MANAGING THE AFTERMATH: HOSPITAL TRAJECTORIES AND READMISSION PATTERNS FOLLOWING BCMA DIRECTED CAR-T THERAPY

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Introduction

Idecabtagene vicleucel [ide-cel] and Ciltacabtagene autoleucel [cilta-cel] are BCMA directed CAR-T cell therapy in relapsed/refractory multiple myeloma (RRMM).

Aim

To better understand clinical and economic burden associated with BCMA CAR-T treatments.

Objectives

To study demographics, hospital outcomes and readmission risks for BCMA CAR-T

Methods

Data source: National Readmission Database 2021-22

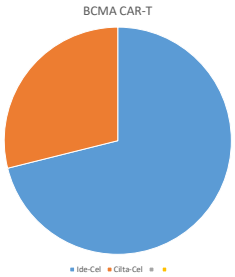
Population :MM patients receiving CAR-T in the hospital

Primary outcome: 30-day readmission rates, risks associated with readmission, overall mortality, length of stay (LOS), and hospitalization costs.

Statistics: Univariate and Multivariate cox regression analysis to identify factors associated with readmission. Statistical significance was set at $p < 0.05$.

Baseline characteristics

- Among 1,395 BCMA CAR-T recipients (71.1% ide-cel, 28.9% cilta-cel; mean age 62.9; 61.7% male; 80% treated at large hospitals), 99% had a Charlson Index ≥2.



Complications

- CAR-T-specific toxicities included cytokine release syndrome (CRS, 67.7%), neutropenia (36.8%), ICANS (14.2%), and HLH (1.1%).

Complications	
AKI	18.3%
Septic shock	1.5%
CMV C diff infection	2.0% 3.3%
Neutropenia Thrombocytopenia CRS (any grade) ICANS HLH	36.7% 13.5% 67.7% 8.0% 1.1%

Outcomes

- Index admissions averaged 14.5 days and $1.2M in charges; readmissions averaged 6.5 days and $105K in charges. In-hospital mortality rose from index admission (2.4%) to readmission (7%).

Outcomes	
ICU stay	24.8%
Disposition Home Home with HH SNF	 83.1% 11.8% 2.5%
Mortality-Index LOS Total Charge	2.4% 14.5 days $ 1,205,414

Readmissions

- The 30-day readmission rate was 16.25 and 11.15% readmitted within 14 days.
- No significant difference in readmission rates was observed between ide-cel (14.74%) and cilta-cel (17%)
- Independent risk factors included mechanical ventilation (HR 70.02), HLH (HR 4.39), and discharge to skilled nursing (HR 3.04); CRS was linked to reduced readmission risk (HR 0.36). Age, gender, and prior bone marrow transplant were not significant factors.

Summary

- Post-discharge monitoring and prompt and effective interventions in high-risk subgroups are needed to reduce early hospital readmissions.
- Higher mortality trended with cilta-cel warrants close follow up

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