INSIDE: BONE METASTASIS • PERSONALIZED MEDICINE

Froedtert & Medical College of Wisconsin

The Cancer Report

Winter 2023-24

CAR T-Cell Therapy

Helping Put Multiple Myeloma Patients in Remission

Verna Seitz

A retired nurse and mother, Verna Seitz, 65, was used to caring for others. Life changed in 2019 when she was diagnosed with multiple myeloma, an aggressive blood cancer.

Multiple myeloma affects white blood cells in the bone marrow. These cells stop making antibodies to protect against infection — instead they become cancerous and crowd out healthy blood cells, leading to fatigue, weakness and frequent infections.

"The diagnosis was a kick in the gut for me," Verna said. "But I had confidence in my doctors, and I remember thinking, 'We're going to get through this.'"

Multiple myeloma can be treatable, but it is almost impossible to cure. Verna saw the specialists with the Froedtert & the Medical College of Wisconsin Leukemia, Lymphoma and Myeloma Program, one of many disease-specific programs offered through the Froedtert & MCW Cancer Network. Her team recommended a clinical trial that allowed Verna to receive immunotherapy, a treatment that helps a person's own immune system fight cancer. Verna also received chemotherapy to destroy the cancer cells and two stem cell transplants to help her bone marrow produce more new, healthy cells.

Verna responded well to treatment, but her cancer remained aggressive. **Marcelo Pasquini, MD,** medical oncologist and MCW faculty member, proposed chimeric antigen receptor (CAR) T-cell immunotherapy.

"CAR T-cell therapy is effective because it genetically re-engineers a person's cells and supercharges the immune response against their cancer," Dr. Pasquini said. "Once infused into the patient's bloodstream, the cells continue multiplying, so their effectiveness increases. An antibody against the same target does not have the same intensity or effect as CAR T cells."

CAR T-cell therapy is FDA approved for some patients with certain types of blood cancers who are later in their disease process. The patient's T cells are genetically engineered in a lab to target their cancer. After a short chemotherapy course to prevent treatment rejection, CAR T-cell therapy is given via IV infusion in a single dose. In some cases, the treatment can be done on an outpatient basis. Verna met the necessary criteria.

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ASK AN EXPERT

Treating Cancer That Spreads to Bones

Common disease requires uncommon expertise

With **Meena Bedi, MD,** radiation oncologist and MCW faculty member

X-ray image of bone metastasis (circled) to the femur, also known as the thigh bone.

Cancer that has spread to the bone is called metastatic bone disease. Many people who have cancer will develop bone metastases, which can cause pain, fractures or spinal compression and affect mobility and quality of life. To address this challenge, the Froedtert & the Medical College of Wisconsin Cancer Network created the Bone Metastasis Program — a team of doctors and clinicians who specialize in treating people with metastatic bone disease.

Q: Which cancers most commonly spread to the bone?

Dr. Bedi: All cancers can spread to the bone, but of these, the most common are breast, lung and prostate cancers. They are also three of the most prevalent cancers we treat.

Q: What symptoms might indicate metastatic bone disease?

Dr. Bedi: People often have pain. Sometimes, they can't bear weight or have difficulty walking. Occasionally, they fall. Patients may also have no symptoms or discomfort. In those cases, the disease is often revealed during routine imaging.

Q: Why is the Bone Metastasis Program an important resource?

Dr. Bedi: Bone metastasis is seen more often because people are living longer with cancer — beyond their initial primary diagnosis. They are more likely to survive long enough that their disease will spread to other areas of their bodies, especially their bones. Treating bone metastasis requires dedicated expertise from many disciplines.

Q: Are most of your patients older?

Dr. Bedi: Most cancer patients are older, but we also treat people in their 30s, 40s and early 50s. With breast cancer, we are seeing women who are premenopausal. Also, more people are developing colon cancer in their 30s and 40s, which can be metastatic at the time of diagnosis.

Q: Is it difficult to treat metastatic bone disease?

Dr. Bedi: It is nuanced. No two patients are alike. Even if they have the same kind of cancer in the same area, our recommendations for one person may be different from recommendations for another. Sometimes, we have to consider how we will fold treatment into chemotherapy a patient is already receiving. We work with the medical oncologist to create a personalized plan.

Q: It sounds like teamwork is key.

Dr. Bedi: Our multidisciplinary approach is essential. We work together to determine the optimal treatment for each individual. Efficient, effective collaboration really is key because it gives our patients the best chance of an improved outcome. That is important to us.

Q: What are some of the bone metastasis treatment strategies?

Dr. Bedi: When a patient has a fracture or is likely to have one, we often perform surgery to remove the tumor and stabilize the extremity with hardware. Often, surgery is followed by radiation therapy. Another approach is interventional radiology, using techniques such as ablation, which destroys the tumor with heat, or cryotherapy, which freezes the tumor to destroy cancer cells. While the Bone Metastasis Program is new, we plan to offer clinical trials specific to this patient population. ■

Learn more: ***froedtert.com/bonemets***

Research

Elevating Personalized Medicine to the Next Level of Precision

New clinical trial targets multiple genetic changes in cancer cells

In this era of personalized medicine, innovative therapies are targeting the genetic fingerprint of an individual's cancer cells to combat cancer more effectively with fewer side effects. Researchers with the Froedtert & the Medical College of Wisconsin Cancer Network have been at the forefront of personalized medicine. Now, they aim to push the boundaries farther with a clinical trial called I-PREDICT.

