Real-World Outcomes of CD19 CAR T-Cell Therapies in Follicular Lymphoma: A Comparative Analysis of Axicabtagene Ciloleucel, Lisocabtagene Maraleucel, and Tisagenlecleucel

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INTRODUCTION

CD19-directed CAR T-cell therapies achieve high response rates in relapsed/refractory follicular lymphoma (FL), but comparative real-world evidence across Axicabtagene Ciloleucel (axi-cel), Lisocabtagene Maraleucel (liso-cel), and Tisagenlecleucel (tisa-cel) remains limited (1-3).

OBJECTIVE

To compare overall survival (OS) and key treatment-related toxicities after CAR T-cell infusion across the three products in a large health-record network.

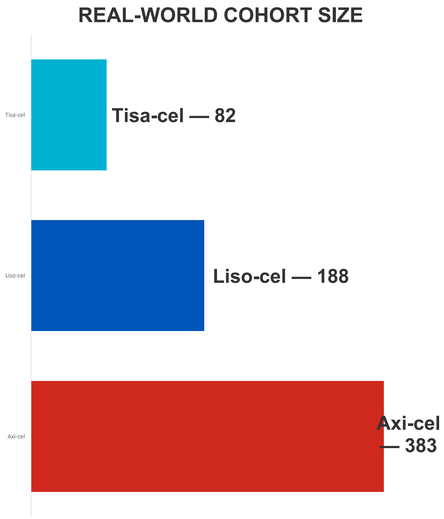
METHODS

- Design: Retrospective adult FL cohorts in the TriNetX Research Network.
- Index: CAR T-cell infusion.
- Survival: Kaplan–Meier analysis from infusion.
- Safety: CRS; CRS/Pyrexia within 30 days; ICANS; Infections; Neutropenia; and Tocilizumab use.
- Toxicity: Risk analyses across predefined follow-up windows.

KEY FINDINGS

- Overall survival analysis included 653 patients: axi-cel (n=383), liso-cel (n=188), and tisa-cel (n=82).
- Median OS: 3,973 days with axi-cel; not reached with liso-cel; 2,708 days with tisa-cel.
- Toxicity and supportive-care use varied across cohorts.
- ICANS was more frequent with axi-cel/liso-cel; no grade ≥3 ICANS was observed with tisa-cel.

RESULTS



SURVIVAL SUMMARY
Axi-cel: 3,973 d
Liso-cel: NR
Tisa-cel: 2,708 d

Median follow-up
832–1,078 d

Outcome	Axi-cel	Liso-cel	Tisa-cel	Window / note
OS cohort, n	383	188	82	Total n=653
Median OS	3,973 d	NR	2,708 d	Kaplan-Meier
CRS, any grade, %	29.8 / 31.8	33.1 / 38.4	26.5 / 31.3	30 / 180 d
CRS or pyrexia, %	44.6 / 50.9	43.6 / 51.6	51.8 / 60.2	30 / 180 d
ICANS, any grade, %	14.5 / 17.1	19.0 / 19.5	—	30 / 180 d Tisa: not reported
ICANS, grade 3+, %	4.2 / 5.7	—	0 / 0	30 / 180 d Liso: not reported
Infections, %	15.8 / 28.9	9.2 / 16.8	— / 18.1	30 / 180 d Tisa 30 d: not reported
Neutropenia, %	34.8 / 47.5	33.7 / 44.7	34.9 / 42.2	30 / 180 d
Tocilizumab, %	47.8 / 49.9	26.4 / 28.9	42.2 / 42.2	30 / 180 d

**Dashes: not reached/reported.*

CONCLUSIONS

All three CAR T-cell products demonstrated durable survival in routine clinical practice. Differences in toxicity and supportive-care requirements support individualized product selection and product-specific post–CAR T monitoring. Prospective studies with standardized outcome definitions and longer follow-up are needed.

REFERENCES

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