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Lupus Patients Are in Remission Two Years after High-Dose Chemotherapy and Stem-Cell Transplants

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CHICAGO --- A combination of high-dose chemotherapy and stem-cell transplantation could be an effective treatment for severe lupus, a serious autoimmune disorder affecting thousands of young and middle-aged people yearly, most of them female.

As reported in the Aug. 25 issue of *The Lancet*, Ann Traynor, M.D., and colleagues from Northwestern University Medical School evaluated the safety and efficacy of high-dose immune suppression and stem-cell transplantation in patients with lupus.

The researchers found that, at an average follow-up of two years after treatment, all patients were free from signs of active lupus, and their kidney, heart, lung and immune system function had become normal.

Stem cells are "mother cells," or progenitors, that have the capacity to expand and differentiate into many types of cells, including infection-fighting T and B cells.

From 1996, the researchers selected seven patients with aggressive lupus that persisted despite the use of cyclophosphamide, a potent immunosuppressant drug.

The patients underwent high-dose immune suppression and received infusions of stem cells that they had donated before receiving immunosuppressive therapy. The patients' circulating white blood cells were analyzed before and after transplantation.

"What is exciting about this observation is that it appears that the immune system can correct its errors if early stem cells are allowed to mature as naive cells in a 'neutral' environment," Traynor said.

"This new generation of immune cells is not destined to repeat the ruinous errors of the prior generations. Our observation may have implications for the treatment of many immune disorders, including multiple sclerosis, myasthenia gravis, and even some types of cancers," Traynor said.

Several hundred thousand individuals in the United States have lupus; between 10 percent and 15 percent of these patients are expected to die within 10 years of diagnosis.

Lupus is an autoimmune inflammatory disease that results when disease-fighting cells in the body create antibodies directed against its own cells and tissues. The immune cells attack the individual's own organs in the manner that immune cells normally reject only foreign organisms, tumors or grafts.

This process can lead to destruction of the normal kidney, heart, brain, spine and lung tissue. When uncontrolled, it can lead to death.

Current therapies for lupus include steroids and immunosuppressive medications including chemotherapy. Patients with lupus who experience persistent multi-organ dysfunction despite standard doses of intravenous cyclophosphamide represent a subset at high risk for early death.

Traynor is an assistant professor of medicine at Northwestern University Medical School and a physician/researcher in the bone marrow transplantation program at Northwestern Memorial Hospital. Her co-authors at Northwestern were James Schroeder, M.D., assistant professor of medicine; Robert M. Rosa, M.D., professor of medicine; Dong Cheng; Jakub Stefka; Salim Majais; Steven Baker, M.D., assistant professor of medicine; and Richard K. Burt, M.D., assistant professor of medicine and director of the allogeneic bone marrow transplantation program at Northwestern Memorial Hospital. Traynor and Burt also are members of The Robert H. Lurie Comprehensive Cancer Center of Northwestern University.

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