**Table 2: Active Clinical Trials in Myeloma Using Minimal Residual Disease Assessment as Exploratory or Secondary Endpoints**

| **Trial**  | **Phase/Design (Method)** | **Sample Size** | **Sponsor/Location** | **ClinicalTrials.gov ID** |
| --- | --- | --- | --- | --- |
| Comparison of Three Methods to Evaluate Residual Disease in MM | Observational/(flow, NGS, PBL) | 50 | Hospices Civiles de Lyon, Fr /Janssen | NCT02627261 |
| Genomic-Based Diagnosis, Classification and Targeted Treatment of MM | Observational/(PCR, flow, sFLC, Serum Heavylite) | 150 | Singapore | NCT01619358 |
| Study of Bendamustine and IXAZOMIB (MLN9708) Plus Dexamethasone in Relapsed/Refractory MM | I/II dose-escalation, single-arm (MRD?) | 26 | Medical College of Wisconsin | NCT02477215 |
| Phase I Dose Escalation of i.v. and s.c. BI 836909 Monotherapy in Last Line MM Patients | I/dose-escalation (MRD?) | 120 | Boehringer Ingelheim. Fr, Ge | NCT02514239 |
| Phase 1-2 Study of Total Bone Marrow Irradiation With Helicoidal Tomotherapy in 1st Myeloma Relapse (TOMMY) | I/II irradiation dose-escalation +Melphalan (MRD?, FDG-PET) | 44 | Institut Cancerologie de l'Ouest, Fr | NCT01794572 |
| Sequential Trial on Reduced Intensity Conditioning (RIC) Allogeneic Transplantation (EMN-alloRIC) | I/II (MRD?, FDG-PET) | 45 | European Myeloma Network | NCT01460420 |
| Phase 1 Study to Assess Safety & Tolerability of Tremelimumab & Durvalumab, Administered With High Dose Chemotherapy and Autologous Stem Cell Transplant | I, 4-arms/ (flow, genetic?) | 24 | Ludwig Institute for Cancer Research, NY/Medimmune | NCT02716805 |
| Dose Escalation Trial of WT1-specific Donor-derived T Cells Following T-Cell Depleted Allogeneic Hematopoietic Stem Cell Transplantation for Patients With Relapsed/Refractory MM | I/dose-escalation (MRD?) | 21 | MSKCC | NCT01758328 |
| Study Evaluating Venetoclax in Subjects With Hematological Malignancies | I/dose-escalation (MRD?) | 30 | AbbVie/Genentech, Jp | NCT02265731 |
| Study of Gene Modified Donor T Cell Infusion in Patients With Recurrent Disease After Allogeneic Transplant | I/dose-escalation, BPX-501 and AP1903 (MRD?) | 24 | Bellicum Pharmaceuticals | NCT02477878 |
| Elotuzumab in Autologous Stem Cell Transplantation (ASCT) and Lenalidomide Maintenance for MM | I/(MRD, immunofixation, sFLC) | 15 | Mount Sinai/ Bristol-Myers Squibb | NCT02655458 |
| Pembrolizumab (MK-3475) in MM Patients With Residual Disease | II/single arm (flow) | 20 | PETHEMA/Merck | NCT02636010 |
| A Single Arm Study of Carfilzomib in Transplant Eligible High Risk MM | II/single arm (flow) | 30 | Singapore | NCT02217163 |
| Safety And Efficacy Of Lenalidomide As Maintenance Therapy In Patients With Newly Diagnosed MM Following A Tandem Autologous-Allogeneic Transplant | II/single arm (PCR?) | 53 | Fondazione Neoplasie Sangue Onlus, It | NCT01264315 |
| Phase II Study of IRD (Ixazomib, Lenalidomide, Dexamethasone) Post Autologous Stem Cell Transplantation Followed by Maintenance Ixazomib or Lenalidomide for MM | II/RCT for maintenance (NGS or flow) | 130 | Washington University/ Millennium | NCT02253316 |
| Exploratory Trial to Estimate Proportion of Patients With Tumor Cell Contaminated Leukapheresis Products With and Without Bortezomib With In-vivo Purging - MM (MM) | II/ RCT (flow) | 100 | University of Kansas | NCT02703779 |
| Dendritic Cell/Myeloma Fusion Vaccine for MM (BMT CTN 1401) | II /RCT-3 arm (flow) | 188 | NHLBI | NCT02728102 |
