

## HEALTHY LIVING

# Battling brain injuries

## Female hormones put up fight against head trauma

BY KAVITA PILLAI

Cox News Service

Robert Smith was driving to his Hiram, Ga., home in 2004 when his car flipped off a 13-foot embankment and wrapped around a tree.

Smith, who was partially ejected, was unconscious when paramedics pulled him from the wreckage, and doctors would later tell his wife that the prognosis wasn't good — if he survived, he'd likely be in a vegetative state.

But after two months in a coma, Smith awoke in a darkened hospital room. Nurses found him sitting in a chair. He could walk; he could talk. He remembered everything except for the week leading up to the accident and the accident itself.

Smith, now a network engineer in Kings Bay, Ga., for the Atlantic division of the Strategic Weapons Facility, attributes his extraordinary recovery to an experimental treatment he received at Grady Memorial Hospital as part of a study by Emory University researchers.

Shortly after he arrived in the emergency room, he was given high doses of progesterone, commonly known as a female hormone — a label researchers say can be misleading.

"I believe that the progesterone is the reason I'm back doing computer work," he said. "I didn't have to relearn how to walk, how to talk."

The 42-year-old husband and father was one of 100 participants in a three-year study of the safety of using progesterone to treat brain injuries.

Four of every five patients older than 18 who came in with a moderate-to-severe blunt head injury were given the progesterone within 12 hours of their injuries. The other patients were given placebos.

The results, say project leader David Wright, were remarkable.

The research, published in the *Annals of Emergency Medicine*, showed a 50 percent reduction in the mortality rate for the severe traumatic brain injury group that took progesterone. Doctors use the Glasgow Coma Scale to rate the conscious state of a person, with 3

being the worst and 15 being the best.

Smith said he was rated a 3.

About 30 percent of placebo patients died within 30 days of their injury, while 13 percent of the progesterone group died.

For those with moderate brain injuries, Wright said the study showed less disability for those in the progesterone group. He added that the study's primary goal was to establish safety and that no adverse side effects were found.

Marc Baskett, 22, was another member of the progesterone group. He rated a 4 on the Glasgow scale after surviving a head-on collision on his way to a picnic in Helen, Ga., just three weeks before he was to graduate from high school.

"My parents thought I was going to be in a hospital for the rest of my life," said Baskett, who has had 16 surgeries for other injuries related to the 2004 accident.

"Now, I'm completely back mentally. I'm just waiting on the physical stuff."

Baskett, who lives in Commerce, Ga., received his diploma while hospitalized. He now works as a caregiver.

If further study yields similar results, the hormone could become a major treatment for injuries that affect 1.4 million people in this country each year, according to the U.S. Centers for Disease Control and Prevention. Battlefield implications are evident: Severe



ELISSA EUBANKS/COX NEWS SERVICE

Brain injury survivor Marc Baskett was in a car accident in 2004 that left him almost brain dead. He credits an experimental clinical trial that used progesterone to treat brain injuries with his survival.

head trauma has become a common injury for U.S. soldiers.

The Emory team is now designing an expanded clinical trial with 1,000 patients in 15 hospitals across the country. If that project is approved by the Food and Drug Administration and goes as planned, the treatment could be widely available as soon as three years from now.

### Signature injury of soldiers

With traumatic brain injuries the signature injury of the U.S. war in Iraq, Emory's researchers are hopeful that the progesterone study will lead to a viable treatment for vic-

tims of roadside bombs.

A 2003 survey of Walter Reed Army Medical Center patients back from Iraq showed 62 percent had sustained a brain injury.

Wright said the research team has had several discussions with the U.S. Department of Defense to inform them of the research.

He noted that no effective treatment for traumatic brain injuries exists, making its application to the military more profound.

"It's a horrible problem and you have nothing to treat these kids with," he said.

Wright said the military likely will wait until studies are complete before integrating the progesterone treatments.

## Rare illness leaves parents to wonder if daughters will be able to reach goals

BY MARY ANN ROSER

Cox News Service

For Michelle Tate, the start of a new school year brings fresh hope. Maybe she won't miss the big events. Maybe she won't lose touch with her friends. Maybe her last year of high school will be different.

If only getting out of bed weren't so hard.

For the past four years, the 17-year-old Round Rock, Texas, girl has suffered from searing headaches that often leave her too weak to shower, dress or get to school. She willed herself out of bed every day the first week this year, but she missed two days the next week.

Michelle has intracranial hypertension, an incurable illness that causes a buildup of spinal fluid in the brain and triggers headaches, nausea, fatigue and vision loss. Some patients go blind.

On many days, IH, as it is known, leaves Michelle crumpled on the bed in her darkened room. Prescription drugs sometimes help, but there are days when nothing seems to alleviate the pain.

"I've been sick so long, I don't know what it's like (to feel well)," Michelle said.

