UTILIZATION TRENDS AND COMPARATIVE OUTCOMES OF AUTOLOGOUS HSCT AND CAR-T CELL THERAPY IN DLBCL (2016-2022)

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Introduction

- Diffuse large B-cell lymphoma (DLBCL) is the most common aggressive non-Hodgkin lymphoma subtype with **30-40% of cases** in the US[1].
- For years, the standard-of-care for relapsed or refractory DLBCL has been **salvage chemotherapy followed by high-dose chemotherapy and autologous stem-cell transplantation (ASCT)**, but the advent of CAR T-cell therapy in 2017 has transformed treatment paradigms[2,3].
- The real-world impact of this shift on utilization and outcomes is not fully defined.
- We analyzed national trends and comparative outcomes of HSCT and CAR T-cell therapy in hospitalized DLBCL patients using the NIS database (2016–2022).

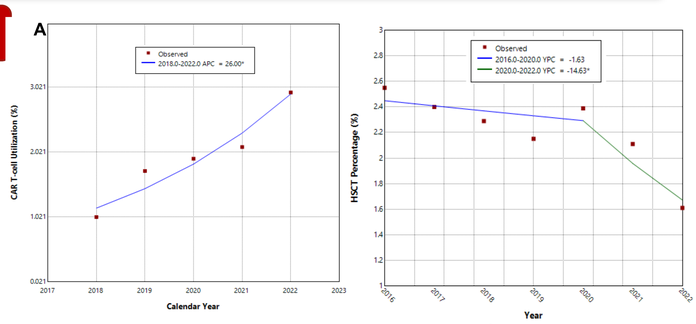
Methods

- We conducted a retrospective cohort study using the **National Inpatient Sample (2016-2022)** to identify hospitalizations with a primary diagnosis of DLBCL.
- Patients who underwent **autologous HSCT or CAR T-cell therapy** were identified using corresponding procedure codes.
- **Baseline demographics, comorbidities, and hospital-related variables** were compared between the two groups using chi-square tests.
- **Jointpoint regression** was used to evaluate temporal trends and calculate the **Annual Average percent Change (AAPC)** in utilization overall and within subgroups.

Results

- Between 2016 and 2022, there were **73,406 hospitalizations** for patients with DLBCL. Among these, **1,634 (2.23%)** underwent autologous HSCT, and following the 2017 FDA approval of axicabtagene ciloleucel, **1,013 patients** received CAR T-cell therapy between 2018 and 2022.
- **CAR T-cell recipients** were significantly older than HSCT recipients (≥65 years: **45.5% vs. 38.8%**, p = 0.003) and had a higher comorbidity burden (CCI ≥3: **14.8% vs. 11.9%**, p = 0.019). No significant differences were observed in sex or race.
- In-hospital outcomes showed that CAR T-cell patients had a **shorter mean length of stay** (17.6 vs. 20.6 days; p < 0.001), but **higher hospital charges** ($1.27M vs. $386K; p < 0.001) and **higher in-hospital mortality** (2.7% vs. 1.3%; p = 0.010).
- **HSCT utilization** declined from **2.56% in 2016 to 1.61% in 2022** (AAPC −1.31%; p = 0.007), with significant decreases among males (AAPC −6.29%; p = 0.004) and Medicare patients (AAPC −5.65%; p = 0.002).
- **CAR T-cell therapy utilization** rose from **1.02% in 2018 to 2.94% in 2022** (AAPC +26.0%; p = 0.007), with significant increases among males (AAPC +22.3%; p = 0.028), while use declined in privately insured patients (AAPC −7.15%; p < 0.001).

A



B

Characteristic	HSCT (%)	CAR-T (%)	p-value (overall)
Age group			0.003
<40 years (%)	6.98	5.92	
40–64 years (%)	54.26	48.57	
≥65 years (%)	38.76	45.51	
Sex			0.954
Female (%)	39.01	38.89	
Race			0.424
White (%)	73.03	73.52	
Black (%)	7.43	6.21	
Hispanic (%)	10.76	9.78	
Asian/Pacific Islander (%)	4.16	5.4	
Other/Native Amer. (%)	4.61	5.1	
Payer			0.017
Medicare (%)	33.82	39.19	
Medicaid (%)	8.09	6.22	
Private insurance (%)	53.43	49.36	
Other/Self-pay (%)	4.65	5.23	
CCI score			0.019
0 (%)	58.67	54	
1 (%)	19.96	19.35	
2 (%)	9.43	11.85	
≥3 (%)	11.94	14.81	

C

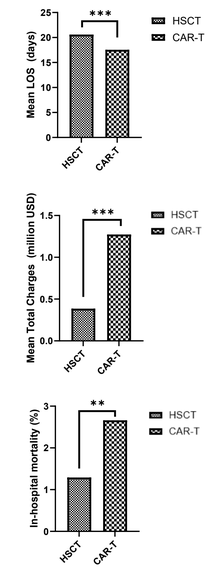


Figure A. Trends in utilization of HSCT and CAR-T in DLBCL, 2016–2022.
Figure B. Baseline characteristics of HSCT vs. CAR-T recipients.
Figure C. In-hospital outcomes: LOS, charges, and mortality.

Summary

- Among 73,406 hospitalizations with DLBCL (2016–2022), **1,634 underwent HSCT** and **1,013 received CAR-T**.
- **CAR-T patients** were older, more comorbid, and more likely to have Medicare insurance.
- CAR-T was associated with **shorter length of stay**, but **higher total charges** and **greater in-hospital mortality**, compared with DLBCL.
- **Trends**: HSCT utilization declined steadily, while CAR-T use rose sharply after 2018.

Take-Home Messages

- **CAR-T utilization is rapidly increasing**, while HSCT use is declining in relapsed/refractory DLBCL.
- **CAR-T recipients are older and more comorbid**, reflecting real-world adoption in higher-risk patients.
- Despite **higher upfront costs and inpatient mortality**, CAR-T is emerging as a transformative alternative to transplant.

References

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