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Impact of Outpatient CAR T-Cell Monitoring on Healthcare Utilization in Multiple Myeloma

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Background

- CAR T-cell therapy has revolutionized treatment outcomes in multiple myeloma (MM), but traditionally required inpatient post-infusion monitoring, which is associated with significant cost and time burden.
- Outpatient CAR-T infusion and monitoring has been adopted at Mayo Clinic in Rochester, MN, with demonstrated feasibility and safety (Bansal et al., ASCO 2023).
- Here, we present data comparing healthcare utilization between CAR-T recipients who underwent outpatient remote monitoring (Mayo Clinic, MN) and those with traditional inpatient monitoring (Mayo Clinic, FL and AZ).

Methods

We retrospectively reviewed electronic medical records of 106 patients who received CAR-T for MM between 2020 and 2024 and compared healthcare utilization at 30 days between patients who underwent remote outpatient monitoring in MN (n=65) and those with inpatient monitoring at Mayo Clinic sites in AZ and FL (n=41); per protocol, inpatient monitoring involved mandatory hospitalization for 7 days post infusion, with extension at provider discretion. Baseline characteristics and outcomes were compared using Wilcoxon and Chi-Square tests, with P values <0.05 considered statistically significant.

Results

There were no significant differences in baseline demographics, laboratory values, or vital signs between the 2 groups **(Table 1).**

Outcomes at 30 days (Table 2):

- Median hospital days were significantly lower in the outpatient vs inpatient group (2.7 vs 10.9, P<0.001).
- ICU admission occurred in one patient in each group.
- 29% in the outpatient group did not require hospitalization, while 57% and 14% required 1, and 2/3, hospitalizations, respectively.
- Fewer patients in the outpatient group had ≥1 ED visit compared with the inpatient group (8% vs 22%, P=0.036).
- Online patient portal use was similar between groups, with 86% of outpatient and 83% of inpatients using the portal at least once (P=0.65), and a median of 2 versus 3 messages, respectively (P=0.28).
- There was no significant difference in 30-day mortality between the outpatient and inpatient groups (0% vs 5%, P=0.15).

	InPatient (N=41)	**OutPatient (N=65)**
Idecabtagene vicleucel	25 (61%)	31 (48%)
Ciltacabtagene autoleucel	16 (39%)	34 (52%)
Female	15 (37%)	25 (39%)
Age, median (range)	64.2 (33.5–76.1)	65.9 (40.2–83.3)
Race		
White	31 (75.6%)	61 (93.8%)
African American	5 (12.2%)	1 (1.5%)
Asian	1 (2.4%)	2 (3.1%)
Other/Unknown	4 (9.8%)	1 (1.5%)
Ethnicity		
Not Hispanic	35 (85.4%)	63 (96.9%)
Hispanic/Latino	4 (9.8%)	0
Other/Unknown	2 (4.9%)	2 (3.1%)
Labs (median, range)		
LDH	212 (125–837)	213 (137–1435)
CRP	8.0 (3.6–106.9)	6.9 (3.1–206.8)
Ferritin	217.5 (36–5561)	250 (23–6139)
Hemoglobin	9.2 (6.8–14.4)	9.6 (6.4–13.1)
Platelets	133 (8–231)	138 (13–279)
ANC	1.8 (0.2–4.2)	1.4 (0.2–4.6)
Creatinine	0.8 (0.5–2.2)	1.0 (0.5–2.3)

Table 1: Baseline characteristics prior to CAR-T infusion

Outcomes-30 days	**InPatient (N=41)**	**OutPatient (N=65)**	**p-value**
Hospitalization **(N)**			
0	0	19 (29%)	0.001
1	31 (76%)	37 (57%)	
≥2	10 (24%)	9 (14%)	
Days in hospital, median (range)	10.9 (2.3–24.2)	2.7 (0–30)	<0.001
ICU admission	1 (2.4%)	1 (1.5%)	0.74
Days in ICU, median (range)	0 (0–0.9)	0 (0–0.7)	0.74
ED visits	9 (22%)	5 (7.7%)	0.04
Death ≤30 days	2 (4.9%)	0	0.15
Portal use (Yes)	34 (83%)	56 (86%)	0.65
Portal interactions, median (range)	3 (0–30)	2 (0–13)	0.28

Table 2: outcomes in inpatient vs outpatient groups.

Conclusion

Outpatient CAR T-cell monitoring in MM was associated with lower healthcare utilization, with fewer hospital days and no increase in emergency department visits, ICU stays, portal use, or 30-day mortality.

REFERENCES

Bansal et al. Outpatient practice utilization for CAR-T and T cell engager in patients with lymphoma and multiple myeloma.. J Clin Oncol 41, 1533-1533(2023).

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