The struggle to get well from uncommon diseases can be lonely for families and patients. They comb the Web for answers, search for support from others with the disease and seek out the best doctors. Michelle's parents, Jacque and Ron Tate, went to a patient conference in Portland, Ore., last October and realized they had to get involved — for their sake and for Michelle's.

The conference, sponsored by the Intracranial Hypertension Research Foundation, prompted the Tates to sponsor a golf tournament this summer in Austin, Texas, to help the foundation raise money for research. The Tates raised \$36,000 to seed a project, and they plan to make the tournament an annual event.

Jacque Tate, 46, president of a construction com-

pany she and her husband own, also plans to approach students at the University of Texas about making a documentary about living with chronic IH to raise awareness of the disease.

IH occurs in about one of every 100,000 people in the general population, making it uncommon, experts said. But it affects an estimated one of 5,000 obese women between the ages of 20 and 45 — making it twice as common as cervical cancer in that age group, said Dr. Emanuel Tanne, a retired ophthalmologist and chairman of the IH foundation board.

As the obesity epidemic worsens, there are fears that IH will become more common, said Dr. Jason Rosenberg, an assistant professor of neurology and director of Johns Hopkins Headache Center at Bayview, Texas.

There are several kinds of IH, one of which can be caused by a head injury. Other forms have medical causes, including blood clots and an excess of vitamin A in the body. Exposure to certain drugs, including the acne medication Accutane, has been known to trigger IH; Accutane's warning label says the drug has been associated with IH. Tanne said Accutane caused the illness in his daughter when she was in college.

The main drug for treating IH is Diamox, which is used to treat epilepsy and reduces pressure in the eye. But many patients have to undergo spinal taps to relieve the pressure on their brains. Complications from the procedure include serious infections and damage to the spinal cord. Michelle has had two spinal taps.

Others opt for surgery, which involves having a shunt implanted in their bodies to drain excess fluid into the abdomen. The shunts carry risks because they can become clogged or infected or not drain



Tate



Turner

properly, Rosenberg said.

Teachers who serve homebound students in Michelle's school district taught the teen during her sophomore and junior years because she missed so many days at school.

Through her teachers, she learned that another girl in her subdivision, 12-year-old Haley

Turner, also suffers from IH. Haley has been dealing with intracranial hypertension for more than three years — she has intense headaches, body aches, ringing in her ears and stiffness in her neck and back. Neither girl knows the cause of her illness.

"When you've been sick for so long, it's depressing," Haley said. "You feel like your life is over."

The girls have not met yet. But earlier this month, Jacque Tate met Haley's mom, Lynn Turner, and found a potential ally to enlist in the cause.

The two shared stories about their girls.

Before she got sick, Michelle was vibrant and dreamed of becoming a marine biologist, Jacque Tate said. Now, the mother wonders about her daughter's prospects for college, a career and life beyond that.

"It's so hard to watch the dreams disappear with the disease," she said.

Both girls went undiagnosed for many months and said they got used to hearing doctors tell them their illness was psychosomatic and hearing classmates call it an excuse to play hooky.

Haley, who has had three spinal taps, has been ill for weeks on end and has emerged with her limbs curled, said Lynn Turner, 45. Haley said she is lucky her friends still visit; Michelle said so many of hers have stopped calling over the years.

"There have been a lot of letdowns," Michelle said. "My hope is that one day I could wake up and just feel better." ■

### 20 years in the making

Emory neurobiologist Donald Stein has been researching progesterone's effects on the brain in animals for 20 years. His work laid the foundation for the clinical trial.

It has taken two decades to get to a clinical phase because progesterone often is viewed as "merely a female hormone," he said.

In fact, Stein said, progesterone is a neurosteroid. It is present in high levels in pregnant women — 40 to 60 times higher than in women who are not pregnant — because it helps to keep the fetus healthy and "provides nourishment to growing nerve cells."

It works in traumatic brain injuries, Stein said, because "it's doing the same kinds of things in injury as it's doing in the development of the nervous system."

In the study, progesterone helped to reduce swelling, which causes pressure to build up as the brain pushes against the skull. Smith said he was told that his head swelled to the size of a basketball after his accident.

For the next study, researchers hope to cut down the time between injury and the patient receiving progesterone.

For the Grady trial, doctors sought consent from family members when the patients could not give it themselves.

"Because this was a safety study, it was critical to get consent," Wright said. "It did add about four or five hours for every patient."

With safety now established, Wright said he wants to, as a last resort, enroll patients without informed consent. Doctors would seek family for one to two hours before enrolling them without consent.

As Wright focuses on continuing the clinical work for traumatic brain injury, Stein now is testing progesterone's effectiveness at treating stroke in animals.

Preliminary results, he said, are promising: substantial reduction in the damaged area — the brain tissue that is dying because of a lack of blood — after a stroke if progesterone is used. ■