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## Abstract

The heterogeneous nature of myelodysplastic neoplasms (MDS) implies a complex and personalized variety of therapeutic approaches. Among them, the only potentially curative option, still, remains an allogeneic hematopoietic stem cell transplantation (allo-HSCT), which is anyway accessible to only a small number of fit patients. Considering the potential treatment-related complications associated with allo-HSCT in MDS patients, a serious selection process of patients is inevitable. Therefore, identification of patient and disease-related factors, predicting outcome after allo-HSCT, is mandatory. While the IPSS/R/M have been developed mainly to determine the prognostic risk in newly diagnosed MDS patients, their predictive value concerning the post transplantation outcome was confirmed in several studies. Should patients be treated with an HMA or chemotherapy before allo-HSCT? Retrospective analyses have demonstrated that i.e. with HMA the outcome was improved for patients in complete remission compared to those with active disease at the time of allo-HSCT. Importantly, these studies underlie a certain selection bias for patients with chemo-sensitive disease and excluded patients who did not undergo allo-HSCT because of therapy-related toxicity. Therefore, the value of prior therapy is still not clear because of the absence of randomized trials. This is also because HMA and induction chemotherapy can be associated with a considerably short-term toxicity and many patients with MDS tend to have a delayed recovery of their counts. This leaves the question of when and how to “bridge” to transplant often an individual decision e.g. based on the time of identification of a compatible

donor. Novel combination therapies may however pave the way for novel, effective and safe approaches prior to allo-HSCT.