Outcomes of High-Dose Chemotherapy and Autologous Stem Cell Transplantation (ASCT) in Relapsed/Refractory (RR) Diffuse Large B cell lymphoma (DLBCL) : A 22-Year Single-Centre Experience from Singapore

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ASCT in R/R DLBCL : Background & Aim

- ASCT has been the historical standard for relapsed/refractory DLBCL
- Bispecifics and CAR T are redefining the role of ASCT.
- Aim to examine real-world outcomes in multi-ethnic Asian population
- Provides benchmark for evaluating future novel therapies
- Assesses ASCT utility and guide treatment algorithm evolution

Bal S, et al,. Outcomes of Autologous Hematopoietic Cell Transplantation in Diffuse Large B Cell Lymphoma Refractory to Firstline Chemoimmunotherapy. Transplant Cell Ther. 2021 Jan
Bento L, et al, A. Autologous stem cell transplantation for relapsed/refractory large B-cell lymphoma: a multicenter GETH-TC/GELTAMO study. Blood Adv. 2025 Jul 8;9(13):3281-3292.

Study Design & Methods

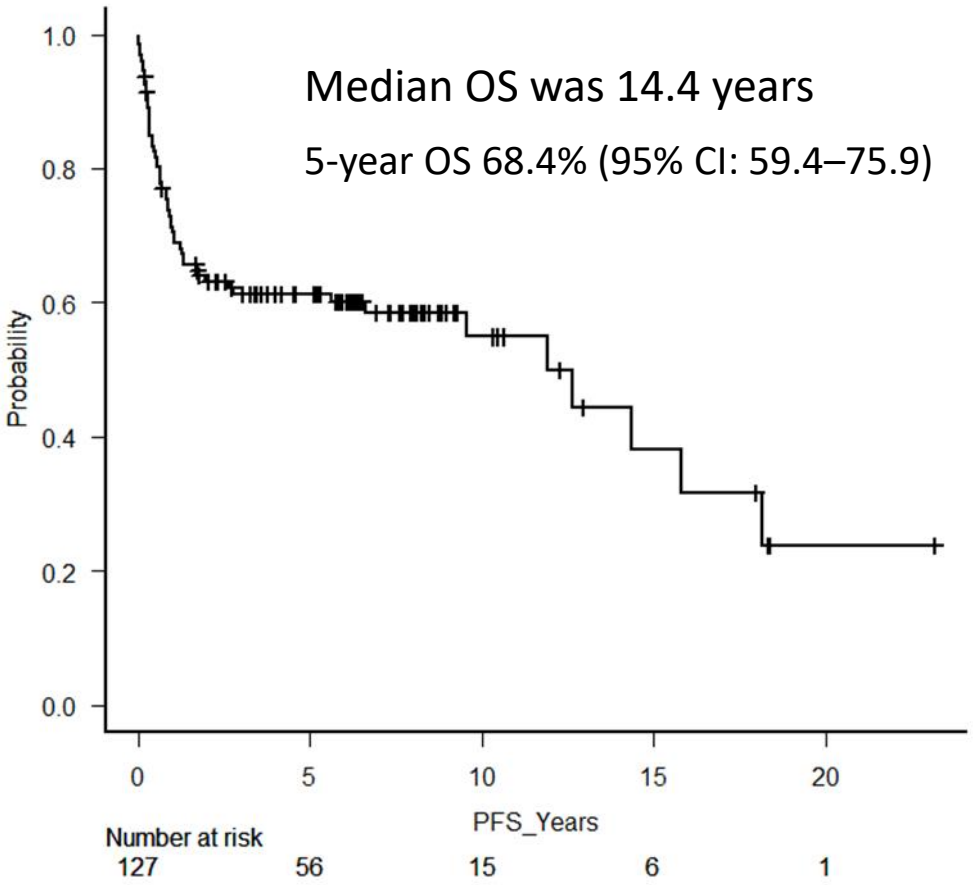
- Retrospective analysis: 127 R/R DLBCL patients
- Setting: National University Cancer Institute, Singapore (2002–2024)
- Population : ASCT after salvage therapy for R/R DLBCL
- Stratification: Pre-transplant status & relapse timing

