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Blood levels of immune protein predict risk in Hodgkin disease

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Blood levels of an immunity-related protein, galectin-1, in patients with newly diagnosed Hodgkin lymphoma reflected the extent of their cancer and correlated with other predictors of outcome, scientists reported at the American Society of Hematology annual meeting.

In a study of 315 patients from a German database, researchers from Dana-Farber Cancer Institute found that serum galectin-1 levels "are significantly associated with tumor burden and additional adverse clinical characteristics in newly diagnosed Hodgkin lymphoma (HL) patients."

The measurements were made possible by a new laboratory test called a "sandwich ELISA" devised by the Dana-Farber team, led by Margaret Shipp, MD, director of the lymphoma program at Dana-Farber. Galectin-1 is a protein which, when overexpressed by Hodgkin lymphoma cells, allows them to evade the body's immune response that normally would detect the cancer and attack it with cell-killing lymphocytes. The Shipp group developed antibodies that recognize the galectin-1 protein and were used in developing the sandwich ELISA assay.

Since the protein is secreted into the bloodstream, the investigators hypothesized that measuring relative levels of galectin-1 in newly diagnosed, untreated Hodgkin patients could help to assess likely outcomes in those patients. Such predictions, in turn, could help physicians decide how aggressively to treat the lymphoma, Shipp

explained. With further development, she added, the assay could become "an objective test that might help make decisions on which way to treat patients."

The Dana-Farber scientists collaborated with researchers of the German Hodgkin Study Group (GHSG) at the University Hospital of Cologne. Shipp said that the GHSG has "probably the largest, most comprehensive data on clinical trials of patient with well-defined Hodgkin lymphoma." The 315 patients whose blood levels of galactin-1 were tested in the study had been enrolled in three different clinical trials – one for early-stage disease, a second for early-stage disease with additional less-favorable risk factors, and the third for patients with bulky localized or advanced-stage disease.

Using the sandwich ELISA assay, the Dana-Farber investigators found that blood galectin-1 levels in Hodgkin lymphoma patients were significantly higher than in normal control patients. They also found that relative galectin-1 levels were correlated with the risk factors that had been used to assign the 315 patients to the three different clinical trials. Direct comparisons of the galectin-1 levels with patient outcomes are awaiting the completion of one of the clinical trials, the researchers noted.

Beyond the potential for a clinical test, galectin-1 holds promise as a therapeutic target, said Shipp, whose group has made a "neutralizing" antibody to block the protein. She said the antibody, which is produced in mice, would need to be "humanized," or genetically modified to be compatible with human patients, and then undergo rigorous testing for safety and efficacy. This is under discussion with potential industrial partners, said Shipp.

Provided by Dana-Farber Cancer Institute