CAR T-CELL THERAPY vs BISPECIFIC ANTIBODIES IN RELAPSED/REFRACTORY B-CELL MALIGNANCIES: RESPONSE RATES, DURABILITY, AND TOXICITY

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BACKGROUND

Relapsed/refractory B-cell malignancies remain associated with poor outcomes despite advances in immunotherapy. CAR-T and BsAbs are major immune-based therapies; however, comparative efficacy and toxicity remain limited.

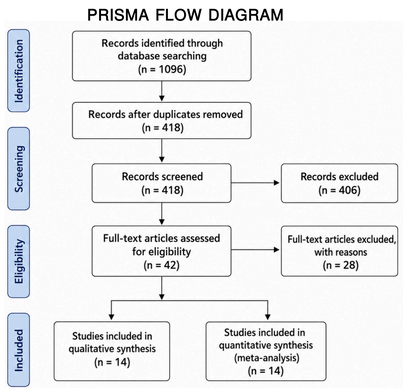
OBJECTIVE

To compare efficacy and toxicity of CAR-T vs BsAbs in relapsed/refractory B-cell malignancies using a systematic review and pooled analysis.

METHODS

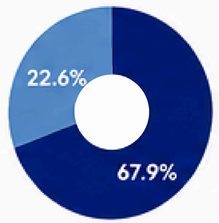
- Systematic review of PubMed and Embase (2020–2025) following PRISMA guidelines
- Screening performed using Rayyan.ai
- Studies included if they reported outcomes from CAR-T or BsAbs in r/r B-cell malignancies with ≥2 prior lines of therapy
- Median follow-up: 6–24 months
- Academic & tertiary centers across North America, Europe, and Asia

PRISMA FLOW DIAGRAM

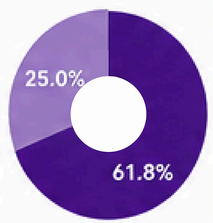


PATIENTS & DISEASE CHARACTERISTICS

CAR-T (n = 84) | 152 TOTAL PATIENTS | BsAbs (n = 68)



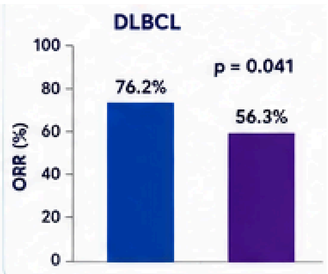
DISEASE TYPE
- DLBCL
- Multiple Myeloma
- Other B-cell Malignancies (Follicular, MCL, etc.)



PATIENT CHARACTERISTICS (Pooled)

Median Age	♂	≥3 Prior Lines of Therapy	Refractory to Last of Therapy
59 (range 32-78) years	61.2%	78.9%	72.4%

SUBGROUP ANALYSIS: ORR BY DISEASE TYPE



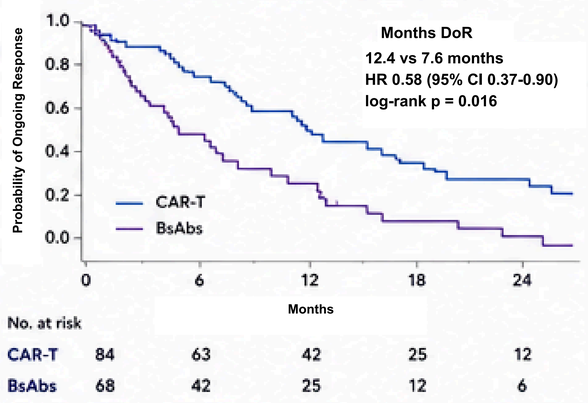
CAR-T showed greater efficacy in DLBCL

BsAbs demonstrated consistent activity across disease subtypes, including MM

EFFICACY OUTCOMES

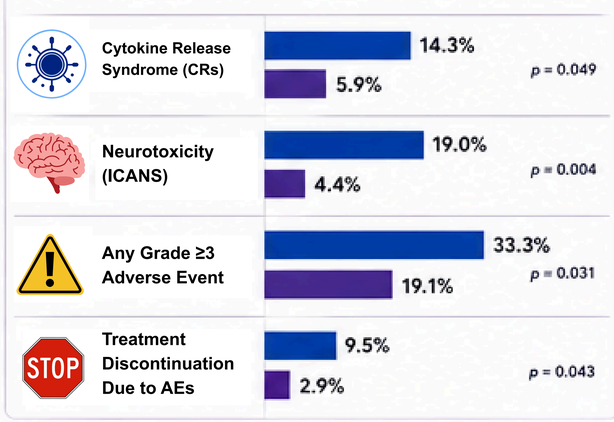
CAR-T (n = 84)		BsAbs (n = 68)
62/84 (73.8%)	Overall Response Rate (ORR)	42/68 (61.7%)
42/84 (50.0%)	Complete Response (CR)	23/68 (33.8%)
12.4 months	Duration of Response (DoR)	7.6 months
12.6 months	Median Follow-up	11.2 months

DURATION OF RESPONSE (DoR)



SAFETY & TOXICITY

INCIDENCE OF GRADE ≥3 ADVERSE EVENTS



HEALTHCARE RESOURCE UTILIZATION

	CAR-T	BsAbs	
Hospitalizations (Any Cause)	41.7%	20.6%	p = 0.009
ICU Admissions	16.7%	5.9%	p = 0.038

KEY TAKEAWAY

CAR-T offers superior efficacy and durability but with higher toxicity. BsAbs provide a more accessible, better-tolerated option with consistent activity and lower resource utilization.

DISCLAIMER: AI was used to assist with the creation of diagrams.

CONCLUSIONS

CAR-T demonstrated superior response rates and longer duration of response compared with BsAbs, but with increased toxicity. BsAbs provided a more accessible and better-tolerated option with consistent activity across heavily pretreated populations. These findings highlight a trade-off between efficacy and safety and support further prospective studies to optimize sequencing strategies in relapsed/refractory B-cell malignancies.

ABBREVIATIONS

BCMA: B-cell maturation antigen, BsAbs: bispecific antibodies, CAR-T: chimeric antigen receptor T-cell therapy, CD3/19/20: cluster of differentiation 3/19/20, CR: complete response, CRS: cytokine release syndrome, DLBCL: diffuse large B-cell lymphoma, DoR: duration of response, ICU: intensive care unit, MM: multiple myeloma, ORR: overall response rate, PRISMA: Preferred Reporting Items for Systematic reviews and Meta-Analyses

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