Chicago woman cured of sickle cell disease

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(Medical Xpress) -- Chicagoan Ieshea Thomas is the first Midwest patient to receive a successful stem cell transplant to cure her sickle cell disease without chemotherapy in preparation for the transplant.

University of Illinois Hospital & Health Sciences System physicians performed the procedure using medication to suppress her immune system and one small dose of total body radiation right before the transplant.

The transplant technique is relatively uncommon and is a much more tolerable treatment for patients with aggressive sickle cell disease who often have underlying organ disease and other complications, says Dr. Damiano Rondelli, professor of medicine at UIC, who performed Thomas's transplant.

The procedure initially allows a patient's own bone marrow to coexist with that of the donor. Since the patient's bone marrow is not completely destroyed by chemotherapy or radiation prior to transplant, part of the immune defense survives, lessening the risk of infection. The goal is for the transplanted stem cells to gradually take over the bone marrow's role to produce red blood cells -- normal, healthy ones.

Thomas, 33, had her first sickle cell crisis when she was just 8 months old. Her disease became progressively worse as an adult, particularly after the birth of her daughter. She has spent most of her adult life in and out of hospitals with severe pain and has relied on repeated red blood cell transfusions. Her sickle cell disease also caused bone damage

requiring two hip replacements.

"I just want to be at home with my daughter every day and every night," said Thomas, who depends on family to help care for her daughter during her frequent hospitalizations.

This type of stem cell transplant is only possible for patients who have a healthy sibling who is a compatible donor.

Thomas' sister was a match and agreed to donate blood stem cells through a process called leukapheresis. Several days prior to leukapheresis, Thomas' sister was given drugs to increase the number of stem cells released into the bloodstream. Her blood was then processed through a machine that collects white cells, including stem cells. The stem cells were frozen until the transplant.

Last Nov. 23, four bags of frozen stem cells were delivered to the hospital's blood and marrow transplant unit. One by one, the bags were thawed and hung on an IV pole for infusion into Thomas. The procedure took approximately one hour. Her 13-year-old daughter, Miayatha, was at her bedside.

Six months after the transplant, Thomas is cured of sickle cell disease and no longer requires blood transfusions.

"The donor cells have taken over completely, and blood tests show no sickle cell disease," said Rondelli, director of the blood and marrow transplant program at UI Hospital. Thomas continues to take medication to prevent rejection of the donor stem cells.

About 25 adults have received a similar chemotherapy-free stem cell transplant for sickle cell disease in recent years at the National Institutes of Health in Bethesda, Md. Approximately 85 percent have been cured.

"Sickle cell disease is devastating -- both emotionally and physically," said Dr. Dennis Levinson, a private rheumatologist in Chicago and clinical associate professor of medicine at UIC, who has taken care of Thomas for the past 16 years. "I've been terribly frustrated with Ieshea's disease over the years, and I've cared for many other sickle cell patients who have died."

Levinson says the stem cell transplant provides new hope for patients who often live day-to-day on painkillers and who are often misunderstood by clinicians. As the former chief of medicine at the now closed Michael Reese Hospital, he said he has cared for many patients with sickle cell anemia and was determined to seek out the best treatment option for Thomas.

Sickle cell disease primarily affects people of African descent. It is an inherited defect of the red blood cells that causes them to be shaped like a crescent, or sickle. These abnormal cells deliver less oxygen to the body's tissues and can result in severe pain, stroke and organ damage.

Approximately one in every 500 African Americans born in the U.S. has sickle cell disease. The disease affects 80,000 Americans of different ethnic backgrounds.

Provided by University of Illinois at Chicago

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