MedicalXpress

Study shows new kind of targeted drug has promise for leukemia patients

December 7 2014

A new type of cancer therapy that targets an oncometabolite produced dramatic results in patients with advanced leukemia in an early-phase clinical trial. The study, led by Eytan M. Stein, MD, a medical oncologist at Memorial Sloan Kettering Cancer Center, was presented today at the 56th Annual Meeting of the American Society of Hematology.

Approximately 15 percent of acute myeloid leukemia patients have a mutated form of the IDH2 gene. IDH2 normally makes a protein that plays a critical role in cell metabolism. However, when the gene is mutated, it leads to an increase in production of 2-hydroxyglutarate, which prevents immature white blood cells from developing into healthy, infection-fighting cells. These immature cells accumulate, crowd out normal cells, and lead to the development of acute leukemia.

AG-221 is an investigational drug that blocks the mutated IDH2 protein, effectively allowing these immature white blood cells to develop normally. "Traditional forms of cancer therapy—surgery, chemotherapy, and radiation—work by killing cancer cells," said Dr. Stein. "But they have major side effects since healthy cells are often also affected. Targeted therapies are much more precise."

"AG-221 is especially unique," he added. "Instead of inhibiting a mutation that leads to cancer cell growth, it works by targeting a gene that can transform cells into becoming healthy again."

As part of the study, 45 patients with IDH2-positive leukemia or

hematologic malignancies were able to complete one cycle of therapy and were evaluated for efficacy. All patients had advanced disease that had relapsed or was unresponsive to prior therapy. Patients received up to 150mg or 200mg of AG-221 once or twice daily in 28-day cycles; the maximum tolerated dose has not yet been reached.

The overall response rate was 56 percent; 15 patients (33 percent) achieved complete remission and 10 patients (22 percent) partial remission. In addition, 17 patients (38 percent) achieved stable disease. Further, responses have been durable, including complete remissions that have lasted up to eight months and are ongoing. There were no treatment-related deaths.

"This drug has the potential to transform the treatment of leukemia," said Dr. Stein. "We haven't yet reached the maximum tolerated dose and patients are responding dramatically. More research is needed, but I am optimistic that this drug will fundamentally alter the natural history of IDH2-mutant leukemia and other hematologic malignancies."

Provided by Memorial Sloan-Kettering Cancer Center

Citation: Study shows new kind of targeted drug has promise for leukemia patients (2014, December 7) retrieved 17 May 2024 from https://medicalxpress.com/news/2014-12-kind-drug-leukemia-patients.html