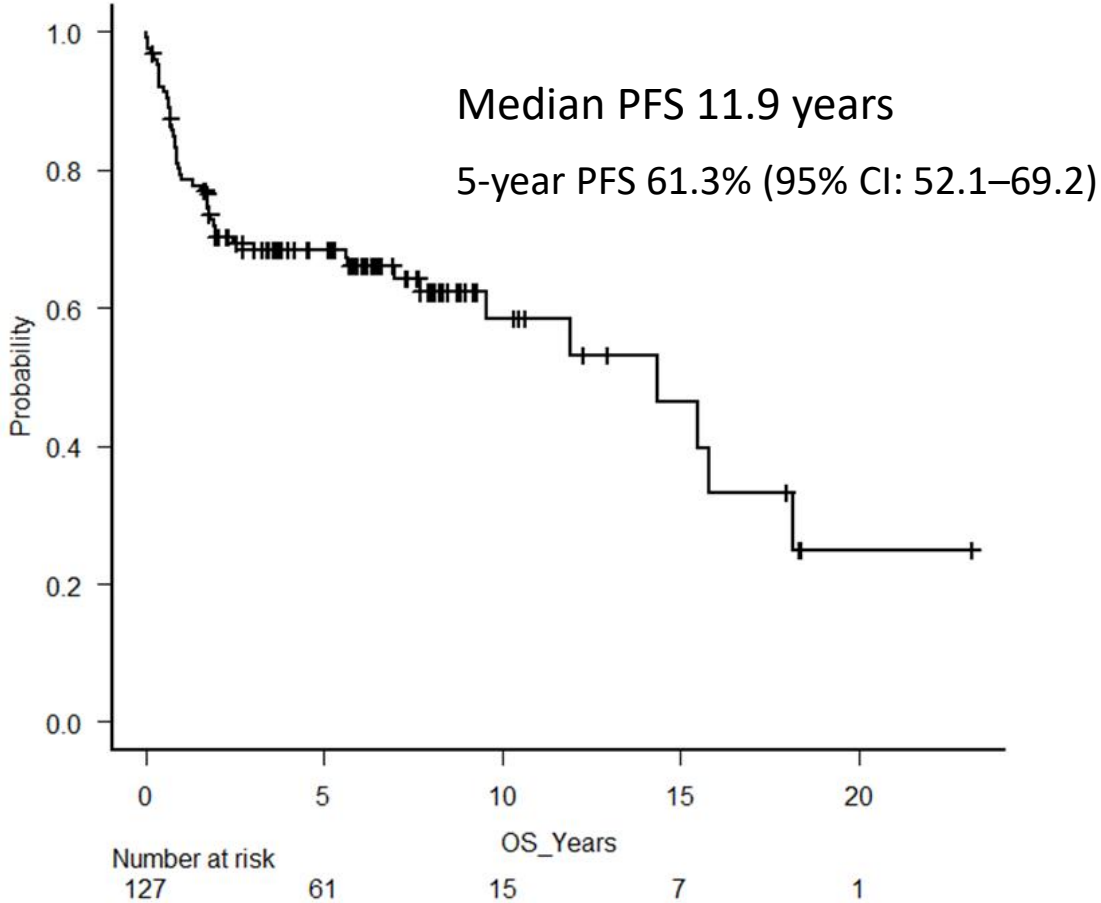
Baseline Characteristics

Variables	No. Of patients (N=127)
Age — yr (range)	
Median	56 (17 –82)
Age group — no. (%)	
<65 years	94 (74.0)
≥65 years	33 (26.0)
HCT-CI Score — no. (%)	
0	43 (33.9)
1–2	30 (23.6)
≥3	13 (10.2)
Not Available	41 (32.3)
CNS involvement — no. (%)	
Yes	9 (7.0)
Status before SCT — no. (%)	
Complete Response (CR/CR2/CR3)	94 (74.0)
Partial Response (PR)	29 (22.8)
Refractory	4 (3.2)
Time from Diagnosis to Transplant — no. (%)	
<12 months	47 (37.0)
≥12 months	80 (63.0)

