New blood test can predict the severity of acute graft-versus-host disease

What were researchers trying to learn?

Researchers wanted to learn whether testing the blood of transplant patients when they first showed signs of graft-versus-host disease (GVHD) could tell them how mild or severe the GVHD would become.

GVHD can sometimes develop in patients who have an allogeneic transplant – a transplant that uses cells from another person. GVHD happens because of differences between the donated cells (the graft) and your body's cells (the host). Your new cells from your donor might see your body's cells as different and attack them.

In this study, researchers focused on acute GVHD, which is the kind of GVHD that usually happens in the early weeks and months after transplant. They looked at nearly 500 transplant patients for 3 different biomarkers that doctors have found in the blood of people who have acute GVHD. A biomarker is a substance in the body that can tell doctors something about what is happening in the body. A high level of cholesterol in the bloodstream, for example, is a biomarker for risks of heart disease.

In this study, 1 of the biomarkers that researchers looked at is TNF-alpha, which is a protein found in the blood of some patients with acute GVHD. The other 2 biomarkers studied were ST2 and Reg3-alpha.

What did they find?

Researchers tested for levels of all 3 biomarkers in patients with acute GVHD. Then they made a formula that gave patients a GVHD risk score of 1, 2, or 3. Patients with a score of 1 had a low risk of developing severe acute GVHD, and patients with a score of 3 had a high risk.

Researchers tested their predictions by studying a group of patients and found that their predictions were accurate. They also found that their predictions were usually the same if they did them again (reproducible). Researchers think results are more likely right if they're reproducible.

The percent of patients who died from transplant complications by 6 months after transplant were:

- Score 1 (low risk): 8%
- Score 2 (medium risk): 27%
- Score 3 (high risk): 46%

Researcher also found that the score predicted which patients would likely get better with the usual GVHD treatment (steroids):

- Score 1 (low risk): 86% of patients got better with usual treatment
- Score 2 (medium risk): 67%
- Score 3 (high risk): 46%

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Research News

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Important Point:

Biomarkers can predict whether acute GVHD will be mild or severe and whether it is likely to respond to treatment.

Why is this important?

If doctors know a patient's GVHD risk score, they can recommend treatment that is best for that patient. For example, patients with high-risk GVHD (score of 3) might be given more intense therapy for GVHD.

In addition, patients with low-risk GVHD (score of 1) might get better with less intense treatment or using steroids for a shorter time. These patients might respond as well but have fewer side effects from treatment.

What else should I keep in mind about this study?

There are other ways to measure GVHD risk. In 2012, researchers created a risk score to predict high risk acute GVHD. And in 2015, researchers created the Refined Acute GVHD Risk Score. But these are special tests. Doctors often don't use them because the study results haven't been repeated by other researchers yet.

The results of research studies are always limited in what they can and can't tell you. Although this study used new methods to give GVHD risk scores to patients, doctors can't know for sure if a patient with GVHD will get better with treatment.

Questions to ask your doctor

If you have acute GVHD, you may want to ask:

- Are there tests that can predict my likelihood of getting better?
- What can the GVHD risk score or other measures tell me about my transplant outcome?
- What is the likelihood that steroids will help treat my GVHD?
- Are clinical trials testing newer GVHD treatments an option for me?

Learn more about

- This research study
- GVHD

Source:
Levine JE, Braun TM, Harris AC, et al. A prognostic score for acute graft-versus-host disease based on biomarkers: a multicentre study. The Lancet Haematology. 2(1): e21-e29. Epub 2015 Jan 1. PMC4340092.

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