

New test helps guide treatment for bone marrow transplant patients with graft vs. host disease

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A new test can guide treatment for patients with graft versus host disease (GVHD), an often life-threatening complication of bone marrow and stem cell transplants, according to research from the University of Michigan published in *Lancet Haematology* this month.

Patients with fatal blood cancers like leukemia often need [bone marrow](#) or stem [cell transplants](#) to survive. But one of the most common and serious side effects that [patients](#) face is graft vs. host disease: when a patient's new immune system from the transplant (the graft) attacks the patient's healthy tissue (the host).

Most GVHD starts out as mild, but in two-thirds it eventually becomes severe. The treatment for severe GVHD is high doses of medications that knock out the immune system. But doctors have to be careful with drugs that further weaken a newly transplanted [immune system](#), because they increase the risk for serious and life-threatening infections. Until now there has been no test to determine which cases of GVHD will become severe, so treatment is often delayed until the GVHD worsens.

The study's lead author, John Levine, M.D., of the University of Michigan's Blood and Marrow Transplant Program and his colleagues studied almost 800 patients from the US and Germany to develop and validate a new scoring system. The Ann Arbor GVHD score uses the levels of three proteins in the blood (TNFR1, ST2, and REG3a) to

determine whether the patient should be treated right away or not and how intense the treatment should be. Patients with Ann Arbor 1 GVHD usually don't need treatment while patients with Ann Arbor 3 GVHD often don't respond to standard treatment and should be considered for clinical trials.

"We often have to treat all patients with GVHD alike with very high-dose steroids, because the severity of symptoms at the disease's onset don't help us predict how sick the patient will get. But this new scoring system will help identify patients that need a different approach, says Levine, who also is clinical director of the Pediatric Blood and Marrow Transplantation program at C.S. Mott Children's Hospital.

"And it can help us with patients with lower-risk GVHD who we may be over-treating. These scores can help us find a better, more individualized fit for our patients as soon as their disease is diagnosed," says Levine, who is professor of pediatrics at the University of Michigan Medical School.

Around half of patients who get a [bone marrow transplant](#) will develop GVHD, which can be lethal if it can't be controlled.

"Our goal is to offer personalized care. Doctors have struggled with individualizing therapy for each patient, but there's been no new therapy for GVHD in more than 40 years. So this new scoring system gives us another tool to better take care of our patients," Levine says.

More information: A prognostic score for acute graft-versus-host disease based on biomarkers: A multicenter study. *Lancet Haematology*, 2015, 2:e21-29 [DOI: 10.1016/S2352-3026\(14\)00035-0](https://doi.org/10.1016/S2352-3026(14)00035-0)

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