Durable OS and PFS Demonstrated

Median follow up of 4.2 years

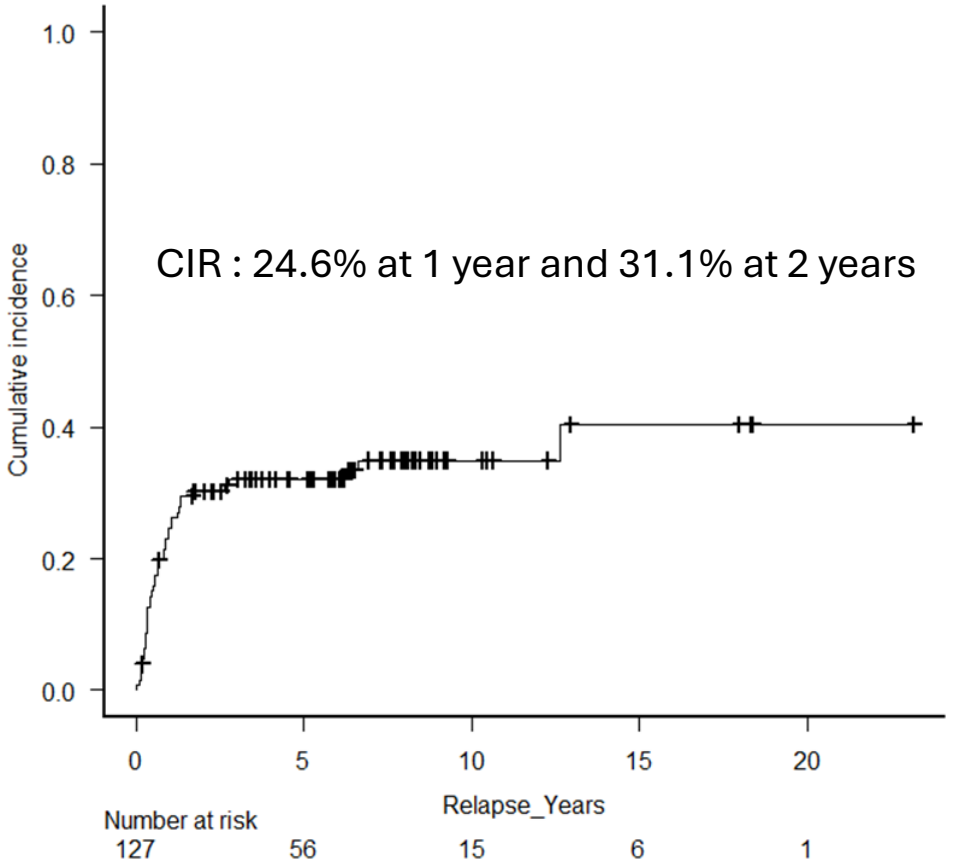


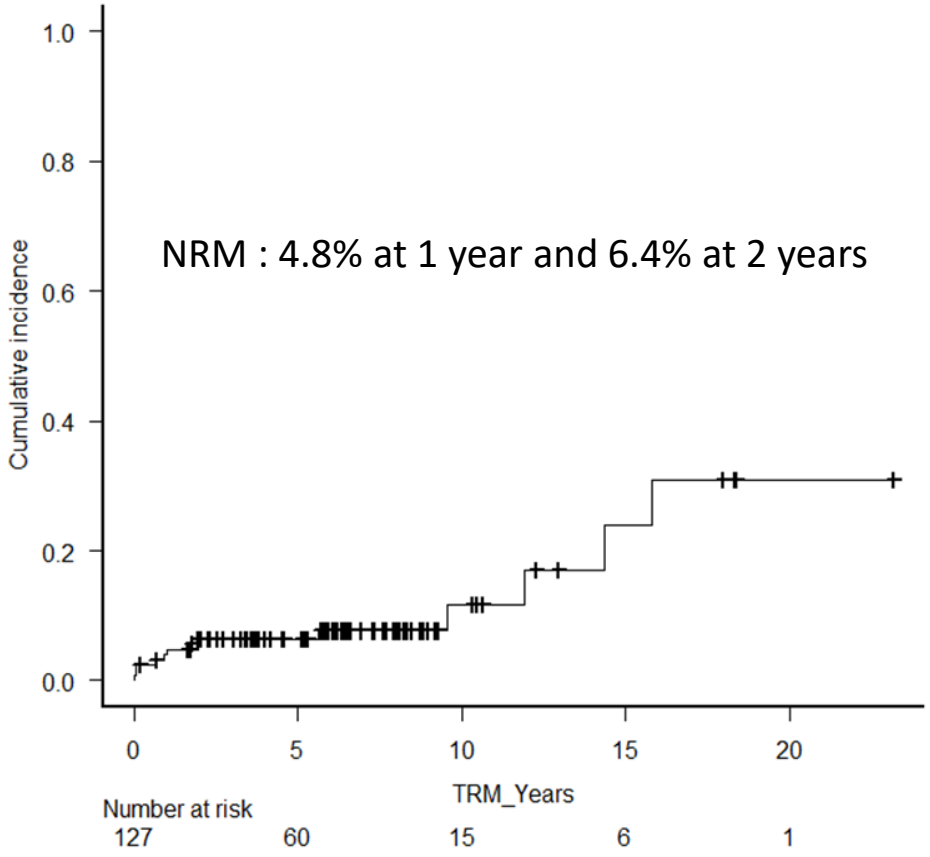


Kaplan–Meier curves for OS and PFS in years after ASCT

Bento L, et al, A. Autologous stem cell transplantation for relapsed/refractory large B-cell lymphoma: a multicenter GETH-TC/GELTAMO study. Blood Adv. 2025 Jul 8;9(13):3281-3292.

