CILTACABTAGENE AUTOLEUCEL (CILTA-CEL), A B-CELL MATURATION ANTIGEN (BCMA)-DIRECTED CHIMERIC ANTIGEN RECEPTOR (CAR) T-CELL THERAPY, IN PATIENTS (PTS) WITH MULTIPLE MYELOMA (MM) AND EARLY RELAPSE AFTER INITIAL THERAPY: CARTITUDE-2 COHORT B

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Introduction: Cilta-cel is a CAR-T therapy with 2 BCMA-targeting single-domain antibodies. Here, we present the first results from cohort B of the CARTITUDE-2 study with cilta-cel CAR-T therapy (NCT04133636), which enrolled pts following early relapse after initial therapy that included a proteasome inhibitor (PI) and immunomodulatory (IMiD) drugs.

Material and Methods: A single cilta-cel infusion (target dose 0.75×10^6 CAR+ viable T cells/kg) was given to eligible pts 5–7 d after start of lymphodepletion (300 mg/m^2 cyclophosphamide and 30 mg/m^2 fludarabine daily for 3 d). The primary objective was minimal residual disease (MRD) negativity at 10^{-5}, as assessed by next generation sequencing. Adverse events (AEs) were graded using CTCAE v5.0 (cytokine release syndrome [CRS]) and immune effector cell associated neurotoxicity syndrome (ICANS) by ASTCT criteria.

Results: As of the April 15, 2021, data cutoff, 18 pts (median age 57 y) received cilta-cel, and 2 pts died before cilta-cel infusion (1 each due to progressive disease and worsening general status). Median follow-up was 4.7 mo; median time from diagnosis to enrollment was 1.1 y. Overall response rate was 88.9%, 27.8% of pts achieved ≥complete response and 66.7% achieved ≥very good partial response. Of pts who were MRD-evaluable (n=9), all were MRD 10^{-5} negative. At data cutoff, all but 1 pt remained in clinical response. Hematologic TEAEs in ≥20% of pts were neutropenia (89%), thrombocytopenia (61%), anemia (50%), leukopenia (28%), and lymphopenia (22%). CRS occurred in 15 (83%) pts (1 gr 4). ICANS (gr 1) occurred in 1 pt. One pt experienced movement and neurocognitive TEAEs (gr 3) on Day 38 post cilta-cel infusion. No study deaths occurred post cilta-cel infusion.

Conclusions: A single cilta-cel infusion led to early and deep responses in pts who experienced early clinical relapse/tx failure to initial therapy, with a manageable safety profile.