

C15. Minimal Residual Disease in Multiple Myeloma

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Introduction. The achievement of minimal residual disease (MRD) negativity is proved to be a powerful predictor of favorable outcomes in multiple myeloma (MM). Recent technical developments in flow cytometry (FC) afford for a MRD detection with high sensitivity. So far the 0.01% threshold for MRD detection has consistently proven to bear prognostic relevance in MM.

Materials and methods. Between January 2011 and May 2014, 52 MM patients were evaluated in our unit by FC for MRD detection, following induction therapy. A 6-color antibody panel testing for CD19, CD56, CD38, CD138, CD45, kappa, lambda was used to distinguish abnormal plasma cells from normal plasma cells. Between 5×10^5 and 1×10^6 events were acquired and 50 to 100 events were considered the cutoff for MRD positivity.

Results. The limit of FC-mediated detection depends on the number of events used to define a population as well as the total number of events acquired. The detection limit may render reproducible when the assay contains sufficient antigens to reliably discriminate the neoplastic cells in virtually all cases.

Conclusion. Coordinated efforts from international groups are currently working for defining consensus criteria for the minimum requirement for MRD testing in MM, as well as for the optimal timing of MRD detection in order to implement this technique in treatment trials and in clinical practice.