Comparable relapse incidence with low treatment-related mortality





Kaplan–Meier curves for CIR and NRM in years after ASCT

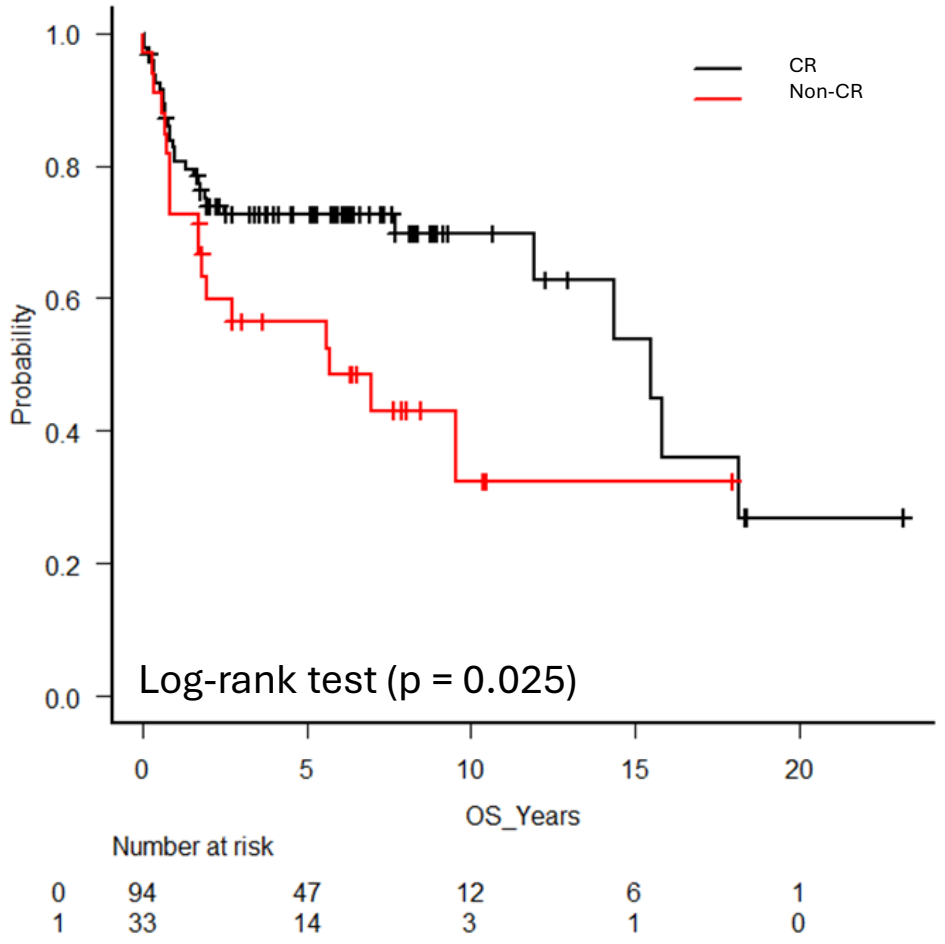
Bento L, et al, A. Autologous stem cell transplantation for relapsed/refractory large B-cell lymphoma: a multicenter GETH-TC/GELTAMO study. Blood Adv. 2025 Jul 8;9(13):3281-3292.

