

Outcomes for patients with Diffuse Large B-Cell Lymphoma in the West of Scotland in the pre-CAR-T era

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INTRODUCTION

The majority of patients with Diffuse large B-cell lymphoma (DLBCL) are cured by chemo-immunotherapy (CI) regimens such as R-CHOP. However, those who are primary refractory to CI or suffer disease relapse have poor outcomes and remain a patient group with significant unmet clinical need. Chimeric-Antigen Receptor-T (CAR-T) cell therapies hold significant promise for patients with relapsed or refractory DLBCL.

AIMS

Primary:

- To determine how many patients would have been eligible for CAR-T therapy for relapsed/refractory DLBCL over a 2 year period, providing an estimate of predicted annual numbers for the Scottish CAR-T service and a comparator dataset for future outcome comparison.

Secondary:

- Analyse survival outcomes in DLBCL in a large health board with focus on relapsed/refractory patients

METHODS

Electronic health records for all patients diagnosed with DLBCL in the West of Scotland (population ~2.5 million) from 01/01/2013 to 31/12/2014 were reviewed. Patients with primary mediastinal B-cell lymphoma were excluded. Information on all lines of therapy received and responses were recorded. Survival analyses were performed using the Kaplan-Meier method.

BASELINE CHARACTERISTICS

359 patients were diagnosed with DLBCL in this two-year period. First line chemotherapy was R-CHOP in 216 patients (60.2%), R-miniCHOP in 59 patients (median age 80 years, range 60-92 years), R-CODOX-M/R-IVAC in 6 patients, with other regimens in 38 patients. 40 patients were not fit for systemic treatment.

Table 1: Baseline characteristics

Characteristic	Number of patients (% total n=359)
Median age (range)	70 years (37 – 92 years)
Male sex	191 (53%)
Primary diagnosis	
DLBCL	303 (84%)
Transformed follicular NHL (TFL)	20 (6%)
DLBCL but indeterminate if TFL	36 (10%)
ECOG PS	
0-1	160 (44%)
2-4	135 (38%)
Missing	64 (18%)
IPI risk classification	
Low risk (0-1)	60 (17%)
Intermediate (2-3)	179 (50%)
High risk (4-5)	62 (17%)
Missing	58 (16%)

RESULTS

The 5 year PFS and OS of the whole population were 56% (95%CI 51-60) and 56% (95%CI 51-61) respectively. Given that this included patients treated with supportive care only we then focused on R-CHOP treated patients only. The 5 year OS of R-CHOP treated patients (n=216) was 69% (95% CI 65-72). Figure 1 displays overall survival according to IPI, Figure 2 overall survival according to response to first line therapy.

