

TIME-TO-EVENT OUTCOMES OF BLINATUMOMAB VERSUS CHEMOTHERAPY IN FIRST-RELAPSE PEDIATRIC AND AYA B-ALL: A SYSTEMATIC REVIEW AND RECONSTRUCTED IPD META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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INTRODUCTION

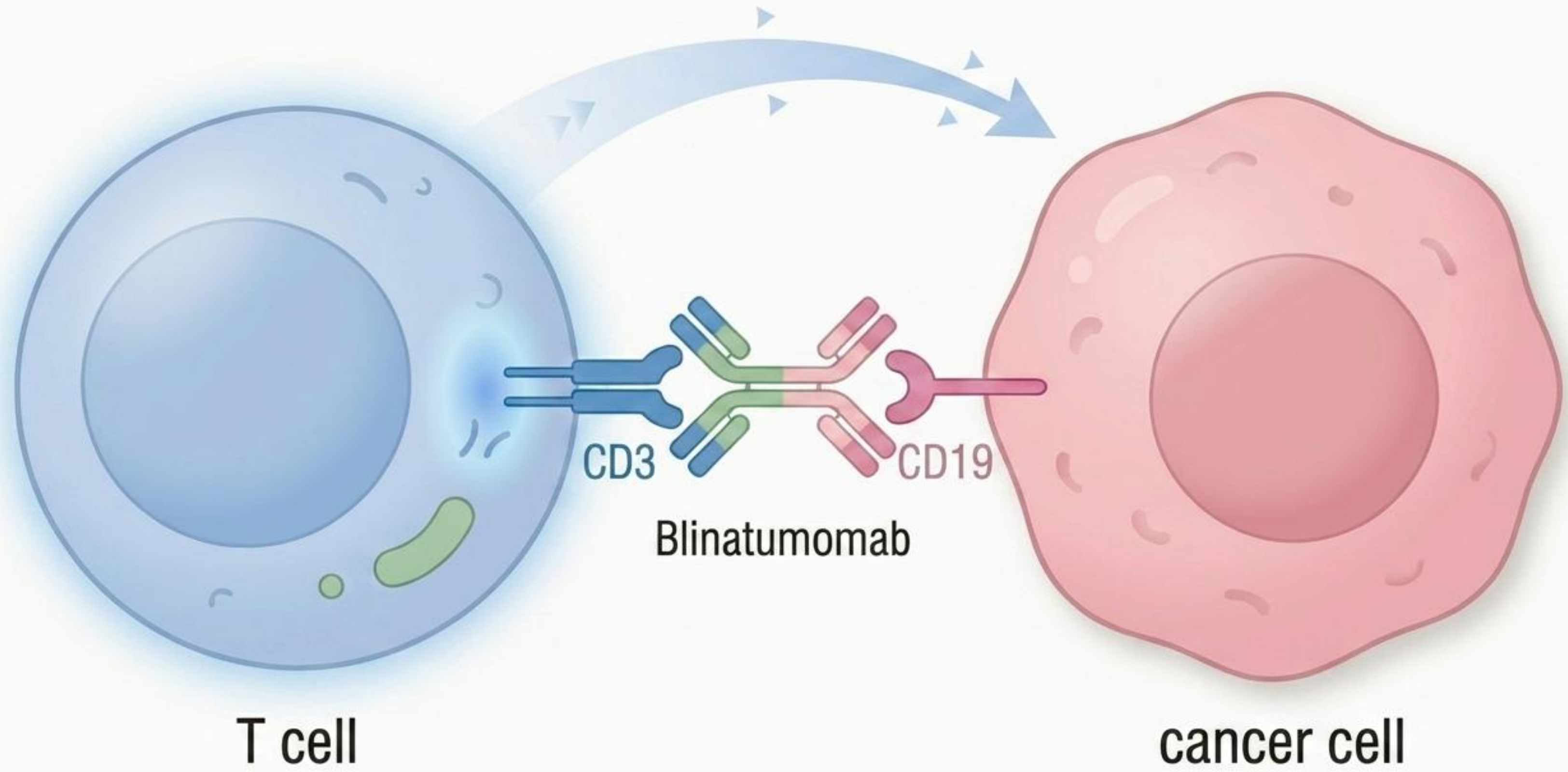
- Blinatumomab, a CD19/CD3 bispecific T-cell engager, has demonstrated activity in relapsed B-ALL; however, adequately powered pooled analyses of long-term time-to-event outcomes remain limited.

AIM

- To evaluate the effect of blinatumomab-based therapy versus conventional chemotherapy on event-free survival (EFS) and overall survival (OS) in pediatric and AYA patients with first-relapse B-ALL using reconstructed individual patient data from randomized controlled trials.