Multivariate analysis and Special subgroup

OS			
Variable	Hazard ratio	95% CI	P value
Remission status pre-ASCT	2.03	1.08-3.79	0.026
Age at ASCT	1.03	1.01-1.55	0.04
Time to relapse	0.70	0.38-1.29	0.26
PFS			
Remission status pre-ASCT	1.67	0.93-3.08	0.08
Age at ASCT	1.03	1.01-1.05	0.003
Time to relapse	0.73	0.41-1.29	0.27

For patients with CNS involvement, the 5-yr PFS and OS was both 33% respectively

Impact of Pre-ASCT Status on OS



CR pre-ASCT : superior OS and PFS

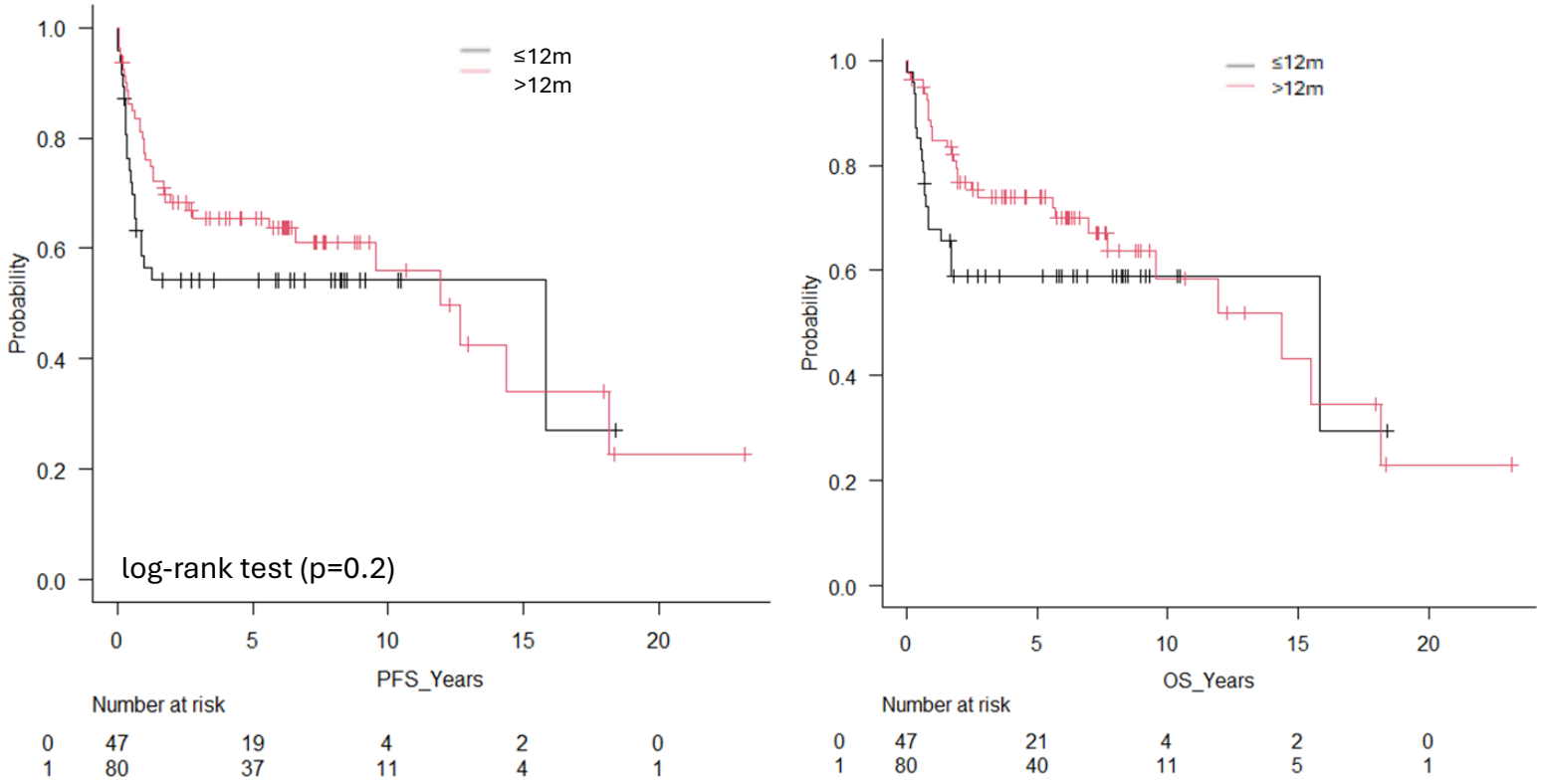
Median OS : 15.5 vs 5.7 years (p=0.03)

