BaylorHealth
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Baylor University Medical Center
3500 Gaston Avenue, Dallas, Texas 75246
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Less Is More

Baylor Dallas Investigates New "Mini" Blood and Marrow Transplants

By Deborah Paddison

Ronald McCollum, M.D., is a healthy, active 62-year-old who enjoys traveling, exploring the outdoors and spending time with his young granddaughter. He maintains a busy full-time schedule seeing patients at his family medicine practice in Garland.

Unusual? Not really, except when you realize that just a few years ago, Dr. McCollum literally thought his life was over. At age 58, he was diagnosed with myelodysplastic syndrome (MDS), a blood cancer in which the bone marrow stops making healthy blood cells and instead produces deformed and poorly functioning cells. A strong, healthy man who used to run marathons and fly airplanes, Dr. McCollum had reached the point where he could barely sit in a wheelchair and hold his head up. He was slowly dying.

A Gentler Approach

In the past, treatment options for MDS were limited, and patients eventually succumbed to the disease. A blood and marrow transplant may effectively treat MDS—but because of the rigors of the procedure, which involves destroying the patient's immune system with heavy doses of radiation and chemotherapy, older people have not been considered suitable candidates.

But that's changing, thanks to an innovative procedure called a "mini transplant," or nonmyeloablative blood and marrow transplant, which uses significantly smaller doses of chemotherapy and radiation.

"The mini transplant uses about one-fifth the usual dose of radiation, and only mild chemotherapy that doesn't cause hair loss or nausea. Treatment time is cut in half, and it can be done on an outpatient basis," says Edward Agura, M.D., director of Blood and Marrow Transplants for Texas Oncology, PA and interim director on the medical staff at Baylor University Medical Center (Baylor Dallas). Because the mini transplant is less strenuous than a traditional blood and marrow transplant, it is suitable for a wider range of patients, even up to age 70.

For information on becoming a blood or marrow donor, contact the Baylor Dallas National Marrow Donor Program at (214) 820-8165.

A Promising Technology

Mini transplants are investigational and not yet considered standard treatment. The Baylor Dallas blood and marrow transplant program, with Dr. Agura as principal researcher, is working with the Fred Hutchinson Cancer Center in Seattle and the Stanford University Cancer Center, treating patients with mini transplants under a shared protocol and analyzing the results.

"We're going from a big hammer to a little hammer," Dr. Agura says. "We know the little hammer is less injurious to the patient up front, but we have to be sure we're still killing

enough of the patient's cancer cells to make the treatment effective."

While the long-term results aren't in yet, Dr. Agura says there are good indications that for patients with slow-growing blood cancers like myeloma, some leukemias, lymphomas, aplastic anemia and MDS, this mini approach is just as effective in its anti-cancer properties, and may even be better than a traditional transplant.

Every Day Is a Gift

Dr. McCollum underwent a mini blood and marrow transplant at Baylor Dallas on October 26, 2001, using marrow donated by a 31-year-old Seattle firefighter.

"It's such a joy to be healthy again," he says. "I was very sick, but now I wake up every day full of energy and ready to go."

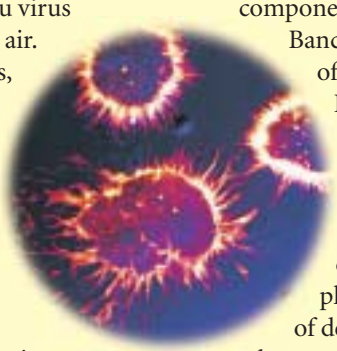
▸For more information on nonmyeloablative transplants at Baylor Dallas, contact Dr. Edward Agura at the Baylor Dallas blood and marrow transplant program, (214) 820-1800.

Fine-Tuning the Immune System

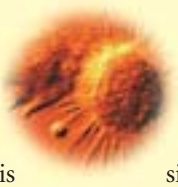
Breakthrough Research at Baylor May Lead to Cures for Immune-System Diseases

BY DEBORAH PADDISON

Every time you cut your hand, every time you eat a hot dog, every time you breathe, a special kind of white blood cell stands ready to sound the warning if somehow a foreign microbe should enter that cut, salmonella should live on that hot dog or the flu virus should be lurking in the air.



They're dendritic cells, the "directors" of the immune system. They play a powerful role in initiating and controlling our immune response. Dendritic cells reel in invaders, such as bacteria or viruses, chop them into pieces called antigens, and display the antigens on their surfaces. Dendritic cells bearing the foreign antigens then travel to the lymph nodes or spleen, telling B cells, T cells and other components of the immune system whether to make antibodies to the invader or destroy it.



At the Baylor Research Institute in Dallas, exciting research is under way to manipulate dendritic cells to regulate immune response. This may lead to more targeted treatments and even cures for cancer, HIV and other infectious diseases, and autoimmune diseases such as type 1 diabetes, rheumatoid arthritis and lupus.

"Dendritic cells control the whole immune system, and immunology plays a key role in many diseases. We know now that even cardiovascular disease has an immunological component," says Jacques Banchereau, Ph.D., director of the Baylor Institute for Immunology Research.

At the Baylor institute, immunology researchers are tackling two fronts: cancer and autoimmune disease. In recently completed Phase I clinical trials of dendritic cell immunotherapy of metastatic melanoma, "we've shown it's possible to enhance the patient's own immune response against their tumor—essentially vaccinate them against their cancer," Dr. Banchereau says. Working with colleagues at Rockefeller University, Dr. Banchereau reported that 10 of 18 patients with advanced melanoma who received injections of dendritic cells loaded with melanoma antigens showed signs of an enhanced immune response to their cancer. Tumor growth also was slowed in these patients. Seven of them enjoy long-term survival.

In addition to melanoma, the institute is planning to enroll patients with prostate cancer for clinical trials.

Another area of focus is the autoimmune disease lupus. People with lupus have an overly large population of dendritic cells, which trigger other immune system cells to attack normal body tissue. "We have identified interferon-alpha as a fundamental instigator of the excessive immune response in lupus, and are working on ways to block it," Dr. Banchereau says.

Dr. Banchereau summarized the huge potential of dendritic cell research in the November 2002 issue of *Scientific American*.

"As we learn more about…dendritic cells, we will find ways to harness their therapeutic potential. …We will soon be able to maximize the biological power of these cells to treat and prevent the diseases that plague humankind."

▸For more information, call 1-800-4BAYLOR (1-800-422-9567).