Exceeding Expectations

IMMUNOTHERAPY RESEARCH LEADS TO BETTER OUTCOMES FOR **LEUKEMIA** AND **BMT PATIENTS**

By Helen K. Kelley

For patients in need of a blood or bone marrow stem cell transplant, a program operating out of an Atlanta community hospital, rather than an academic medical center, is making a difference. Since 2009, the Blood and Marrow Transplant (BMT) Program at Northside Hospital has consistently been recognized for achieving among the best survival rates in the nation for bone marrow transplants and is one of the largest clinical transplant programs in the United States.

According to Leslie Kerns, Director of Northside's BMT Program, the recognition is based on annual data released by the Be the Match registry and the Center for International Blood and Marrow Transplant Research (CIBMTR) regarding outcomes for transplant programs across the country.

"The survey takes into account weighted risk factors to predict what a one-year survival rate should be after an allogeneic transplant based on patient characteristics," she explained. "For the last eight years, our patient outcomes are higher than those predicted and our program is ranked in the 'exceeds expectations' category."

One hundred and seventy-nine centers, virtually all of the accredited transplant centers in the nation, are surveyed to find out the characteristics of patients transplanted at each site. This data is used to predict expected one-year survival for each center. Each year only about 10-20 centers exceed their predicted survival. Northside has been in this elite group for eight consecutive years. Only one other center in the country has been in this group more than eight straight years.

Northside's BMT Program recognized for quality of research in state, nation

The Blood and Marrow Transplant Program is one of the nation's 20 elite BMT programs. The high quality of its research program has been recognized by the National Institutes of Health (NIH), as demonstrated by its designation as a primary core clinical center for the Blood and Marrow Transplant Clinical Trials Network (BMT-CTN).

Patient-centric focus, robust research are keys to program's success

Lawrence Morris, M.D., who serves as Medical Director of the Leukemia Program and Medical Director of the Inpatient Bone Marrow Unit at Northside, says that robust research is one reason for the program's continued high rankings.

"Having an active research program is a standard of care in this rapidly changing field. Our research-focused program is a big draw for patients and referrals," he said. "If you're not engaged in research, you can't offer the best new therapies."

Asad Bashey, Director of Clinical Research for Northside's BMT Program, adds that research goes hand-in-hand with a commitment to excellence in patient care.

"Our transplant outcomes are among the very best in the country and I believe that has to do with how we set the program up," he said. "We focus on two issues: patient care and clinical research. While research is not the primary driver of the program, it is an integral part of serving our patients and one of the reasons for our success in outcomes."

Manipulating T-cells to fight myeloma

Northside's BMT Program has numerous clinical trials under way at any given time, including some promising research on immunotherapy. Morris cites one study in multiple myeloma, a common bone marrow cancer, as an example.

"Most people with myeloma receive an autologous stem cell transplant, meaning that some of the patient's own bone marrow stem cells are removed first and frozen before the patient receives a large dose of chemotherapy to try and eradicate the myeloma, but which also eradicates the patient's normal bone marrow. After chemotherapy, the stem cells are thawed out and reintroduced to the patient to help regrow their bone marrow," he explained. "In our current trial, we are collecting additional immune cells called T-Cells from the patient's bone marrow that have the potential to fight the myeloma. These cells are sent to a laboratory at Johns Hopkins, where they are expanded and activated to become 'killer T-cells.' A few days after the transplant, patients receive these activated cells. We hope to prove that these activated T-cells will kill myeloma cells and improve the outcome of the transplant."

Using antibodies to fight cancer

Dr. Bashey says that antibodies play an important role in mobilizing the immune system to fight blood and marrow cancers, and that there are several ongoing trials that are focused on using antibodies to deliver immunotherapy.

"We are studying various ways that target the cancer either by activating the body's own immune system or by delivering drugs directly with 'weaponized' antibodies," he said.

The immune system has the ability to distinguish between normal cells in the body and what it sees as "foreign" cells. Using "checkpoints" — molecules that need to be activated or inactivated to start an immune response — the immune system attacks the foreign cells. Bashey cites one particular study of antibodies as immune checkpoint inhibitors as having great promise.

"This trial is pioneering," he said. "We know that cancer can augment the 'brakes' or 'checkpoints' that the immune system has in place to prevent it from being overactive, essentially making those brakes invisible. What we're studying now is how to use antibodies that inhibit the checkpoints, thereby taking the brakes off the immune system and activating it."

Continuously studying new ways to attack blood and marrow cancers

The physicians and researchers of Northside's BMT Program are constantly looking for new approaches to attack blood and marrow cancers and improve the lives of different populations of patients.

For example, one current clinical trial focuses on treating patients with leukemia who are not candidates for an allogeneic transplant, a procedure in which a person receives blood-forming stem cells from a genetically similar, but not identical, donor.

"These patients need a transplant, but are not candidates because of reasons like their age, medical or other issues, or inability to find a suitable donor. We can try using their own stem cells, but that's usually not effective in fighting leukemia," explained Morris. "So we're studying a powerful injectable drug called Pembrolizumab, which has the potential to activate the T-cells and make them fight the leukemia. This immune therapy has been used to treat other cancers like solid tumors, but there has been little research using it to treat leukemia."

Bashey says that new trials involving different ways to attack cancer are constantly opening for enrollment.

"We have just opened a trial for leukemia that uses a bispecific antibody to target leukemia cells. The antibody serves as a bridge between leukemia cells and immune system cells," he said. "Additionally, we have a trial opening soon that will study a new drug, not yet approved, to deliver antibodies directly to the cancer."

Clinical trials are the reason for advances in treatment for patients with blood and marrow cancers, says Morris.

"Thousands of patients who have participated in clinical trials are why we have better treatments today and why we will continue to have better treatments in the future," he said. "That's the only way we can ever improve treatments, including ones that are effective for patients for whom traditional therapies are not effective."

To learn more about open Blood & Marrow Transplant trials/protocols at Northside, visit http://www.bmtga.com/clinicaltrials2.htm

Northside participates in groundbreaking clinical research partnership

The Blood and Marrow Transplant Program at Northside Hospital is one of only 10 sites that have been selected to participate in a prestigious partnership with the Leukemia & Lymphoma Society (LLS) and the Dana-Farber Cancer Institute to provide clinical trial testing of innovative blood cancer therapies in community oncology settings across the country. This groundbreaking Blood Cancer Research Partnership (BCRP) brings clinical trials closer to where patients live and helps to address one of the primary bottlenecks in the development of new cancer therapies: the need for more patients to take part in trials.

Asad Bashey, M.D.

Lawrence Morris, M.D.