

Pre-MEASURE: Multicenter evaluation of the prognostic significance of measurable residual disease testing prior to allogeneic transplantation for adult patients with AML in first remission

Progress towards standardized MRD detection

WHY?

Having measurable residual disease (MRD) prior to blood or marrow transplant for acute myeloid leukemia (AML) is a risk factor for cancer to come back and a factor in post-transplant survival. This study looked at the clinical use of a newer genetic technique called next-generation sequencing (NGS) that can detect cancer cells even in very small amounts.



448 patients

Adults 18+ with AML who had their first allogeneic (cells from a donor) blood or marrow transplant (BMT) when they were in their first clinical complete remission and had cancer cells with a mutation in the *FLT3*, *NPM1*, *IDH1*, *IDH2* and/or *Kit* genes identified before transplant.

WHO?

WHAT?

Testing of pre-transplant patient samples from Center for International Blood and Marrow Transplant Research (CIBMTR) research repository using NGS to determine whether MRD detected at extremely low levels is associated with outcomes after transplant.

Collaboration with National Heart Lung and Blood Institute (NHLBI)

RESULTS

NGS showed **129 of 448 patients (29%)** who were in clinical complete remission had MRD present before transplant.

3 years after transplant, **56%** of patients with no NGS-detectable MRD before transplant were alive without cancer recurrence compared to only **36%** of patients who had NGS-detectable MRD before transplant.

IMPACT

Detecting MRD with NGS could be an important way to identify patients at greater risk of cancer relapse after transplant.

More research is needed to confirm the findings and determine next steps, including how to treat patients who are found to have MRD before transplant to lower the risk of relapse.

CIBMTR is launching a National Marrow Donor Program-sponsored study, “Molecular Evaluation of AML Patients After Stem Cell Transplant to Understand Relapse Events (MEASURE)” to develop MRD testing as a standard for pre-transplant evaluation and post-transplant monitoring for patients with AML.

FROM THE EXPERTS

“Next generation sequencing has the potential to be a powerful tool to assess measurable residual disease in both the pre- and post-transplant settings. However, standardization in its use is the key to its success. To that end, the MEASURE study will determine feasibility and validate the use of NGS in becoming the new standard of care for assessing MRD.”



Jeffery Auletta, MD
SVP, Patient Outcomes and Experience, NMDP
Chief Scientific Director, Center for International Blood and Marrow Transplant Research NMDP

“We intend to enter a new era of precision transplantation, leveraging the best scientific tools to better understand and personalize treatment. The NIH-funded Pre-MEASURE study showed testing blood of adults with AML in apparent remission before transplant could identify 1 in 6 with a very high risk of relapse. Linking clinical registry data and research biospecimens in translational research is a powerful way to generate practice-changing evidence.”

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