THE EFFICACY AND SAFETY OF CILTA-CEL AND IDE-CEL IN RELAPSED REFRACTORY MULTIPLE MYELOMA: A META-ANALYSIS.

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Introduction

- Multiple myeloma (MM) is a malignant hematologic disorder with high relapse rates. (1)
- CAR-T therapies, idecabtagene vicleucel (Ide-Cel) and ciltacabtagene autoleucel (Cilta-Cel), have shown promising results in relapsed refractory MM (RRMM). (2, 3)
- This meta-analysis aims to assess the pooled efficacy and safety of Ide-cel and Cilta-cel in RRMM patients.

Methods

- Following PRISMA guidelines, PubMed, Embase, and Cochrane Central were searched in January 2025 for studies published through that date.
- All prospective and retrospective trials reporting at least one relevant outcome were included.

Results

- Eight studies (four each for ide-cel and cilta-cel) involving 1,186 RRMM patients were analyzed.
- Mean age ranged from 54 to 63 years, and follow-up periods ranged from 8.5 to 21.5 months.
- The use of cilta-cel showed pooled ORR of 90.6% (95% CI: 81.8–99.3; p < 0.001), sCR 73.6% (95% CI: 59.4–87.8; p < 0.001), CR 5.6% (95% CI: 1.4–12.5; p < 0.001), PFS 77.9% (95% CI: 72.4–83.0; p < 0.001), and MRD-negativity 92.7% (95% CI: 86.6–98.9; p < 0.0026).
- The use of ide-cel showed pooled ORR of 74.7% (95% CI: 66.9–81.8; p = 0.061), sCR 33.1% (95% CI: 28.8–37.5; p = 0.523), CR 10.7% (95% CI: 0.0–39.0; p < 0.001), MRD-negativity 27.4% (95% CI: 15.3–41.3; p = 0.005).
- Adverse events using cilta-cel included neutropenia (94.4%; 95% CI: 90.0–98.7; p = 0.040), anemia (76.1%; 95% CI: 51.1–101.1; p < 0.001), thrombocytopenia (74.3%; 95% CI: 56.3–92.2; p < 0.001), neurotoxicity (12.2%; 95% CI: 3.6–20.8; p < 0.001), and CRS ≥ grade 3 (8.6%; 95% CI: 0.8–16.4; p < 0.001).
- Ide-cel caused neurotoxicity in 21.3% (95% CI: 13.6–30.0; p = 0.009), and CRS ≥ grade 3 4.4% (95% CI: 2.6–6.6; p = 0.774). Neutropenia was in 71.7% (95% CI: 54.3–86.4; p < 0.001), anemia 65.6% (95% CI: 57.1–73.7; p = 0.029), and thrombocytopenia 58.5% (95% CI: 46.9–69.6; p = 0.001).

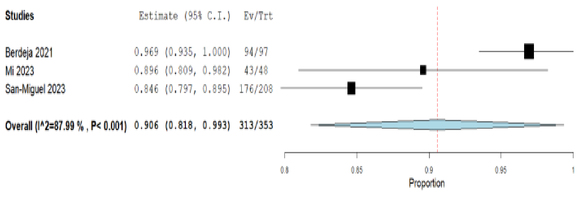


Figure 1. Forest Plot Showing Proportions of ORR with Cilta-cel Therapy in Relapsed/Refractory MM

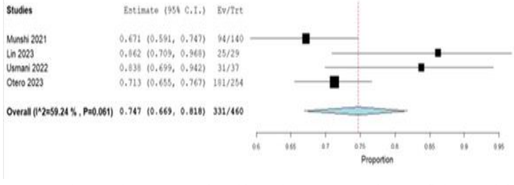


Figure 2. Forest Plot Showing Proportions of ORR with Ide-cel Therapy in Relapsed/Refractory MM

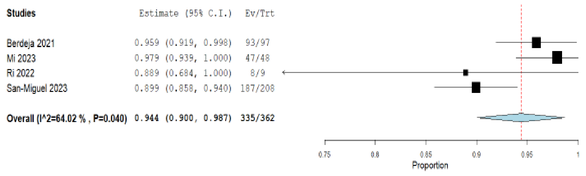


Figure 3. Forest Plot Showing Proportions of Neutropenia with Cilta-cel Therapy in Relapsed/Refractory MM

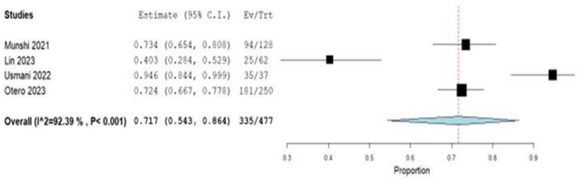


Figure 4. Forest Plot Showing Proportions of Neutropenia with Ide-cel Therapy in Relapsed/Refractory MM

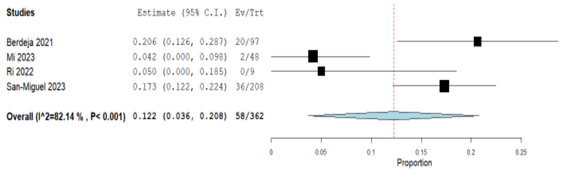


Figure 5. Forest Plot Showing Proportions of Neurotoxicity with Cilta-cel Therapy in Relapsed/Refractory MM

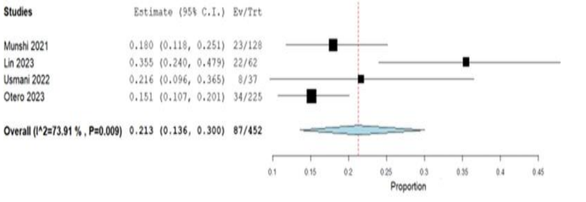


Figure 6. Forest Plot Showing Proportions of Neurotoxicity with Ide-cel Therapy in Relapsed/Refractory MM

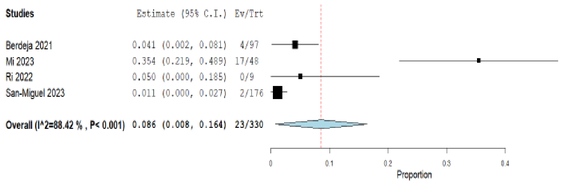


Figure 7. Forest Plot Showing Proportions of CRS ≥ grade 3 with Cilta-cel Therapy in Relapsed/Refractory MM

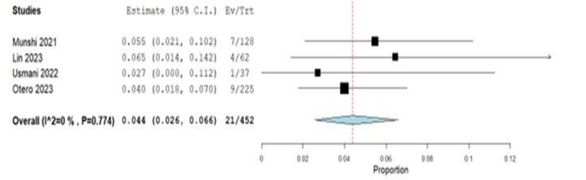


Figure 8. Forest Plot Showing Proportions of CRS ≥ grade 3 with Ide-cel Therapy in Relapsed/Refractory MM

Summary

- Both ide-cel and cilta-cel are effective in RRMM, with cilta-cel demonstrating superior efficacy and MRD-negativity but greater hematologic toxicity. Ide-cel shows a more favorable safety profile.
- Treatment selection should weigh efficacy against toxicity. Further direct comparisons are necessary.

References

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