

Understanding MRD

TRANSCRIPT

Narrator

“Complete remission.” This is the goal of every patient who has been diagnosed with cancer. Complete remission means that the treatment worked, and lab tests or scans show no evidence of cancer.

But does it?

Could there possibly be a few cells left that could cause a relapse? Could there be a handful of cells standing in the way of achieving complete remission?

MRD uses highly sensitive testing to help doctors determine if there are lingering cancer cells in a patient during and after treatment. It offers another way for patients and their healthcare team to track and manage their care. MRD testing is used in many patients with blood cancers such as leukemia, lymphoma, myeloma, MDS, or MPNs.

But what does this mean for patients? And how is testing done?

Dr. Ola Landgren of The Sylvester Comprehensive Cancer Center at the University of Miami Health System is a pioneer in MRD testing for blood cancers. Here he explains what MRD testing is, the importance of MRD testing for cancer patients, and what it means for the future of cancer treatment.

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C. Ola Landgren, MD, PhD

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I test for MRD because I want to see if there is any residual disease in my patients after I have completed the planned therapy. I use it to tailor the therapy and individualize the management of my patients.

What is MRD? How is MRD Measured?

Dr. Landgren

MRD is the abbreviation for minimal residual disease or measurable residual disease. So this refers to very low levels of detectable disease, if positive. If negative, it's either so low that you cannot find it or it's just simply not there. It represents, the results that you can generate using a very sensitive technology to see if you can find any residual or measurable disease in the patient.

MRD can be measured in different ways. For example, flow cytometry machines can be used also different molecular tests can be done such as PCR and also next-generation sequencing-based technologies can be used. There are also examples of newer technologies that are in development with protein assays, with mass spec (spectrometry) and imaging technology. So this is an emerging field.

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When Being Negative Means Something Positive

Dr. Landgren

MRD positivity refers to the fact that the patient is tested with sensitive assay that can detect, say, one cell in a hundred thousand, one cell in a million still is able to detect residual disease. That is MRD positivity. So there is a low amount of detectable disease. On the flip side, a patient that is tested with one of these very sensitive assays, if there are no cells to be found or no DNA (deoxyribonucleic acid) to be found, then the patient will be deemed as MRD negative.

How Can MRD Affect Treatment?

Dr. Landgren

When MRD testing is applied and the results are negative, that gives a lot of confidence that the therapy is working well. So for a patient, that means that probably there is no reason to change the therapy.

If MRD assays are conducted, and there is evidence of MRD positivity, that may indicate that the therapy needs to be adjusted.

When Should Patients be Tested? How Often Should Patients be Tested?

Dr. Landgren

MRD testing can be done in different ways for different blood disorders. I think as high points, it's probably correct to say that for those disorders that are treated with combination therapy to begin with – which is probably the majority of them – after that therapy has been completed, the planned therapy, that will be the time to check for MRD status.

For those diseases that are treated with a transplantation, the first step after transplantation could also be a good time to check. And if there are additional steps with consolidation therapy, that could also be another time to confirm and check the MRD status.

And for patients that go on maintenance therapy the guidelines for most of the diseases would suggest that that could be checked on some regular basis such as on an annual basis.

But there are small adjustments that that are done for each of the individual diseases.

Which Diagnoses Benefit Most from MRD Testing?

Dr. Landgren

MRD testing is utilized in different ways for different blood malignancies. For leukemia, it's already part of the clinical management for the adjustment of therapy and the management overall. For multiple myeloma, MRD testing is mostly currently used as a prognostic tool, but there are emerging clinical trials investigating the role of MRD testing also for clinical decision making.

For lymphomas, for the myelodysplastic syndromes and for the myeloproliferative neoplasms, at the current time MRD testing is mostly used for long-term follow-up and tracking of patients. That means that you can rule out early detection of recurring disease.

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MRD and the Future of Cancer Treatment

Dr. Landgren

A lot of the literature that refers to MRD testing in blood malignancies focuses on patients that are newly diagnosed. But we also start seeing more and more information testing in patients with relapsed and refractory disease. On a practical note, for a patient that is in the relapsed/refractory setting who achieves MRD negativity, that means that there is no detectable disease and the therapy can be deescalated in terms of intensity. So you can almost go back to more of a maintenance-like approach, which is fantastic for the patient.

I do think in the very near future, there will be more trials across the board for all the blood malignancies showing that MRD testing will be used for clinical decision making and for adjustment of therapy for patients.

I am very excited about MRD testing because MRD negative means that we cannot find any detectable disease in the patient.

I think testing it once and finding it negative – that is fantastic. But if you check it over time, if you can show sustained MRD negativity over an extended period of time, over a few years, I think that is probably the path towards a cure.

Narrator

It's important to talk with your healthcare team to find out if MRD testing is right for you.

For more information about MRD, please contact The Leukemia & Lymphoma Society at 1-800-955-4572 or visit us at [LLS.org](https://www.lls.org).