FAVOURABLE IMPACT OF POST-TRANSPLANT MINIMAL DISEASE NEGATIVITY ASSESSED BY FLOW CYTOMETRY ON SURVIVAL IN PATIENTS WITH MYELODYSPLASTIC SYNDROMES

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Background: Follow-up investigation in patients (pts) with MDS and CMML under therapies mainly relies on hematologic parameters and morphology, whereas the role of MRD is less clear. In the present study, we focused on the prognostic impact of innovative post-transplant flow MRD monitoring on the outcomes of MDS and CMML pts.

Methods: 116 pts (male, n=70; median, 62 y, 35-79) with MDS (low/intermediate, n=36; high,/very high, n=50; R-IPSS), MDS/MPN (n=17), CMML (n=13) and available post-transplant day +30 and/or +100 flow MRD data ("different from normal"; ELN recommendations), who received allografts during 2016-2023 years at the Department of Stem Cell Transplantation at University Medical Centre Hamburg were included.

Results: The majority of pts had *de novo* MDS (n=91, 78%), and received matched allografts (n=97, 81%) after RIC regimen (n=77, 66%) with ATG as GvHD prophylaxis (n=105, 91%). Post-transplant flow MRD positivity at day +30 and/ +100 was considered as prognostically unfavorable. There were 47 MRD^{neg} (n=76, 66%) and 40 MRD^{pos} (n=40, 34%) pts.

The 3-year OS and DFS were better in post-transplant MRD^{neg} compared to MRD^{pos} pts: 75% (62-85%) vs 55% (36-72%, p=0.08); and 61% (41-78%) vs 44% (28-62%, p=0.005), respectively. This was due to higher relapses in the MRD^{pos} group: 32% (19-49%) vs 11% (5-25%, p=0.004). In multivariate analysis, post-transplant MRD negativity in the first 100 days and younger (≤60 y) age had an independent favorable impact on relapses (HR 0.36, 0.15-0.85, p=0.02; HR 0.25, 0.08-0.82, p=0.021), DFS (HR 0.31, 0.15-0.65, p=0.002; HR 0.33, 0.14-0.79, p=0.013) and OS (0.43, 0.20-0.97, p=0.041; HR 0.31, 0.12-0.84, p=0.021), respectively.

Conclusion: Post-transplant flow MRD monitoring following the "different from normal approach" can improve relapse prediction in MDS patients and contribute to defining a population, that may benefit from early post-transplant interventions (e.g. early tapering of immunosuppression, DLIs).