"Typically, when a patient's DNA is evaluated, we might find some changes and think one of them is driving the cancer," said **Ben George, MD,** medical oncologist, MCW faculty member and co-principal investigator of the trial. "There may be one dominant change, but also a host of other changes in the DNA. Our question is: What is the composite effect of all these changes, as opposed to one or two?"

For example, a patient may have a mutation in the ERBB2 gene. But among multiple patients having this change in common, physicians might find what they call companion alterations in other genes.

"The behavior of the cancer is not likely determined by one change," Dr. George said. "Instead, it could be determined by several. If we target multiple alterations, we may have a greater chance of keeping the cancer under control for a longer period of time."

The I-PREDICT trial is testing the effectiveness of tailoring therapies to individual patients' unique molecular alterations based on information researchers collect from DNA, RNA and cell proteins.

"Our molecular tumor board puts the data together and decides on a custom treatment combination for each patient," Dr. George said. "No two patients are the same, and they will be treated based on their own molecular profile."

Study participants are treated with approved therapies. This can include a combination of chemotherapy, targeted therapies (to identify and eliminate specific types of cancer cells) and immunotherapy. Some of the drugs may target multiple molecular changes.

"We look at the pathways involved in cancer's development or progression, and the most efficient way to target alterations while minimizing side effects," Dr. George said. "We're treating with standard drugs, but the combination is often novel. We are also evaluating new drugs as they get approved to see if they can be incorporated into the treatment program."

The trial is for people with all solid tumors, such as breast, lung, prostate and head and neck cancers. It is open to people with early- or late-stage cancers and people who may have exhausted standard treatment options. ■

CAR T-Cell Therapy

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"Being home and supported by a dedicated caregiver can be much more comfortable for the patient," Dr. Pasquini said. "The challenge with outpatient CAR T-cell therapy is that these patients can get very sick very fast. We have appropriate support and monitoring mechanisms in place."

After CAR T-cell therapy, Verna's PET scan was clear and her biopsy showed no cancer. Dr. Pasquini is optimistic her myeloma will stay in remission, but CAR T-cell therapy for multiple myeloma is relatively new, so it is hard to know what to expect long term.

Verna is feeling like herself again and is back to enjoying long walks with her husband. She recently reached the milestone of riding her bicycle. She also supports friends who have cancer by offering encouragement and answering questions.

"There is no such thing as certainty, but trusting your doctors and care team and being an active partner in your care reduces your vulnerability," Verna said. "They were never at a loss for options. It instilled so much confidence in me. It hasn't been easy, but I have a lot to live for. I have six grandchildren. I won't give up." ■

Froedtert & Medical College of Wisconsin

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New Services Support People With Cancer

While essential, cancer treatment can cause side effects, making wraparound care vital. The Froedtert & the Medical College of Wisconsin Cancer Network offers wide-ranging support, including an Oncodermatology Program and a Cancer Sexual Health Program.

Many patients experience distress from treatment-related skin, hair or nail issues like rashes, skin sensitivity, hair loss or brittle nails. A specialist works with a patient's cancer team so side effects don't interfere with treatment.

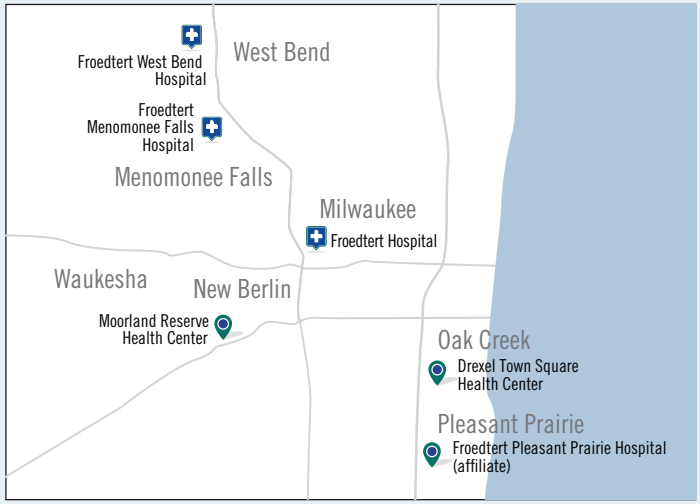
"Managing side effects is critical for patient comfort and to avoid disrupting treatment, which affects outcomes," said **Kassandra Holzem, MD,** oncodermatologist and MCW faculty member.

Another common treatment side effect is sexual dysfunction. Women (60%) and men (40%) experience profound changes like sudden menopause, painful intercourse or erectile dysfunction. Cancer treatment can impact body image, sensations and intimacy.

"The Sexual Health Program offers people with cancer an opportunity to address sexual concerns related to their treatment at any time," said **Jutta Deininger, DNP,** nurse practitioner. "Our multidisciplinary team provides emotional support and medical resources to resolve functional issues that affect quality of life." ■

Learn more: ***froedtert.com/cancer/support***

Academic Cancer Care Near You



Explore Your Treatment Options

The Froedtert & the Medical College of Wisconsin Cancer Network makes it simple to initiate treatment or get a second opinion. Our new patient coordinators gather your medical records and coordinate all tests and appointments so you don't have to. We make it easy to connect with the care you need.

For an appointment, call **414-805-0505**.
Learn more at ***froedtert.com/cancer***.