

Team zeroes in on better way to predict prognosis in pediatric leukemia patients

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Patrick Zweidler-McKay, M.D. Ph.D., is an assistant professor at the Children's Cancer Hospital at M. D. Anderson Cancer Center. Credit: M. D. Anderson Cancer Center

Researchers from the Children's Cancer Hospital at The University of Texas M. D. Anderson Cancer Center may have found a way to more accurately predict treatment outcomes in young leukemia patients using information from a common and simple complete blood count test, also known as a CBC.

The results of a retrospective study were reported at the American Society of Pediatric Hematology Oncology's (ASPHO) annual meeting today. The study illustrated that the minimal residual disease (MRD) indicator and the absolute lymphocyte count (ALC) together enable physicians to better predict which patients with [acute lymphocytic](#)

[leukemia](#) (ALL) will remain disease free and who will most likely relapse.

"Our ultimate goal is to use these prognostic tools in the future to guide treatments for our patients," said Patrick Zweidler-McKay, M.D. Ph.D., assistant professor at the Children's Cancer Hospital and first author on the study. "If we know that a patient is at high-risk for relapse from the beginning, then potentially we can adjust their treatment plan to a more aggressive therapy."

For several years, MRD has been the best prognostic tool used to predict whether a patient was at high-risk for relapse. At the 2007 ASPHO annual meeting, Zweidler-McKay reported that the ALC count can also be influential in predicting prognosis of pediatric [leukemia](#) patients. In this current study, results showed that ALC is as powerful as MRD, if not more, in independently predicting prognosis for children with ALL. By using ALC as a prognostic tool along with MRD, researchers were able to define a subgroup of patients who are more prone to relapse but were originally overlooked based on using MRD alone to predict prognosis.

The study was based on 171 pediatric ALL patients and showed that after a month of treatment, patients who were MRD positive with a low ALC had an event-free survival rate of 33 percent and an overall 5-year survival outcome of 41 percent. However, those who were MRD positive but with a high ALC had an event-free survival rate of 69 percent and overall 5-year survival of 92 percent. The most positive outcomes come from patients who are MRD negative and have high ALC. These patients have a 99 percent overall 5-year survival.

"MRD is an important tool for predicting prognosis," said Zweidler-McKay, "but it misses a subgroup of patients who, despite have low MRD, still are at high risk of relapse. Using the ALC information, we

can define which patients fall into this category. Down the line, we hope this information will allow us to alter treatment to help prevent these patients from relapsing."

Provided by University of Texas M. D. Anderson Cancer Center

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