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Stem cell transplantation of therapy-resistant chronic leukemia successful

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The transplantation of stem cells from a healthy donor (allogeneic) offers the chance of cure for patients with an aggressive form of chronic lymphocytic leukemia (CLL), irrespective of genetic prognostic factors and the prior course of the disease. The German CLL Study Group proved this in a multicentric clinical phase II study led by Professor Dr. Peter Dreger, senior consultant and head of the division of stem cell transplantation at the Department of Internal Medicine V at Heidelberg University Hospital. The results were published online in the prominent journal *Blood* at the beginning of July.

CLL is the most frequent form of leukemia in western countries. In many cases, it has a rather benign course. However, there are patients in whom the disease does not respond to the standard treatment with chemotherapy or antibodies. Patients with this high-risk CLL often die within a few years of the diagnosis. For some of these patients, the unfavorable course can be predicted based on the presence of typical chromosomal mutations in leukemia cells (deletion 17p-).

High-risk CLL can be controlled in the long term by allogeneic stem cell transplantation

Investigators at 16 different treatment centers in Germany included a total of 90 patients with high-risk CLL in the current study. For conditioning for transplantation, patients were given a reduced dosage of chemotherapy so that the acute tolerance of the transplantation was very

good.

For a large percentage of patients, highly sensitive tests were conducted regularly to detect any remaining leukemia cells after the transplantation. In about half of these patients, no remaining CLL cells were detected in the blood in the long term, which was highly predictive for the lack of recurrence for the follow-up period (up to eight years, on average about four years). This positive result was independent of the genetic risk profile and resistance to certain chemotherapeutic drugs. The donor type (related or unrelated) also had no influence on the result.

"Our study is the largest so far for this patient population and proved that allogeneic stem cell transplantation is a promising therapy option for high-risk CLL and has the potential to cure for this otherwise incurable kind of leukemia," says Professor Dreger, head of the study.

Risks of stem cell transplantation

Allogeneic stem cell transplantation is a very stressful and risky form of therapy, which could previously not be carried out on the generally older patients affected by CLL. With the new improved method studied here, tolerance was significantly improved. The main risk still remains the "graft-versus-host reaction", in which donor cells attack the patient's own cells, which are foreign to them. However, this is also the mechanism by which the leukemia cells are eliminated. "It is crucial to control the transplanted donor immune cells so that the effect is strong enough to eliminate the leukemia cells but not strong enough to lead to complications in other tissues and organs. For this, regular measurement of the CLL cells in blood is a new, extremely helpful instrument," says Professor Dreger.

More information: Allogeneic stem cell transplantation provides durable disease control in poor-risk chronic lymphocytic leukemia: long-

term clinical and MRD results of the GCLLSG CLL3X Trial. Peter Dreger, Hartmut Döhner, Matthias Ritgen, Sebastian Böttcher, Raymonde Busch, Sascha Dietrich, Donald Bunjes, Sandra Cohen, Jörg Schubert, Ute Hegenbart, Dietrich Beelen, Matthias Zeis, Michael Stadler, Justin Hasenkamp, Lutz Uharek, Christof Scheid, Andreas Humpe, Thorsten Zenz, Dirk Winkler, Michael Hallek, Michael Kneba, Norbert Schmitz, Stephan Stilgenbauer. *Blood.*

Provided by University Hospital Heidelberg

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