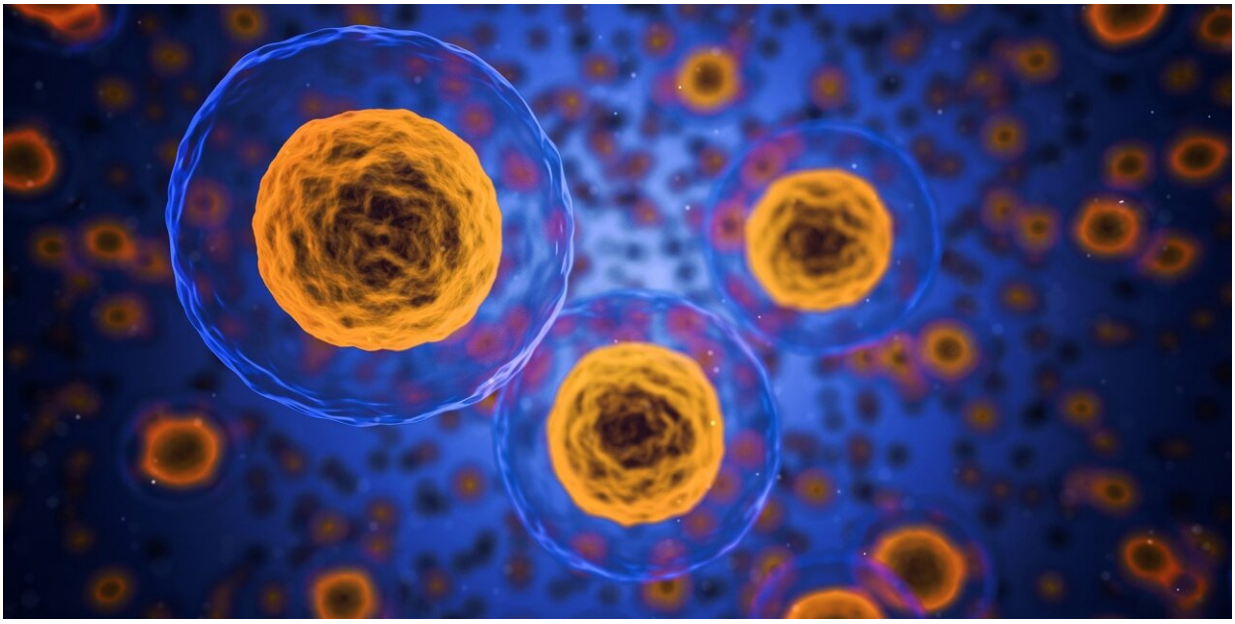
Clinical trial highlights possible treatment for anemia in myelodysplastic neoplasms

December 6 2023, by Anne Grimm



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In patients affected by myelodysplastic neoplasms, the body does not produce enough functional blood cells. Patients suffer from anemia—a lack of red blood cells and hemoglobin—which can progress to acute leukemia. Imetelstat, a new agent beyond the current standard of care, may help to avoid blood transfusions, which can be a burden for MDS patients, especially over a long period of time.

This effect was demonstrated in a clinical trial at 118 sites in 17 countries led by Professor Uwe Platzbecker from Leipzig University and the University of Leipzig Medical Center, in collaboration with an international research team. The results have been published in the journal *The Lancet*.

Patients with myelodysplastic neoplasms (MDS) suffer from a disruption in the healthy maturation of blood cells in their bone marrow. This can lead to anemia, infections and an increased risk of bleeding. Patients who fall into the lower-risk category of MDS are not initially in an acutely life-threatening situation, but often suffer from severe anemia.

This is caused by a lack of mature and functional red blood cells and is manifested primarily by reduced performance, extreme fatigue and exhaustion, which severely limits the quality of life of those affected. This type of anemia can often only be adequately treated with regular blood transfusions, which can be very stressful for patients.

In a recent international study, the drug imetelstat helped MDS patients achieve independence from red blood cell transfusions for around one year.

"Imetelstat offers a novel mechanism of action for the treatment of patients who fall into the lower-risk category of MDS and who do not respond to standard treatment with epoetin alfa," says study leader Professor Uwe Platzbecker, Director of the Department for Hematology, Cell Therapy, Hemostaseology and Infectious Diseases at the University of Leipzig Medical Center.

The drug studied—imetelstat—is a telomerase inhibitor. Telomerase is an enzyme that plays a crucial role in cell aging—it continually renews the protective caps at the ends of the chromosomes, an important function for healthy cells. However, cancer cells divide much more

frequently than healthy cells and telomerase delays the death of malignant cells.

Telomerase inhibitors actively block telomerase and therefore have the potential to limit the proliferation of malignant cells and eliminate them more efficiently. Imetelstat is the first agent in this class of drugs to be used in MDS.

Forty percent of patients treated with imetelstat responded to the new therapy, compared to fifteen percent in the placebo group. There was more neutropenia, a reduction in white blood cells, and thrombocytopenia, a reduction in blood platelets, in the imetelstat group than in the placebo group. However, these side effects were manageable and reversible.

"Once approved, imetelstat will add another option to the established therapies for treating anemia, one of the main symptoms of MDS. This will help to avoid or delay blood transfusions, which are very stressful for patients," says Professor Platzbecker, who has been conducting clinical research into myelodysplastic neoplasms for more than 20 years.

Approval for the use of imetelstat in MDS is being sought from the US Food and Drug Administration (FDA) and the European Medicines Agency (EMA), and imetelstat is expected to be available for treatment in the course of 2024. IMerge, a randomized phase 3 trial, was conducted at a total of 118 sites in 17 countries, including university hospitals, cancer centers and outpatient clinics. The study is sponsored by the pharmaceutical company Geron Corporation.

More information: Uwe Platzbecker et al, Imetelstat in patients with lower-risk myelodysplastic syndromes who have relapsed or are refractory to erythropoiesis-stimulating agents (IMerge): a multinational, randomized, double-blind, placebo-controlled, phase 3 trial, *The Lancet*

(2023). DOI: 10.1016/S0140-6736(23)01724-5