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ELEVENTH ANNUAL MEETING

The Colonization With Multidrug-Resistant Bacteria Affects Autologous and Allogeneic Hematopoietic Stem Cell Transplantation Outcomes and Determines Serious Post-transplant Infectious Complications: A Single-Center Experience

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INTRODUCTION

Colonization with multidrug-resistant bacteria (MDRB) prior to allogeneic (allo) or autologous (auto) hematopoietic stem cell transplantation (HSCT) remains a significant concern as it may result in serious infectious complications and higher post-transplant mortality.

AIM

We conducted a single center observational study including patients with various hematological diseases undergoing auto- or alloHSCT between 2018-2020 who were microbiologically evaluated for colonization prior to transplant to determine whether MDRB colonization prior to transplant impacts allo- and autoHSCT outcomes.

METHODS

- Patients with various hematological diseases treated with HSCT
- Data of clinical status prior to transplantation: age, diagnose, gender, Disease Risk Index, type of conditioning regimen, type of HSCT, source of HSC in alloHSCT
- Microbiological tests of colonization prior to transplantation
- Evaluation of post-transplant infection rate, overall survival (OS) and mortality
- Statistical analysis and prominence of potential predictive factor

CONCLUSIONS

Colonization with MDRB is associated with a higher incidence of infections in patients after alloHSCT and in patients with lymphoma after autoHSCT. Additionally, it is correlated with higher rates of overall mortality and infection-related mortality in the allotransplant setting. Eventually, MDRB colonization along with high DRI are two independent predictors of worse survival after alloHSCT.

RESULTS

We analysed 332 patients who underwent alloHSCT (n=112) or autoHSCT (n=220), 47% of whom were colonized with MDRB before alloHSCT and 25% before autoHSCT. Mediane age of patients was 54 (range 18-69) and 58 (range 21-78) regarding alloHSCT and autoHSCT, respectively. AlloHSCT protocols included myeloablative (n=46), reduced intensity (n=47) or reduced toxicity conditioning (n=19) and graft from identical siblings (n=12), matched unrelated donor (n=80) or family haploidentical donor (n=20) .

141 patients (30%) were diagnosed with G3-4 infections. For alloHSCT, the rate of serious infections was significantly higher in patients colonized with MDRB (47% vs. 23%; p=0.002) (Figure 1.). However, for auto-HSCT, a similar association was observed only in patients with lymphoma, but not with multiple myeloma (71% vs. 43%; p=0.057) (Figure 2.). After a median follow-up time of 12 months (range, 2-33), OS at 18 months in allo- and autoHSCT patients was 64% and 94%, respectively. Among alloHSCT patients, MDRB colonization was identified as the single factor associated with shorter OS (58% vs. 71%; p=0.042), likewise Disease Risk Index (DRI), for which OS was 90%, 66% and 35% for low, intermediate and high DRI, respectively (p=0.012). In multivariate analysis, both high DRI (HR 2.54; p=0.007), and MDRB colonization (HR 2.11; p=0.037) remained the independent predictors for poor OS (Figure 3 and 4.). MDRB colonization was associated with significantly higher overall mortality (36% vs 19%; p=0.04) and infection-related mortality (17% vs 3.5%; p=0.019) after allotransplantation. On the contrary, in autoHSCT patients, MDRB colonization had no effect on OS.

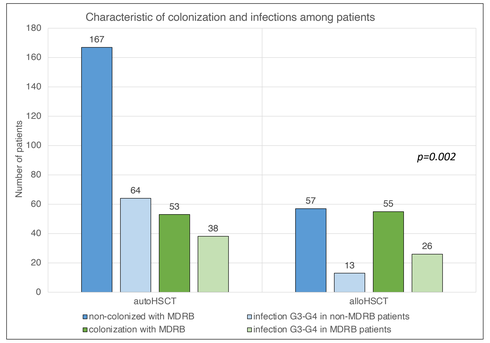


Figure 1. Characteristic of colonization and infections in the patients.

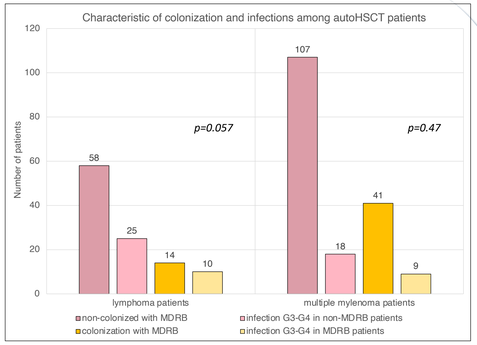


Figure 2. MRDB colonization in autoHSCT.

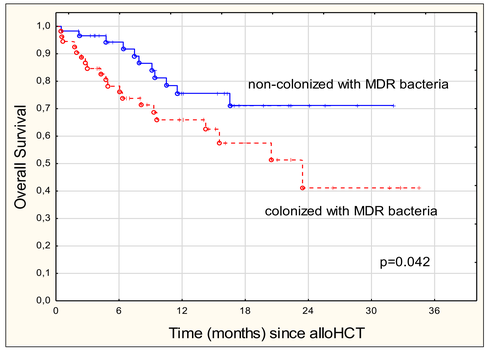


Figure 3. Overall survival regarding MRDB colonization in alloHSCT patients.

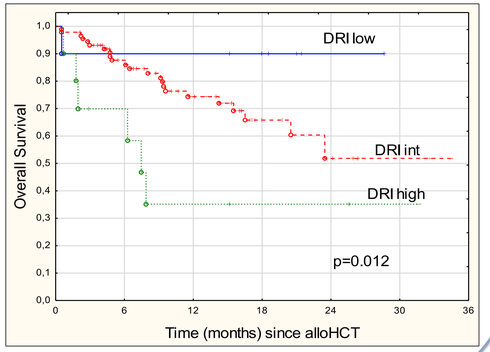


Figure 4. Overall survival regarding DRI in alloHSCT patients.

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