Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

patients had been vaccinated against SARS-CoV-2 (19 (48.7%): 2 doses, 15 (38.5%): 3 doses, 2 (5.1%): unvaccinated). 76.9% had heterologous prime/ boost with ChAdOx1 nCoV-19 vaccine and either the BNT162b2 or mRNA-1273 vaccine (15.4% mRNA vaccine only; all BNT162b2). For the patients with paired data 77.8% had positive IgG anti-S Wuhan Ab, post-RCyBorD this was 81.5%. Median Wuhan IgG Ab levels did not decline post-induction (1.34 to 1.20 OD450nm, p=0.19). This was also the case with median Wuhan IgGAM (ratio 2.96 to 2.87; p=0.79), IgG Omicron BA.1 Ab (0.86 to 0.86 OD450nm; p=0.96) and BA.2 Ab (0.89 to 0.95 OD450nm; p=0.80). 66.7% of patients had positive IgG Omicron BA.1 Ab pre and post-RCyBorD. For Omicron BA.2, 66.7% of patients were positive at baseline increasing to 70.4% post-induction. 11 out of 39 (28.2%) patients were vaccinated whilst receiving RCyBorD. Median Omicron BA.1 and BA.2 Ab increased in those with available paired data, (n=7; BA.1 0.86 to 1.72 OD450nm, p=0.01; BA.2 0.77 to 1.71, p=0.01) without an increase in Wuhan IgG Ab (p=0.56). Total number of vaccine doses received, ISS score or prior COVID-19 infection did not affect Ab responses post-induction. There was a trend towards higher Ab levels in patients in >=VGPR post-induction for both Wuhan (p=0.11), Omicron BA.1 (p=0.08) and BA.2 (p=0.12) IgG anti-S Ab. **Conclusions:** NDMM patients receiving RCyBorD induction maintain serological vaccine responses against Wuhan and Omicron variants. Our findings support ongoing vaccination through therapy to maintain and improve protection against SARS-CoV-2 variants, particularly Omicron, in NDMM patients.

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Impact of the time interval between end of induction and autologous hematopoietic transplantation in newly diagnosed patients with multiple myeloma

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Introduction: Multiple Myeloma (MM) patients eligible for autologous hematopoietic transplantation (AHT) receive 3-6 cycles of induction therapy before transplant. Typically, the last induction cycle is completed 2-4 weeks prior to mobilization. It is unclear whether disease progression during this drug-free period predicts for high-risk disease and worse clinical outcomes post ASCT. In this study, we evaluated the impact of the time interval between end of induction and AHT on progression-free survival (PFS) and overall survival (OS). **Methods:** We included all newly diagnosed MM (NDMM) patients from 2004-2018 who were seen in our institution and underwent upfront AHT within a year from diagnosis. Patients that progressed during induction therapy were excluded from the study. We analyzed patients based on the median time to transplant (TTT), calculated from the last chemotherapy date to the date of transplant. The end-points of the study were PFS and OS, measured from the date of transplant. PFS and OS were calculated with the Kaplan and Meier method. Cox proportional hazards models were used for univariable and multivariable analyses. A two-sided p-value < 0.05 was considered statistically significant **Results:** A total of 1055 patients were identified. The median TTT was 33 days (27-42 inter-quartile range). We found that patients with a TTT of less than 33 days had significantly prolonged PFS (35.6 vs. 32.1 months, p< 0.03) but non-significant OS differences compared to patients with a TTT of more than 33 days. When grouping patients based on inter-quartile TTT, we found that patients with a TTT of less than 27 days (1st quartile) had significantly prolonged PFS (36.7 vs. 30.9 months, p< 0.01) but non-significant OS differences compared to patients with a TTT of more than 42 days (4th quartile). In a subgroup analysis based on the biochemical response achieved prior to transplant, we grouped patients into "good" responders (VGPR or better) and "bad" responders (less than VGPR). In quartile comparisons, patients in the 1st quartile had significantly prolonged PFS (36.4 vs. 33.8 months, p< 0.03) compared to the 4th quartile group for the good responders. In the bad responder group, patients in the 1st quartile had significantly prolonged PFS (37.7 vs. 28.7 months, p< 0.04) compared to the 4th quartile group. For OS, no significant differences were found. **Conclusions:** This is the first study to evaluate the impact of TTT on clinically relevant outcomes in NDMM patients. We showed that a prolonged TTT is associated with inferior outcomes compared to tighter chemotherapy schedules. This finding was especially prevalent in patients with less than VGPR at induction. We propose that patients should not be given extensive chemotherapy-free periods prior to stem cell infusion, as this may adversely affect their disease course.