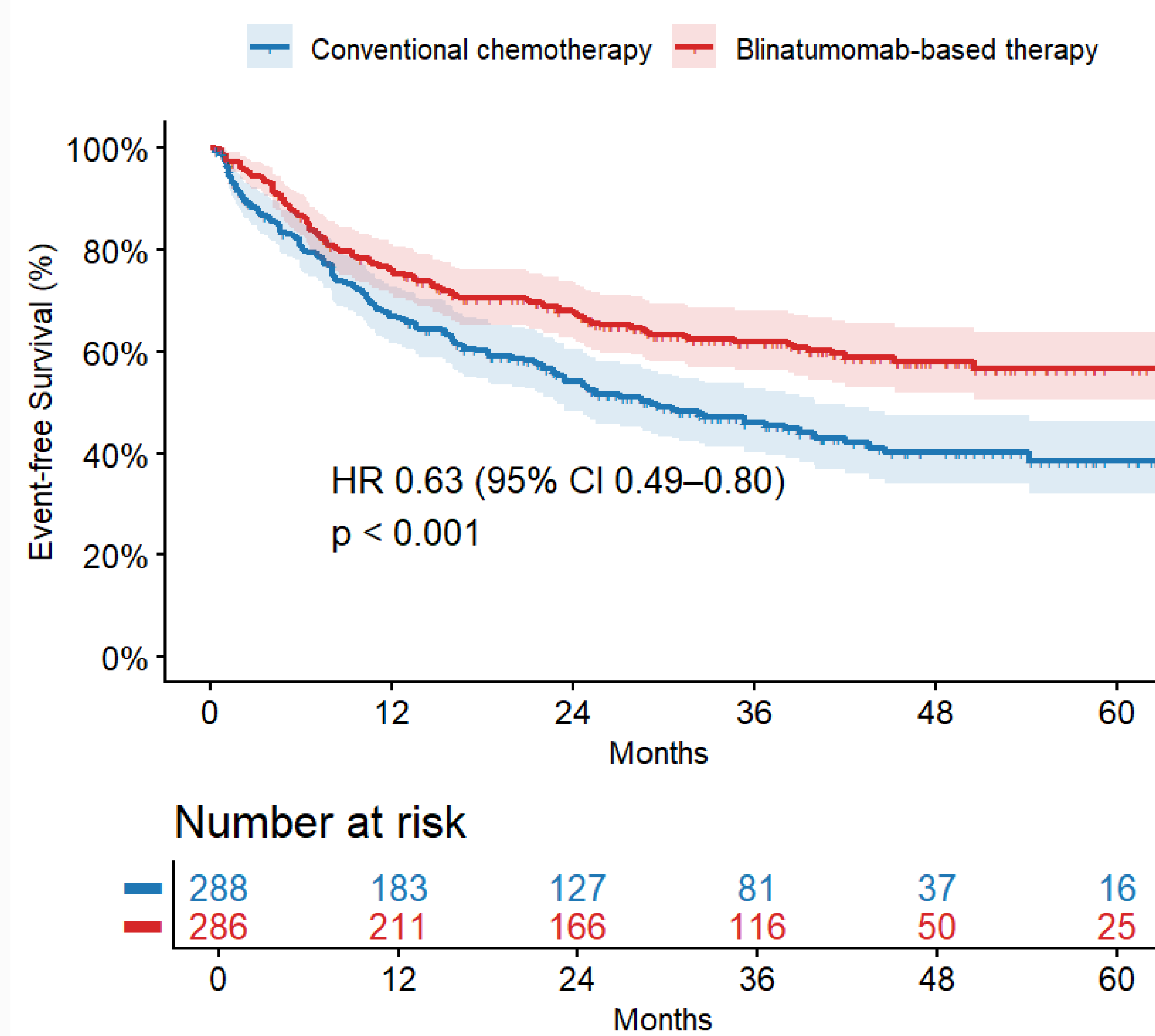
METHODS

- Reporting Standard**
PRISMA 2020 Guidelines
- Literature Search**
PubMed, Embase and Scopus
Database inception through April 2026
- Included Studies**
3 Studies | 574 Patients | 286 Blinatumomab | 288 Control
- Statistical Analysis**
 - Kaplan–Meier curves digitized and IPD reconstructed
 - One-stage Cox proportional hazards models stratified by study
 - Restricted Mean Survival Time
 - 36- and 60-month landmark survival analyses



Outcome	HR (95% CI)	P value	36-MONTH			60-MONTH		
			Blinatumomab	Chemotherapy	ΔRMST	Blinatumomab	Chemotherapy	ΔRMST
EFS	0.63 (0.49–0.80)	<0.001	61.9%	45.9%	+3.7 mo	56.6%	38.6%	+7.8 mo
OS	0.55 (0.40–0.77)	<0.001	80.6%	70.1%	+2.9 mo	78.4%	61.2%	+6.4 mo

