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What is the clinical significance of minimal residual disease (MRD) testing in multiple myeloma?

Hi, my name is Dr. Joshua Richter. I am a Clinical Assistant Professor at Rutgers and a practicing hematologist/oncologist at the John Theurer Cancer Center focusing in multiple myeloma.

One question that I'm frequently asked is, "What is the clinical significance of minimal residual disease, or MRD, testing in multiple myeloma?" This is a real hot button right now in the world of myeloma. Much of this stems from the acute myeloid leukemia data, where we've seen that patients who do not achieve minimal residual disease will benefit from more therapy to get them to an MRD negative state. This is still not quite clear in the realm of myeloma. What is clear, however, is that people who do achieve minimal residual disease negative status will do better, on the whole, than patients who do not achieve minimal residual disease negative status. Again, it is somewhat unclear at this time if taking someone from MRD-positive to MRD-negative with additional therapy is of any clinical benefit. More study is needed.

At the current time, there are three modalities that we are looking at for the measurement of minimal residual disease: real-time PCR, multicolor parametric flow cytometry, and next-generation sequencing. At our institution, we use next-generation sequencing. However, all of these modalities are available at different centers and they all help to evaluate each individual patient as to the low state of their disease.

Thank you.