REAL-WORLD PROPENSITY SCORE MATCHED OUTCOMES OF CAR-T THERAPY IN PATIENTS AGED ≥65 YEARS VERSUS 18-64 YEARS WITH DLBCL

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INTRODUCTION

Chimeric antigen receptor T-cell (CAR-T) therapy has transformed the management of relapsed or refractory diffuse large B-cell lymphoma (DLBCL).

Patients aged ≥65 years remain underrepresented in pivotal clinical trials despite a high disease burden, leaving real-world comparative data limited.

AIM

To compare real-world toxicity, infectious complications, and mortality outcomes following FDA-approved CAR-T therapy between patients aged ≥65 years and those aged 18-64 years with DLBCL, using the TriNetX US Collaborative Network (January 2018–December 2025).

METHOD

- Retrospective, multicenter cohort study using the TriNetX US Collaborative Network (Jan 2018–Dec 2025)
- Excluded patients with HSCT within 3 months before CAR-T infusion
- 1:1 propensity score matching for sex, race, diabetes, hypertension, and CKD
- Primary outcome: 30-day composite of ICU admission, mechanical ventilation, sepsis, or death
- Secondary: 30-day CRS/ICANS composite; 90-day infections and mortality

CONCLUSIONS

Patients aged ≥65 with DLBCL demonstrated safety and short-term survival outcomes similar to those aged 18-64, supporting the safety and feasibility of CAR-T therapy in fit, appropriately selected older patients.

Differences in patient selection and treatment approaches may contribute to observed outcomes; further prospective studies are warranted to evaluate long-term outcomes across age groups.

RESULTS

After 1:1 propensity score matching (388 patients per arm), 30-day severe complication rates and the CRS/ICANS composite were similar between age groups (see table).

At 90 days, infectious complication rates were comparable between age groups: sepsis (p=0.51), pneumonia (p=0.48), fungal infection (p=0.48), and neutropenia (p=0.17).

90-day all-cause mortality was also similar between age groups (HR 1.06, 95% CI 0.66–1.68; p=0.89).

698 vs 423
Unmatched patients aged ≥65 vs 18-64

388 vs 388
Patients per arm after 1:1 propensity matching

2018- 2025
TriNetX US Collaborative Network study period

30-/90-Day Outcome	Effect Estimate	95% CI	p-value	Statistically Significant?
30-Day severe complication composite	HR 0.86	0.56–1.31	0.36	No
30-Day CRS/ICANS composite	RR 0.80	0.56–1.14	0.22	No
90-Day all-cause mortality	HR 1.06	0.66–1.68	0.89	No

Abbreviations: CAR-T, chimeric antigen receptor T-cell; DLBCL, diffuse large B-cell lymphoma; CRS, cytokine release syndrome; ICANS, immune effector cell-associated neurotoxicity syndrome; CKD, chronic kidney disease; HSCT, hematopoietic stem cell transplantation; ICU, intensive care unit; HR, hazard ratio; RR, risk ratio; CI, confidence interval.

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