BZKF Bayerisches Zentrum für Krebsforschung

Study Group – Multiple Myeloma

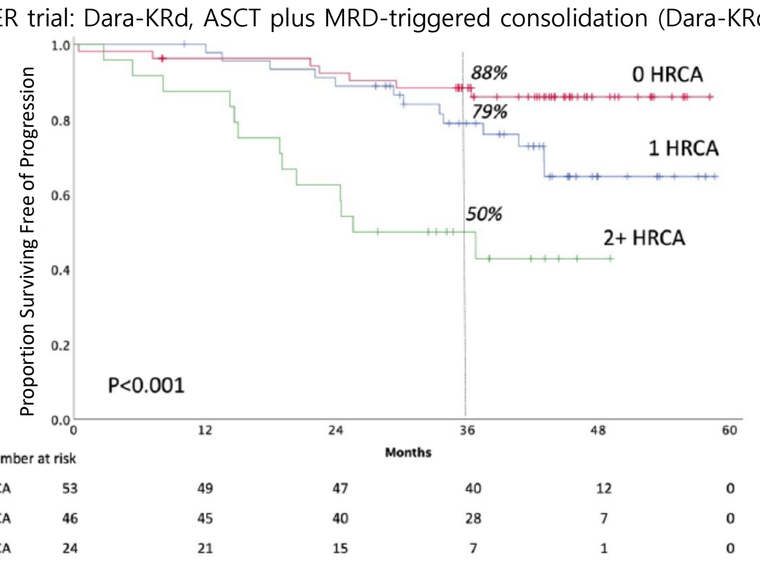
A research concept for systematic multimodal comparison of minimal residual disease assessment in multiple myeloma patients including analysis of biological properties of Circulating Multiple Myeloma Cells.

Speaker: Prof. Dr. Hermann Einsele, Würzburg

Background

Bone marrow MRD by NGF and NGS are the reference standard methods in multiple myeloma. BM-MRD is widely adopted worldwide for tracking disease progression, therapy efficacy, and decision-making in MM trials. For example, in the Master trial, MRD negativity was shown to impact PFS and OS rates. So far, no peripheral blood assay to evaluate MRD has been validated. In this study, we will compare in close collaboration with the BZKF Lighthouse Omics and Menarini Silicon Biosystems, the performance of different BM and PB methods in multiple myeloma, as well as well as their clinical impact on MM patients.

MASTER trial: Dara-KRd, ASCT plus MRD-triggered consolidation (Dara-KRd).

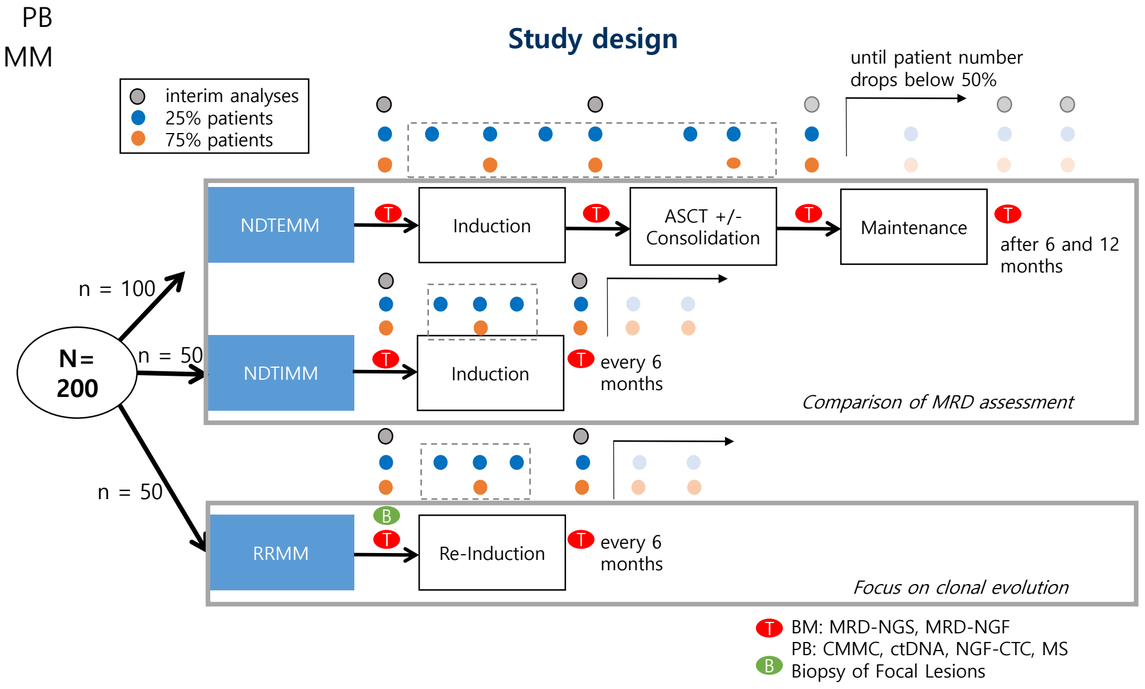


Costa, L. et al., Abstract S203 - EHA Frankfurt 2023

Goals

- To create a network for exchange of MM patient data and biological material between the BZKF partner sites.
- To establish a Collaboration between BZKF sites and the industry (Menarini Biosystems).
- To perform a comparison of MRD methods in multiple myeloma.
- To identify biological properties of CMMCs by genomic and proteomic single-cell based analyses.

Study design



Timeline

Publications

An abstract with the title "Euroflow-based ultrasensitive detection of malignant plasma cells in the bone marrow" will be presented at the International Myeloma Society meeting in Athens in September 2023.

Benefits for the patients

The comparison of diverse technologies for diagnosis and monitoring in the 200 MM patient cohort, will provide data that will help to predict patient therapy efficacy and patient outcome. One of the methods evaluated in this study is the Euroflow-based ultrasensitive MRD approach. This method will be especially relevant for patients with high risk and ultra-high risk disease, who continue to relapse despite classic MRD negativity.

Future Milestones

Project: Ultrasensitive BM-MRD for the detection of malignant plasma cells in multiple myeloma.

Goals

- To compare the performance of ultrasensitive MRD vs conventional MRD and different PB based methods.
- To compare functional imaging results with ultrasensitive MRD, especially on patients with negative conventional MRD and positive imaging results.
- To evaluate the clinical benefit of ultrasensitive MRD on multiple myeloma patients, especially patients with high risk and ultra high risk disease.

Preliminary results:

Among 40 patients with negative conventional NGF-MRD, 5 cases turned positive after ultrasensitive MRD. Patients 1, 2, and 3, diagnosed between 2020 and 2022, were in CR during assessment. Patients 4 and 5, diagnosed in 2016 and 2014 respectively, underwent multiple therapies and autologous hematopoietic cell transplants. Patient 4 showed several MM manifestations in imaging studies at the moment of the MRD assessment. In this study, we report BM-MRD at detection levels of 10^{-8} cells. Further studies will prospectively evaluate the predictive value of the assay in MM patients, especially patients with high and ultra-high-risk disease who continue to relapse despite classic MRD negativity.

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