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VU hospital tries to block Type 1 diabetes

Test treatment gives kids hope

By STACY SMITH SEGOVIA
Gannett Tennessee

CLARKSVILLE, Tenn. — Devin Linendoll's life is a little harder than that of most 9-year-olds. Beginning when he was just 2, Devin has depended on insulin injections to stay alive.

When he was a 7-year-old second-grader, he was giving himself four to six shots of insulin every day, plus four or more finger pricks to test his blood sugar level. That's a lot of needle sticks for a kid, or anyone.

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"Before we put him on the insulin pump, he was doing his own shots,"

says Devin's proud mom, Amy Linendoll. "Now, he works that pump just like it's a video game."

A few months ago, Amy and her husband, Lawrence, found out their younger son, Trevor, 6, has at least a 50 percent chance of developing Type 1 diabetes in the next five years. But the younger child may not have to endure all those needles.

On Saturday, Trevor became the first child to participate in a Monroe Carell Jr. Children's Hospital at Vanderbilt test of a new treatment that could prevent the onset of Type 1



Devin and Trevor Linendoll show off their medicines. Trevor is participating in a study for a new preventative for Type 1 diabetes, which Devin has. (ALICIA ARCHULETA / GANNETT TENNESSEE)

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Trevor Linendoll takes his first pill in a study about Type 1 diabetes. (ALICIA ARCHULETA / GANNETT TENNESSEE)

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Stacy Smith Segovia can be reached at 245-0720 or by e-mail at stacysegovia@theleafchronicle.com.

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diabetes in those who are predisposed to it. He took his first daily pill, either insulin or a placebo, at breakfast Saturday morning.

"We always knew if one of them had it, there was a risk that both of them could have it, and I wanted to be aware, be prepared," Amy says. "We wanted to know what his chances were. There's a good chance he could end up with Type 1 diabetes."

Diagnosis changed life

Amy knows well the struggles of caring for a small child with diabetes.

"I thought he had the flu," she says about the onset of Devin's illness.

"It was January. He said, 'Mama, my stomach hurts.' The day-care lady called and said, 'He's really not feeling good.'

"I said, 'Is he throwing up?' She said, 'No, he's doing a lot of sleeping.' "

Amy took then 2-year-old Devin to the doctor, but the doctor sent him home.

When he fell into such a deep sleep that he was nearly impossible to awaken, Amy took him to the hospital, where he stayed for four days, and the family learned Type 1 diabetes was making him ill.

Grandparents help out

From then on, Devin's life changed.

"He would get an insulin shot at each meal and two at dinner because he was on two different types of insulin," Amy says.

Her parents came to help out.

"We showed Devin that it doesn't hurt, but it came to the point that we were having to sit on him on the floor (to give him insulin injections).

"My dad would sit on his arms, and I would sit on his legs."

They also used toddler-pleasing tactics to get Devin used to the routine, such as letting him pick out his favorite decorated bandages to put on after each injection.

"We were constantly having to buy Band-Aids because he had an owwie," Amy says.

Devin's pediatric endocrinologist, Dr. Bill Russell at Vanderbilt, told the Linendolls that

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Trevor probably will develop the same problems his brother has.

Unlike Type II diabetes, which causes people to develop insulin resistance and is heavily influenced by eating and exercise habits, Type 1 diabetes is an autoimmune disease that has not, until now, had any possibility of being prevented.

With Type 1 diabetes, the body sees insulin as an invader, and the immune system attacks insulin-producing cells until they are destroyed.

Without insulin, people cannot process the sugars and starches they eat, and they die.

Through a series of increasingly lengthy and more complex blood tests on Trevor, Russell discovered Trevor's body is already attacking its insulin.

"He still makes insulin fine, but he has these antibodies that mean he's slowly destroying his ability to produce insulin," Russell says.

"We know Trevor's body has been confused, tricked into thinking insulin is a foreign invader."

Insulin is taken orally

The new treatment being studied exposes people to small doses of insulin by mouth daily for several years, in hopes that their body will turn off the attack and make peace with insulin.

"By introducing insulin by mouth, we're introducing immune tolerance," Russell says.

"We're allowing the body to develop tolerance to something it would normally reject."

Russell explains that the digestive system is much more willing than the bloodstream to accept new things; otherwise, every time people would eat a new food, they would get sick.

The oral insulin is broken down in the intestines and does not affect blood sugar, Russell says, but the hope is that repeated exposure can train Type-1-diabetes-prone people's bodies to react to insulin more normally.

The catch with this drug trial, as with any blind trial on humans, is that the Linendolls have no idea if Trevor is getting oral insulin or a placebo.

If they stay in the study for its duration, seven years, Trevor may develop Type 1 diabetes during that time.

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