| Busulfan & Melphalan Conditioning for Autologous Stem Cell Transplant (ASCT) and Lenalidomide Maintenance (BuMelMCRN001) | II/single arm (MRD?, Serum Heavylite, cfDNA) | 78 | University Toronto, Ca/ Otsuka/Celgene | NCT01702831 |
| A Trial Evaluating Efficacy & Safety of RVD ± Panobinostat in Transplant Eligible, Newly Diagnosed MM (NDMM) (PANORAMA4) | II/RCT (NGS) | 112 | Novartis | NCT02720510 |
| Nonmyeloablative Allogeneic Stem Cell Transplant Followed by Bortezomib in High-risk MM Patients | II/ single-arm (flow) | 30 | Maisonneuve-Rosemont Hospital, Ca | NCT02308280 |
| A Study to Evaluate 3 Dose Schedules of Daratumumab in Participants With Smoldering MM | II/3-arm (MRD?) | 120 | Janssen | NCT02316106 |
| Carfilzomib/Cyclophosphamide/Dexamethasone With Maintenance Carfilzomib in MM (Cardamon) | II/RCT (MRD?) | 280 | University College, London/ Onyx Pharmaceuticals | NCT02315716 |
| Trial of Carfilzomib, Lenalidomide, Dexamethasone Versus Lenalidomide Alone After Stem-cell Transplant for MM | III/ RCT (MRD?) | 180 | University of Chicago | NCT02659293 |
| Study Comparing Daratumumab, Lenalidomide, and Dexamethasone With Lenalidomide and Dexamethasone in Participants With Previously Untreated MM | III/RCT (NGS) | 730 | Janssen | NCT02252172 |
| Evaluation of the Safety and theEfficacy of Carfilzomib Combined With Cyclophosphamide and Dexamethasone (CCyd) or Lenalidomide and Dex (CRd) Followed by ASCT or 12 Cycles of Carf Combined With Dex and Len for Patients Eligible for ASCT With Newly Diagnosed MM. (FORTE) | II/RCT 3 arm (MRD?) | 477 | University of Turin, It | NCT02203643 |
| A Study to Evaluate Daratumumab in Transplant Eligible Participants With Previously Untreated MM (Cassiopeia) | III/4-arm (MRD?) | 1080 | Intergroupe Francophone du Myelome/ Hovon/Janssen, Fr, Ne | NCT02541383 |
| Trial Studying Maintenance Treatment With Lenalidomide and Dexamethasone Versus Lenalidomide, Dexamethasone and MLN9708 After Autologous Hematopoietic Stem Cell Transplantation in Patients With Newly-diagnosed Symptomatic MM | III/(MRD by NGF and NGS) | 316 | PETHEMA/Celgene/Takeda | NCT02406144 |
| A Study of Combination of Daratumumab and Velcade (Bortezomib) Melphalan-Prednisone (DVMP) Compared to Velcade Melphalan-Prednisone (VMP) in Participants With Previously Untreated MM | III/(MRD?) | 700 | Janssen | NCT02195479 |
| A Study of Oral Ixazomib Maintenance Therapy in Patients With Newly Diagnosed MM Not Treated With Stem Cell Transplantation | III/(MRD/BMA) by Flow and NGS)) | 761 | Takeda | NCT02312258 |
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| A Study of Oral Ixazomib Maintenance Therapy in Patients With Newly Diagnosed MM Treated With Stem Cell Transplantation | III (MRD (BMA) by flow and NGS and MRD (Blood) by NGS) | 652 | Takeda | NCT021181413 |
| Phase 3, randomized, double-blind, multicenter study to evaluate the safety and efficacy of ixazomib versus placebo when added to lenalidomide and dexamethasone (LenDex) in patients with Newly Diagnosed MM (NDMM) who are not eligible for stem cell transplant. | III (MRD (BMA) by flow) | 701 | Takeda | NCT01850524 |
|  |  |  |  |  |
| Bortezomib (Velcade®), Lenalidomide (Revlimid®) and IV Busulfan (Busilvex®) in Patients Under 65 Years Old (GEM2012MENOS65) | III/ (MRD?, immunofixation-negative) | 460 | PETHEMA/Celgene/Janssen | NCT01916252 |