clot that closed off the outflow of cerebrospinal fluid (CSF).

CSF is a liquid that circulates through the ventricles, a linked network of cavities within the brain tissue. CSF serves as a cushion that helps protect the brain from impact.

If normal CSF drainage is blocked, the liquid builds up dangerously, causing increased pressure inside the head and dilation of the brain ventricles. This condition, usually publicized as a birth defect in babies, is called hydrocephalus. It requires surgical insertion of a shunt, a special kind of artificial drain, to let the fluid flow out so pressure on the brain abates.

“I don’t remember a lot about my time in the Emergency Department,” Debi said, “but I do remember being terrified when they said they were going to drill a hole in my head. I imagined a power drill, like a horror movie.

“But Dr. Zach assured me it would *not* be a power drill,” she said. “Then he explained everything they were going to do. He was so calm and confident . . . he made me believe he was going to fix my problem – and he did!”

Dr. Zach generated so much trust, faith and confidence in Debi that she couldn’t understand why her family and friends who accompanied her to the hospital were so freaked out. “I kept telling them everything was going to be fine. I didn’t get why they were still worried. I was not afraid.”

Dr. Zach performed an emergency twist drill burr hole through Debi’s skull and inserted a ventriculostomy catheter to drain the cerebrospinal fluid and reduce pressure on Debi’s brain.

That part was standard procedure. But what happened next was about as far from typical stroke treatment as medicine can get.

Basing his plan of action on clinical research he had done in New York, Dr. Zach “did the unthinkable,” he said. “I gave a patient with a brain bleed a clotbuster. This was a John C. Lincoln ‘first.’”

But instead of giving the drug intravenously, which would have aggravated the brain bleeding, Dr. Zach maneuvered the catheter through the burr hole into the part of Debi’s brain where the blood clot had lodged. Then he administered tPA directly into the clot so that it dissolved without aggravating the bleeding.

How did he do that? How did he make the catheter go exactly where it needed to be and nowhere else? Dr. Zach thought about that for a moment and finally smiled just a bit. “Experience,” he said quietly.

Without this innovative treatment, Dr. Zach said, their clinical trials showed the death rate from Debi’s condition is as high as 56 percent. Half of the patients who did survive without intraventricular tPA became dependent on shunts that are difficult to insert, require more surgery, may become infected, fail or need revisions.

“What happened next was miraculous,” Dr. Zach said. “The head CT scan done the day after the tPA revealed complete resolution of the blood clot and return of normal CSF flow.”

“I recovered really quickly,” Debi said. “They told me I might be in the hospital for a week to a week and a half, but I was out of ICU in five days and I was only in a regular nursing unit for two days. I felt pretty good, but my brain felt a bit rusty.”

So Debi went on line to the Luminosity.com brain website and spent a week practicing beating their games. “It really helped,” she said. “I’m a mutual teller for the dog track, and when people come up at the last minute to put in their bets, you have to be on the very top of your game. And I was.”

To express her appreciation, Debi recently delivered several German cakes to Dr. Zach and her team of stroke professionals who took care of her at North Mountain. “What can you do for someone who saved your life?” she asks.

But she wants to do more. “I have a healthy lifestyle working out in the gym, hiking outdoors and other activities, so I think if I’d managed my blood pressure, I could have avoided this stroke,” she said. “I want to do whatever I can to let people to know how dangerous high blood pressure can be.

“God and Dr. Zach gave me a second chance at life,” she said. “I don’t want to waste a minute of it.”