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Association of thrombocytopenia with disease burden, high-risk cytogenetics, and survival in newly diagnosed multiple myeloma patients

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Introduction: Multiple Myeloma (MM) is a malignancy of plasma cells in the bone marrow, with a proportion of patients presenting with low platelet count. While thrombocytopenia has been shown to be prognostic in MM, it is yet unclear what the underlying biology and the exact risk posed by thrombocytopenia is for MM patients, especially in the novel treatment era. The study objective is to evaluate the clinical and molecular characteristics

and outcomes in MM patients presenting with thrombocytopenia. **Methods:** We studied newly diagnosed MM (NDMM) patients between 2008 and 2018 who received at least 2 novel agents for treatment . Thrombocytopenia at diagnosis was defined as a platelet count of less than < 150,000/mm3. Baseline patient and disease characteristics, and the biochemical response at induction were collected. Univariate analysis was conducted via the Kaplan-Meier method, and multivariable analysis was conducted via the Cox proportional hazards regression. A two-sided p-value < 0.05 was considered statistically significant. **Results:** A total of 648 patients were identified. Thrombocytopenia was found in 120 patients (18.5%). Baseline disease characteristics associated with statistically significantly higher rates of thrombocytopenia at baseline included IgA heavy chain, p< 0.01, ISS 3 vs. 1 or 2, p< 0.01, R-ISS 3 vs. 1 or 2, p< 0.01, renal failure (CrCl< 30), p< 0.01, hypercalcemia (Ca >11.5 mg/dL), p< 0.01, elevated LDH, p< 0.03, anemia (Hb< 10 g/dL), p< 0.01, higher serum monoclonal protein, p< 0.02, and >60% plasma cells in the bone marrow, p< 0.01. Thrombocytopenia was more prevalent across patients with t(4;14) and t(14;20) translocations, but it was not associated with an overall high-risk FISH classification. Median OS was significantly lower among patients with thrombocytopenia (64.4 vs. 145.0 months, p< 0.01). In multivariable Cox regression, thrombocytopenia was associated with mortality (hazard ratio 2.53, 95% CI 1.71-9.3, p< 0.01) independently of age, sex, renal failure, high-risk FISH, R-ISS stage, response at induction, receipt of upfront transplant, plasma cells in the bone marrow and anemia. **Conclusions:** We found that thrombocytopenia at diagnosis was seen among one-fifth of NDMM patients, and was more common in patients with high-risk features and specific cytogenetic aberrations [t(4;14) and t(14;20)]. Thrombocytopenia was found to have an independent association with worse survival, even when accounting for multiple known predictors of earlier mortality in MM.

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Deepening responses post upfront ASCT in newly diagnosed multiple myeloma in the era of novel agent induction therapy

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Introduction: High dose melphalan followed by autologous stem cell transplant (ASCT) remains the standard of care for transplant-eligible patients with newly diagnosed multiple myeloma (NDMM). Achievement of complete response (CR) and Minimal Residual Disease (MRD) negativity are associated with improved progression-free survival (PFS) and overall survival (OS). **Methods:** This study investigated the rates of conversion to MRD negative CR following upfront ASCT in 210 patients with NDMM treated at a single center from May 1st, 2018 to July 31st, 2019. **Results:** Pre-ASCT, 23 patients (11%) achieved MRD negative CR which increased to 66 (31%) patients post ASCT. Of 187 patients not in MRD negative CR pre-ASCT, 45 (24%) converted to MRD negative CR. Patients with MRD positive CR before ASCT had the highest rates of conversion to MRD negative CR. HR cytogenetics did not impact rates of MRD negative CR achievement post ASCT irrespective of pre-ASCT IMWG response (p = 1.0). Overall, irrespective of IMWG response, 43 (20%) patients were MRD negative pre-ASCT (19 in VGPR, 24 in CR or sCR) and 102 (49%) patients were MRD negative post-ASCT (36 in VGPR, 66 in CR or sCR). Among 85 patients with VGPR post-ASCT, 36 achieved MRD negativity of which 8 (22%) progressed, while 49 had MRD positive disease of which 24 (49%) progressed (p = 0.014). **Conclusions:** Upfront ASCT in patients with NDMM leads to deeper responses with 24% converting to MRD negative CR and more than doubling of the total rate of MRD negativity irrespective of IMWG response depth.

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Impact of pre-transplant disease status on progression-free survival (PFS) in patients with multiple myeloma undergoing auto-HCT

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Introduction: The purpose of the study was to evaluate the impact of pre-transplant disease status on progression-free survival (PFS) post-auto-HCT and also the impact of maintenance therapy on PFS post-auto-HCT **Methods:** We retrospectively analyzed 100 patients with multiple myeloma from January 2016 through June 2021 who underwent induction chemotherapy followed by a single auto-HCT. Median age was 63 years (37-77). Conditioning regimen was either Melphalan 200 mg/m2 (n=95) or 70 mg/m2 (n=5) divided over 2 days. International myeloma working group criteria were used to establish the disease status prior to transplant. Complete response (CR) was seen in 14 patients, very good partial response (VGPR) was seen in 26 patients and partial response (PR) was seen in 60 patients. Post-transplant maintenance was administered to 12/14 patients in CR group, 21/26 in VGPR group and 49/60 in the PR group. **Results:** At a median follow-up of 33 months, 2/14 (17%) of the patients in CR had relapsed with a median time to relapse of 37.8 months. Of the patients who achieved VGPR, 9/26 patients had relapsed (45%), 5 of whom were on maintenance with a median time to relapse of 17.3 months. In the PR response group, 19/60 patients relapsed (32%), 13 of whom were on maintenance with a median time to relapse at 22 months. Use of post-auto-HCT maintenance with either Lenalidomide or a Proteasome inhibitor (Bortezomib or Ixazomib) showed a statistically significant difference in median PFS (p=0.003) compared to those who did not receive maintenance therapy. **Conclusions:** Our retrospective analysis