

Early detection helps manage a chronic graft-vs.-host disease complication

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A simple questionnaire that rates breathing difficulties on a scale of 0 to 3 predicts survival in chronic graft-vs.-host disease, according to a study published in the March issue of *Biology of Blood and Marrow Transplantation*.

And although a poor score means a higher risk of death, asking a simple question that can spot lung involvement early means that [patients](#) can begin treatments to reduce or manage symptoms, said senior author Stephanie Lee, M.D., M.P.H., research director of Fred Hutchinson Cancer Research Center's Long-Term Follow-Up Program, member of the Clinical Research Division at Fred Hutch and professor of oncology at the University of Washington School of Medicine.

"It's a warning," said Lee, senior author of the study. "It puts us on notice to be more careful and attentive."

GVHD is an immune reaction that occurs in some patients who have received bone marrow or blood cell transplants using donor cells. In GVHD, the transplanted cells—which will become the patient's new immune system—attack the patient's own cells as they would a foreign object or infection. GVHD can be either acute or chronic; severe, uncontrolled cases can be fatal.

Chronic GVHD most often involves the skin and mouth, but almost any other organ system can be involved. The likelihood of developing chronic GVHD is around 30 to 50 percent, said Lee. Of those who do

develop it, about 15 to 20 percent will have lung involvement.

In 2005, the National Institutes of Health recommended assessment of lung function in patients with chronic GVHD using both pulmonary function tests—machines that measure air flow—and an assessment of symptoms.

The newly published study found that shortness of breath is associated with a higher risk of death overall and of nonrelapse mortality, and that worsening symptoms over time were associated with increased mortality. Researchers analyzed a total of 1,591 visits by 496 patients in multiple treatment centers.

One of the study's findings was both surprising and encouraging: As a screening test, the simple questionnaire outperformed other tests, which the study called encouraging.

"The questionnaire turned out to be the most predictive," Lee said. "It's just a question, therefore easy to do and cost effective. No special equipment is involved."

The NIH symptom-based lung score asks about breathing difficulties and assigns the following numbers: 0 for no symptoms, 1 for shortness of breath with stairs, 2 for shortness of breath on flat ground, and 3 for shortness of breath at rest or requiring oxygen.

Not surprisingly, a score of 3 (shortness of breath at rest or requiring oxygen) was associated with higher mortality. But, the study pointed out, even patients with an NIH symptom-based lung score of 1 ([shortness of breath](#) with stairs) had a worse outcome than those with a score of 0.

Again, Lee saw the result as a way to notice problems earlier and start treatment sooner.

The patient's doctor would most likely follow up a poor score with other tests, such as a CT scan, to determine the cause; although chronic GVHD should always be suspected following a transplant, it is not the cause of every problem. The first line of treatment for chronic GVHD is medicines that suppress the immune system.

A poor score can also serve as a reminder to make sure the patient has had a pneumonia vaccination and is taking other precautions, Lee said.

Provided by Fred Hutchinson Cancer Research Center

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