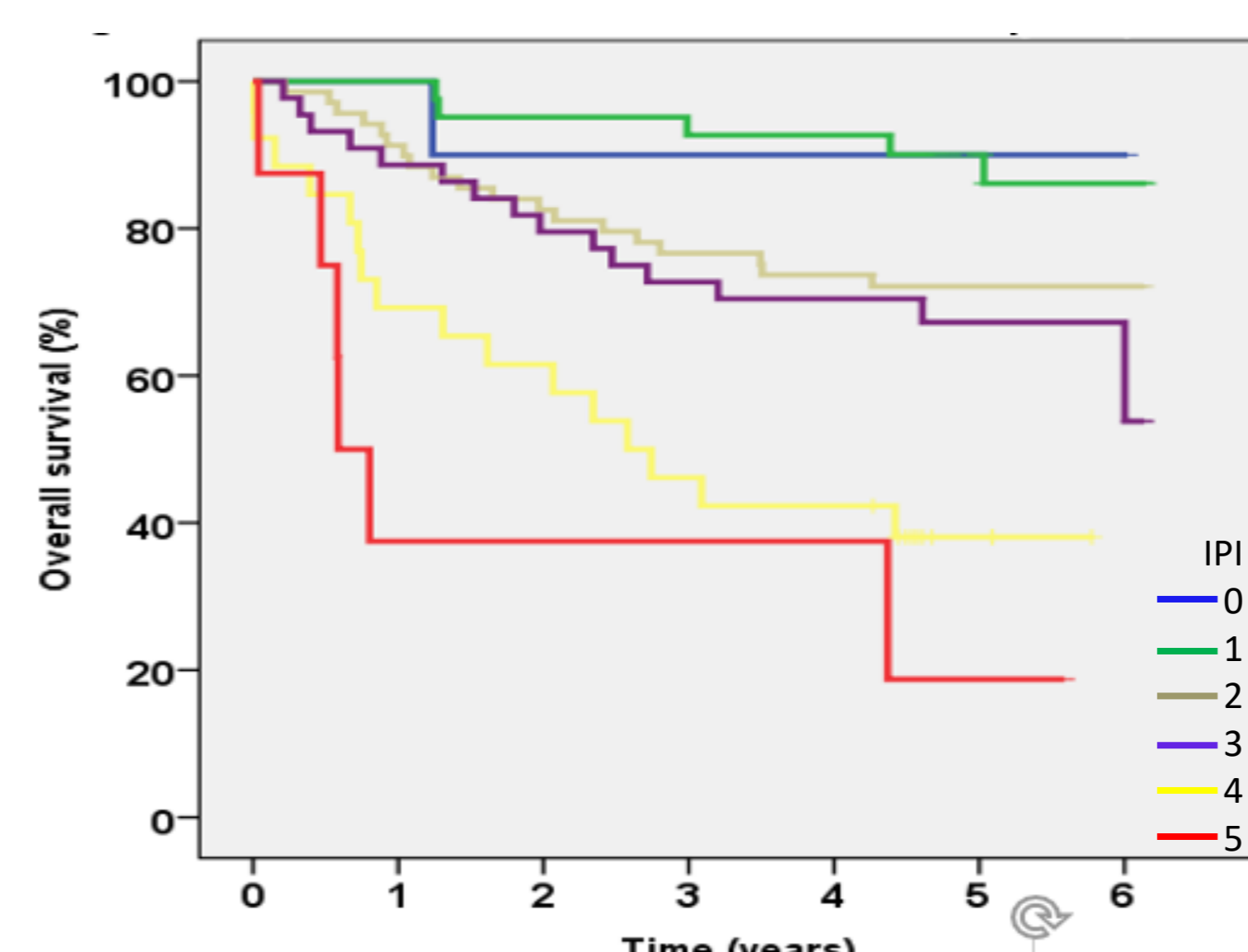


Figure 1 – Overall survival of R-CHOP treated patients according to IPI

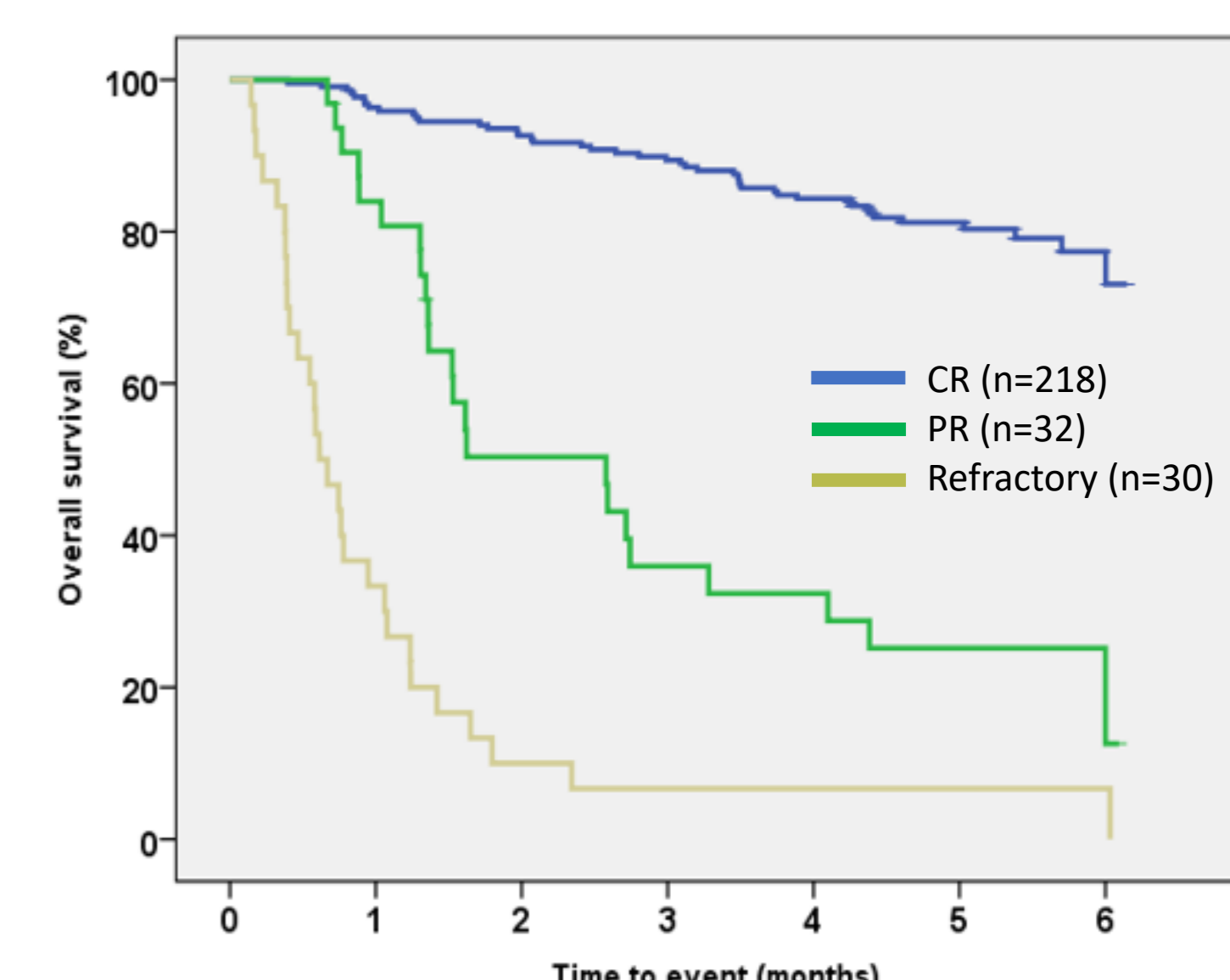


Figure 2 – Overall survival by response to frontline therapy

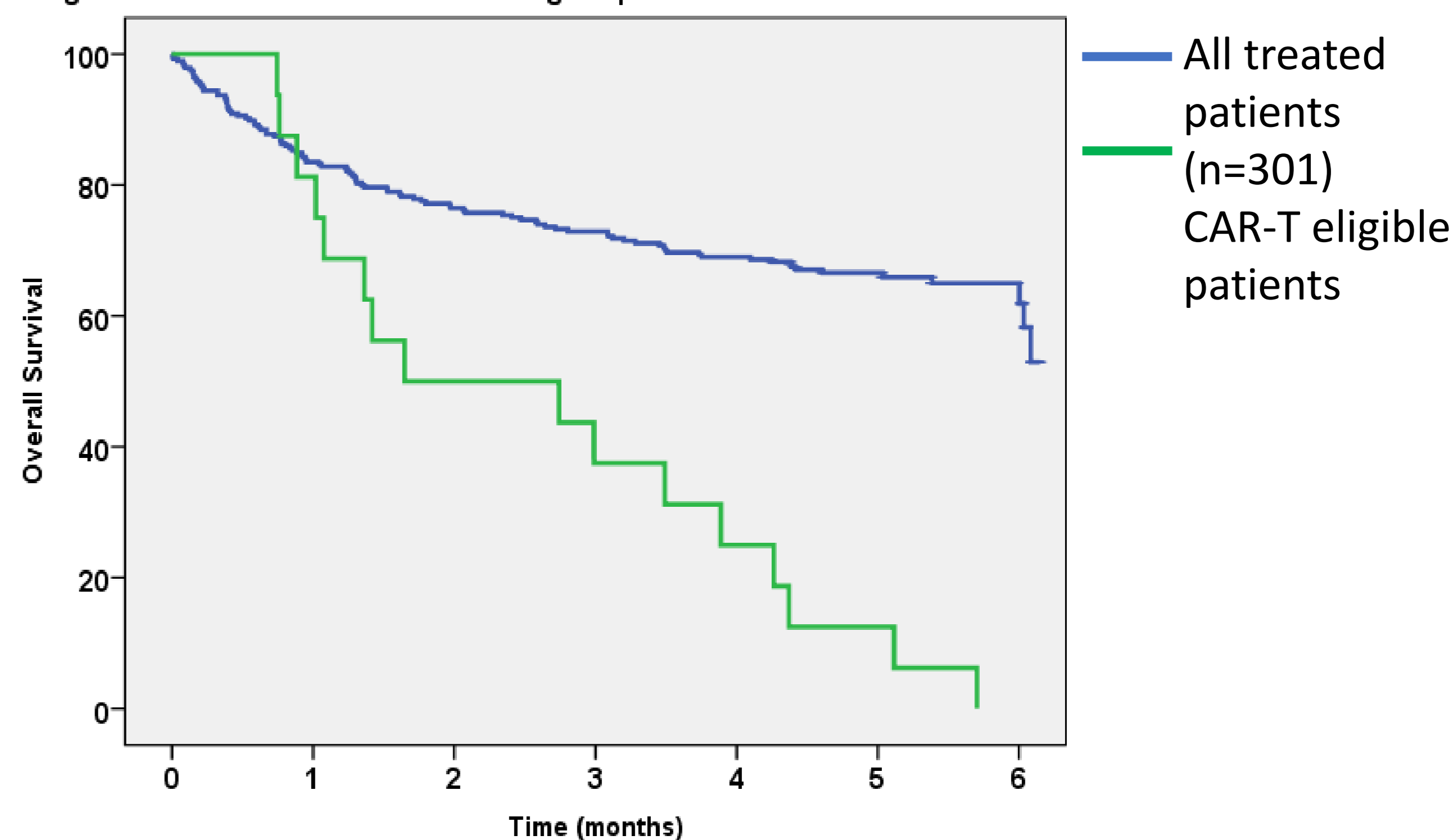
Relapsed disease:

48/220 (22%) patients who achieved a CR subsequently relapsed (median time to relapse 18 months (range 3–55)). The most commonly utilised regimens at relapse were R-DHAP (n=11), R-GDP (n=6), R-ESHAP (n=5) and palliative radiotherapy (n=20). 24 patients were refractory to second line treatment. 9 achieved a CR and 11 a PR. 25% achieving a CR or PR to salvage therapy suffered a second relapse. All patients treated with third line treatment died of progressive disease.

Refractory disease:

30 patients in this series had primary refractory disease. 6 went on to receive intensive second line treatment with none achieving a CR. 3 achieved a PR, one of whom received autologous stem cell transplant (ASCT) and remains alive and in CR at the time of analysis. **Thus, the median OS of patients with primary refractory disease was only 7.3 months, with 29/30 patients ultimately dying due to DLBCL.**

Figure 4 - overall survival for CAR-T eligible patients relative to rest of cohort



CONCLUSIONS

- Outcomes for patients with relapsed/refractory DLBCL in WoS are extremely poor.
- 16 patients in 2 years were retrospectively identified as meeting CAR-T eligibility criteria.
- Extrapolating data from WoS, approximately 18-20 patients in Scotland anticipated per year to meet current CAR-T eligibility criteria