



## The 65th ASH Annual Meeting Abstracts

## POSTER ABSTRACTS

## 721.ALLOGENEIC TRANSPLANTATION: CONDITIONING REGIMENS, ENGRAFTMENT AND ACUTE TOXICITIES

**Low Bone Mineral Content: A New Risk Factor for Outcome of Allogeneic Hematopoietic Stem Cell Transplantation in Patients with Hematological Malignancies**

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**INTRODUCTION** There is growing evidence about the influence of body composition (BC) on mortality in various patient groups, including patients with hematological malignancies. The aim of the study was to assess the impact of BC and bone mineral density (BMD) on the outcomes of allogeneic hematopoietic stem cell transplantation (alloHCT).

**METHODS** We carried out an observational study involving patients with various hematological malignancies who underwent alloHCT between 2019 and 2022 in our institution. We assessed their total body BMD and BC employing densitometry with the dual-energy x-ray absorptiometry (DXA) method (Horizon A, Hologic, USA, 2017). Total body BMD includes variables such as BMD expressed in T and Z scores and bone mineral content (BMC). In addition, measured and calculated BC was obtained, which included body fat, and fat-free body mass values. The data on patients and disease characteristics, as well as the transplant details and outcomes were prospectively gathered.

**RESULTS** The study group consisted of 101 patients (49 males, 52 females), with a median age of 56 years (range, 19-69), presenting with various hematological malignancies classified according to Disease Risk Index (DRI) into low (12%), intermediate (56%), high (16%) and very high risk (16%) categories. The patients received transplants from matched related donors (13%) or matched unrelated donors (88%) after conditioning of either low (40%) or intermediate intensity (61%) according to transplant conditioning intensity (TCI) score. The median follow-up time was 24 months (range, 6-50), with an overall survival (OS) rate of 76% (95%CI 66-84) at 2 years. Significantly worse 2-year OS was found in patients with total body BMC (expressed in grams) below the median value vs  $\geq$  median value calculated for each gender separately (65% vs 87%;  $p=0.015$ ), high/very high DRI, compared to low/intermediate DRI (57% vs 85%;  $p=0.009$ ), age over 60 years (64% vs 83%;  $p=0.045$ ), and female patients, compared to male patients (64% vs 88%;  $p=0.011$ ). In a multivariate Cox model, low total body BMC [HR 2.84 (95%CI 1.09-7.41);  $p=0.033$ ], high/very high DRI [HR 3.46 (95%CI 1.42-8.41),  $p=0.006$ ] and female gender [HR 3.29 (95%CI 1.19-9.07);  $p=0.021$ ] remained the independent risk factors for OS. For the entire study group non-relapse mortality (NRM) and relapse incidence (RI) at 2 years was 10.4% (95%CI 5.4-19.7) and 24.7% (95%CI 16.4-35.3), respectively. The only identified risk factor for NRM was very high DRI [HR 4.55 (95%CI 1.08-19.18);  $p=0.039$ ]. The factors that significantly impacted RI both in uni- and multivariate model were low total body BMC and high/very high DRI [HR 3.48 (95%CI 1.25-9.66);  $p=0.016$ , and HR 2.84 (95%CI 1.03-5.98);  $p=0.042$ , respectively].

**CONCLUSIONS** Our results strongly suggest that low total body BMC determined by densitometry via the DXA method may serve as a new DRI-independent risk factor for worse alloHCT outcomes in patients with hematological malignancies.

**Disclosures** No relevant conflicts of interest to declare.

<https://doi.org/10.1182/blood-2023-189524>

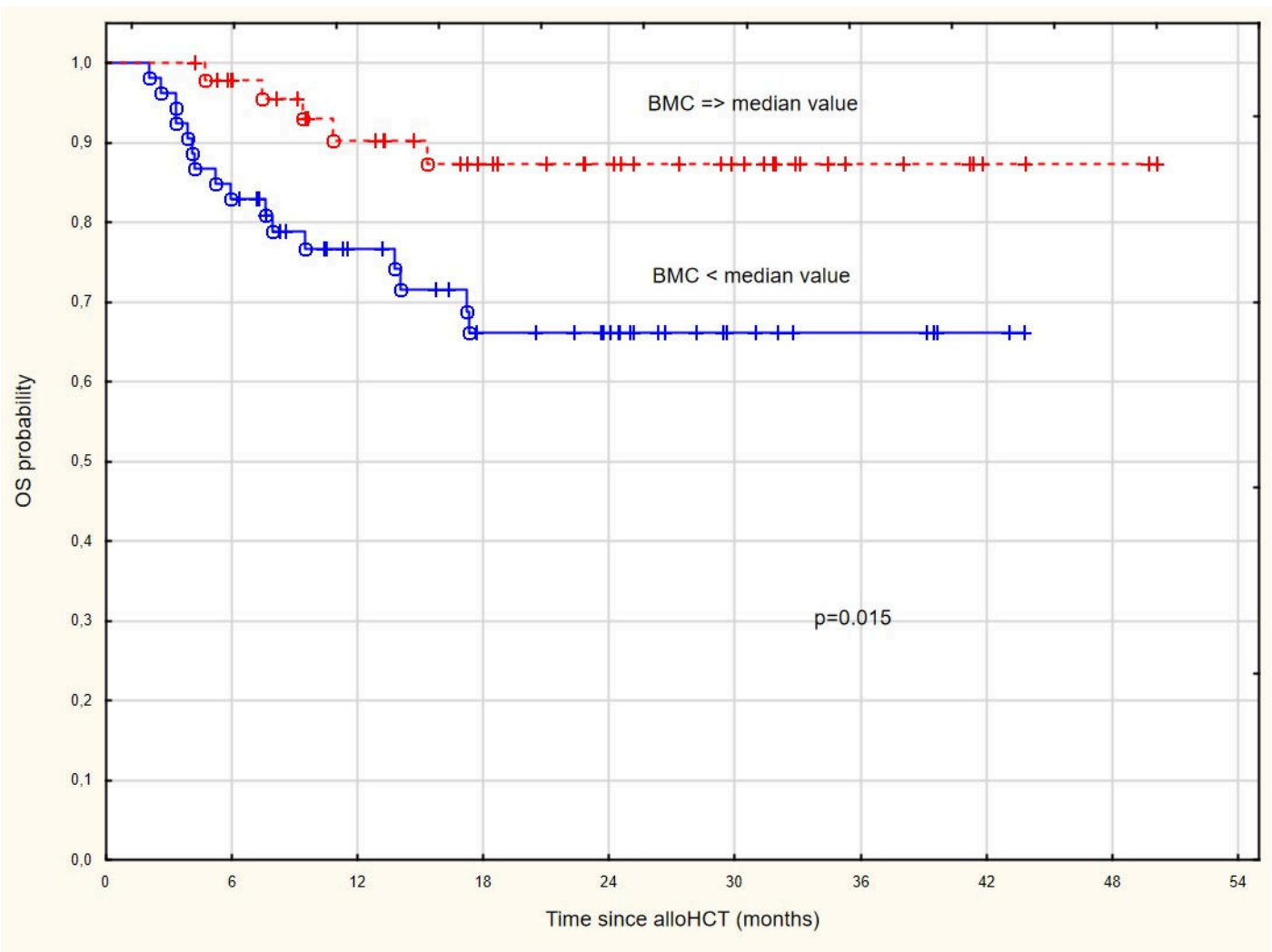


Figure 1