Median PFS : 12.7 vs 1.7 years (p=0.08)

This suggests that achieving CR before ASCT is associated with substantially improved long-term survival

Crump M, et al. Outcomes in refractory diffuse large B-cell lymphoma: results from the international SCHOLAR-1 study. Blood. 2017 Oct 19;130(16):1800-1808.
Philip T, et al. Autologous bone marrow transplantation as compared with salvage chemotherapy in relapses of chemotherapy-sensitive non-Hodgkin's lymphoma. *N Engl J Med.* 1995

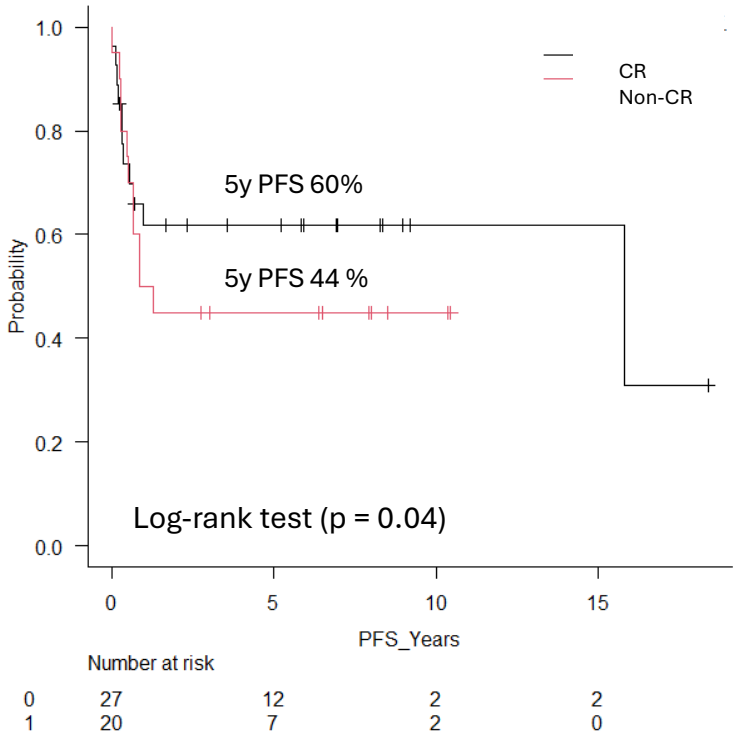
Progression-free and overall survival stratified by relapse timing

