MedicalXpress

New breast cancer drug halts tumor growth better than standard therapy

June 3 2012

A new cancer treatment that links chemotherapy with an agent that homes in on specific breast cancer cells was significantly better than the current drug regimen at keeping patients' advanced tumors from progressing, according to results from a Phase III clinical trial led by Kimberly Blackwell, M.D., of the Duke Cancer Institute.

Participants with invasive breast cancer who took the investigational drug, called trastuzumab emtansine, or T-DM1, also had fewer and less harsh side effects than study participants who received a standard treatment.

The findings were reported Sunday at the American Society of Clinical Oncology annual meeting in Chicago, and will form the basis for Genetech, the drug's manufacturer, to seek marketing approval from the U.S. Food and Drug Administration. Genetech and its parent company, Roche, funded the clinical trial.

"This drug is significantly better than the current approved combination in keeping the cancer under control," said Blackwell, director of the Breast Cancer Clinical Program at Duke and principal investigator of the international study. "This is a drug that brings us another step closer to treating cancer without the side effects of chemotherapy. It's going to be a good option for patients faced with HER-2 positive tumors."

Nearly 1,000 people with advanced breast cancer were enrolled during the three-year study. All the participants had a form of aggressive breast

cancer distinguished by elevated levels of a protein known as human epidermal growth factor receptor 2, or HER-2. The protein promotes the growth of cancer cells, and plays a role in about 20 percent of invasive breast cancers.

For many people with HER-2 positive breast cancers, an antibody called trastuzumab has been an effective treatment, binding to the HER-2 protein on the surface of cancer cells and interfering with its ability to fuel tumor growth. Trastuzumab is prescribed alone or as an added treatment along with chemotherapy drugs.

T-DM1 represents one of the first in a new class of cancer-fighting agents called antibody drug conjugates. Linking the antibody trastuzumab directly with chemotherapy, the conjugate works like a sort of smart bomb, homing in on the HER-2 targets in the tumor cells and delivering the added payload of chemotherapy.

Blackwell and colleagues report that the median amount of time people on T-DM1 had no cancer growth was 9.6 months, compared to a median 6.4 months for people receiving the current standard drug regimen of capecitabine and lapatinib.

"These are significant and clinically meaningful improvements against comparative drugs that are highly effective for this group of patients," Blackwell said.

After two years, 65.4 percent of the T-DM1 patients were alive, compared to 47.5 percent of participants on standard treatment. The difference, while a notable trend, failed to meet a statistical benchmark set by its predetermined study design. A later analysis of overall survival is planned.

The new drug also caused fewer side effects. Blackwell said trastuzumab

emtansine caused liver injury and a drop in blood platelets in some study participants, but most did not suffer the hair loss, rashes, nausea and diarrhea common to traditional chemotherapies.

"This is a more targeted way of delivering chemotherapy to HER-2 overexpressed cells," Blackwell said. "It delivers the drug directly to the cancer cells, while avoiding cells that don't really need to receive chemotherapy, which keeps patients from getting sick."

As a result, more people were able to stay on the drug without dose reductions, with 16.3 percent of participants on T-DM1 needing to adjust the dosage, compared to 53.4 percent of participants on capecitabine and 27.3 percent for lapatinib.

"As a clinician who takes care of breast cancer patients, it's important to have a treatment that is both effective and well tolerated," Blackwell said. "This drug has very little dose-limiting toxicity. That is in stark contrast to so many of the treatments we have available today. This drug works."

Provided by Duke University Medical Center