

SOUTHWESTERN NEWS

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UT SOUTHWESTERN TREATMENT LESSENS "BAD" CHOLESTEROL

DALLAS — March 26, 1996 — For three hours once a week, Jhoanna Hurtado lies in a hospital bed as her cholesterol-laden blood is cleansed of "bad" cholesterol and then returned to her body.

For three hours, she lies still to keep the needle inserted in her arm from moving. A nurse monitors Hurtado's condition while a yellow-tinged fluid gradually fills the plastic container beside her bed, as cholesterol that could clog her arteries is being removed from her plasma. She is in no pain as she talks and jokes with technicians.

Hurtado, an outgoing 15-year-old suffering from a genetic disorder known as homozygous familial hypercholesterolemia, probably would not have survived into her teens if she had been born a few years earlier. As it is, she has had to learn to suppress her youthful energy for a few hours each week as she undergoes a promising new treatment first tested at UT Southwestern Medical Center at Dallas and 12 other U.S. sites.

The Food and Drug Administration in late February approved the use of LDL-apheresis, a computerized, external filtration system that removes from blood 73 percent to 83 percent of the "bad" cholesterol or low-density lipoproteins (LDL). The therapy removes blood from a vein in one arm, circulates the blood through a cholesterol-removal filter, and then returns the cleansed blood to the patient via a vein in the other arm.

"This system represents a major improvement in the way we can treat patients with extremely high cholesterol," said Dr. Jeff Zwiener, an associate professor of pediatrics at UT Southwestern who has supervised the local clinical trial for the past six years. "The device will be used only on patients with extremely high cholesterol who have failed aggressive treatment with a combination of drugs and low-fat diet."

The treatment is considerably less invasive than the most common previous alternative, plasma exchange, which lowers the level of all plasma components including high-density lipoproteins (HDL), the "good" cholesterol. Another treatment option has been

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liver transplantation. In the future, genetic therapy may become available.

Hypercholesterolemia develops in people with an inherited inability to metabolize cholesterol. LDL tends to build up in arterial walls, clogging the arteries of the heart.

The LDL-apheresis would be used on individuals with LDL levels above 300 milligrams per deciliter (mg/dL), or with levels of 200 mg/dL and documented heart disease. The desired LDL level should be less than 130 mg/dL. Patients with high LDL are at exceptionally high risk for heart disease and premature death because of cholesterol buildup. Zweiner emphasizes that the decision to treat is based on LDL levels, not total cholesterol levels.

Though the number of people who stand to gain from this medical innovation is relatively small — about 5,000 to 10,000 U.S. residents — Zwiener believes expanded use is possible in the future. "But the system should not be considered as an alternative to a diet or medication," Zwiener said.

Hurtado has grown accustomed to her treatment routine. She must undergo the procedure weekly because her cholesterol level gradually rises again following each session. Hurtado was diagnosed eight years ago, after large bumps (cholesterol deposits) began appearing inexplicably on her knees, elbows and feet. When her condition was identified, her family moved to Dallas from San Antonio to participate in the clinical trial. Houston's Baylor College of Medicine was the only other Texas test site.

"I don't feel anything when the treatment is going on," Hurtado said. And she said she's willing to endure the process in order to live a normal life the rest of the time.

Hurtado is one of two patients undergoing the treatment at UT Southwestern. The other patient, an adult, works full time in a bank. Most sufferers of this severe form of hypercholesterolemia begin experiencing symptoms as children and, until recent years, the majority died by the time they reached their mid-20s, Zwiener said.

Dr. Geralyn Meny, assistant professor of pathology, and Dr. Daniel Stein, assistant professor of internal medicine, also are involved in the monitoring and treatment of study patients.

The cholesterol-cleaning system was developed by Kaneka America, Inc.

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