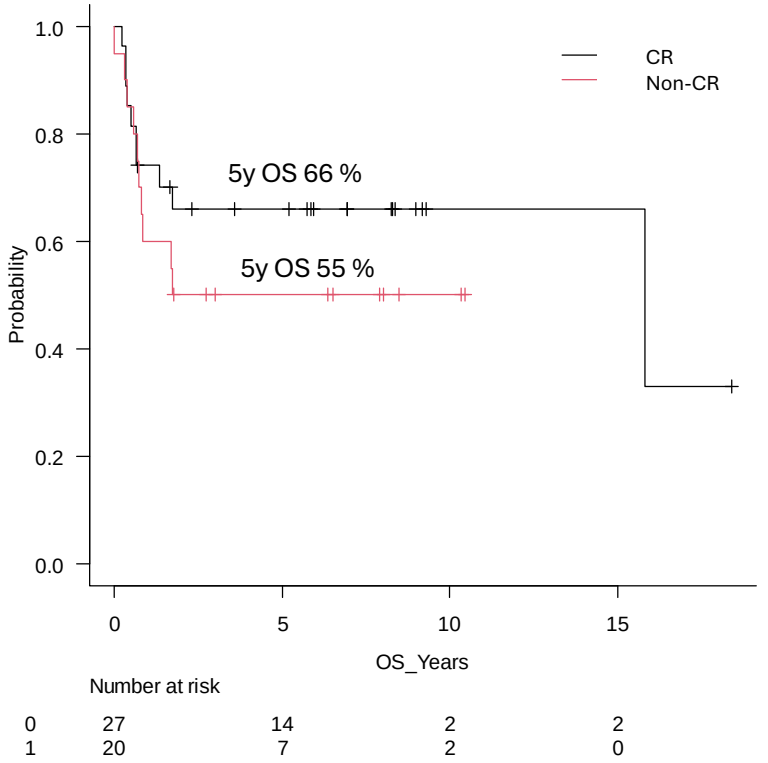


Patients who relapsed within 12months had numerically lower 2-year OS (58.9% vs. 76.8%) and PFS (54.2% vs. 68.3%) compared with those relapsing later.

Kaplan–Meier curves for PFS and OS stratified to time to relapse pre-ASCT

PFS and OS in those with early relapses (≤ 12 months)





Amongst the subgroup of patients with early relapses who achieved CR, the 5-yr PFS and OS rates remained encouraging at 60% and 66% and respectively.

Kaplan–Meier curves for PFS and OS stratified to time to relapse pre-ASCT : Early relapse

Discussion

- Generalizability of Single-Centre Data . Age and Fitness Selection Bias.
- Relatively large cohort. Multi-ethnicity.
- Key findings : Importance of disease status Pre-ASCT
  - Superior outcome regardless of relapse timing (≤12 vs >12 months)
  - If CAR T is not readily available, could consider to integrate novel bridging therapies to increase CR rates before transplant

Sarit Assouline, et al. ; The conditional survival analysis of relapsed DLBCL after autologous transplant: a subgroup analysis of LY.12 and CORAL. *Blood Adv* 2020
Crump M, et al. Outcomes in refractory diffuse large B-cell lymphoma: results from the international SCHOLAR-1 study. Blood. 2017 Oct 19;130(16):1800-1808.

Conclusion

- ASCT effective and safe in relapsed/refractory DLBCL, including early relapse (<12 months)
- Our study demonstrated excellent long-term OS (Median 14.4 years)
- Patient selection and achieving CR post salvage remains critical even in those with early relapses
- Further work : ASCT vs CAR-T / Bispecifics
  - Given the favorable 5-year PFS observed in patients achieving CR prior to ASCT, it is important to contextualize these outcomes against long-term follow-up data from CAR-T and bispecific antibody trials.
  - Should ASCT remain the standard for chemosensitive patients in CR, reserving CAR-T for PR/refractory disease?

Locke FL et al; Axicabtagene Ciloleucel as Second-Line Therapy for Large B-Cell Lymphoma. N Engl J Med. 2022 Feb 17;386(7):640-654.