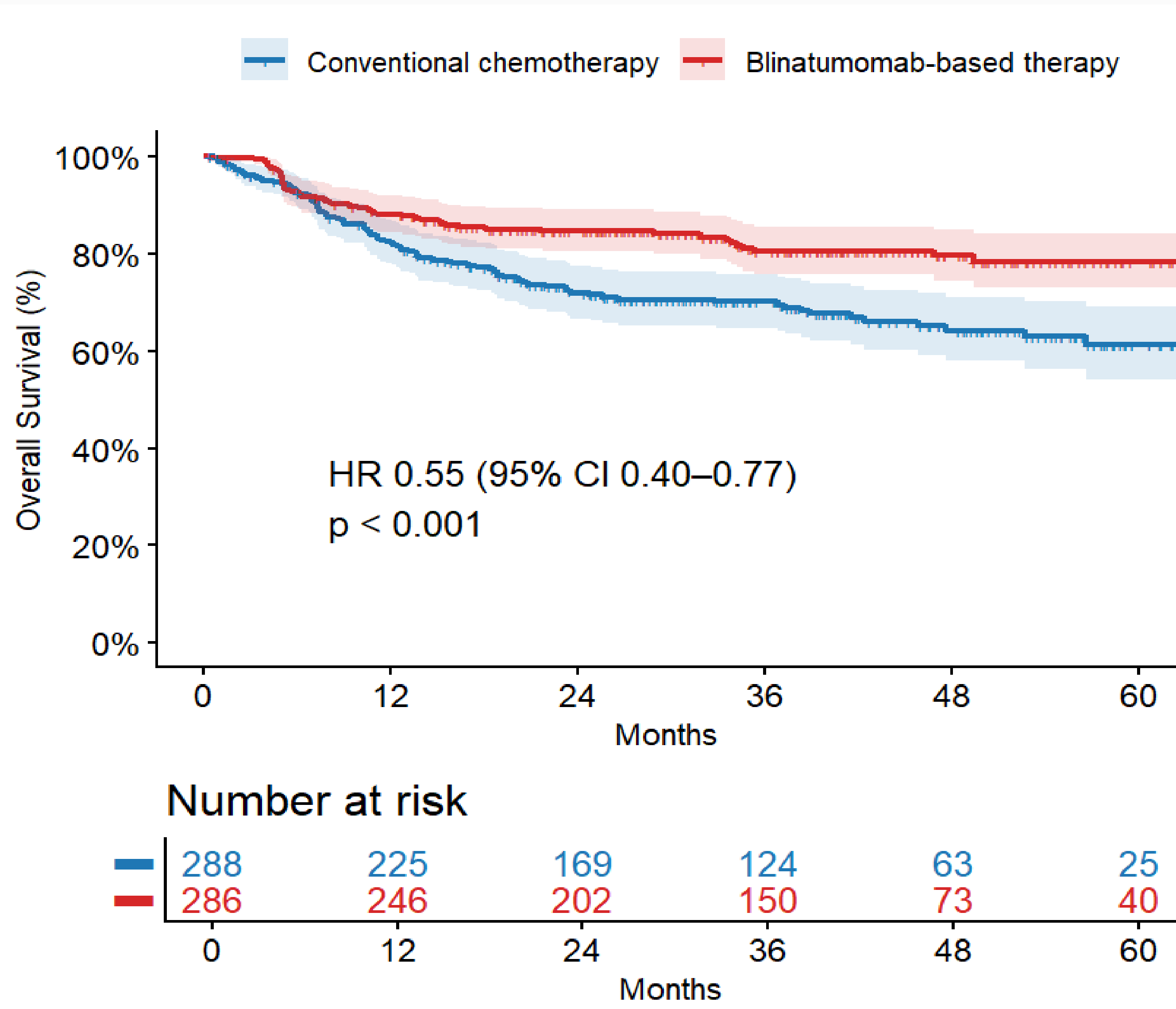
Figure 1. Reconstructed Kaplan–Meier curve demonstrating improved event-free survival with blinatumomab-based therapy.



RESULTS

- Three studies comprising 574 patients were included.
- Blinatumomab-based therapy demonstrated significantly improved event-free survival and overall survival compared with conventional chemotherapy.
- The survival benefit was sustained during long-term follow-up, with greater separation between treatment groups over time.
- Results from the pooled reconstructed individual patient data supported the benefit of blinatumomab.

Figure 2. Reconstructed Kaplan–Meier curve demonstrating improved overall survival with blinatumomab-based therapy.



CONCLUSION

- Blinatumomab-based therapy significantly improves EFS and OS in pediatric and AYA patients with first-relapse B-ALL.
- These findings support the incorporation of blinatumomab into salvage treatment strategies.
- Further studies should define its optimal integration with HSCT and emerging immunotherapeutic approaches.

REFERENCES

- Access Full References and additional study details via QR code.



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