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ORAL ABSTRACTS

627.AGGRESSIVE LYMPHOMAS: CLINICAL AND EPIDEMIOLOGICAL

Chimeric Antigen Receptor (CAR) T Cell Infusion for Large B Cell Lymphoma in Complete Remission: A Center for International Blood & Marrow Transplant Research (CIBMTR) Analysis

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Introduction

Axicabtagene ciloleucel (axi-cel), tisagenlecleucel (tisa-cel), and lisocabtagene maraleucel (liso-cel) have been approved for the treatment of relapsed/refractory large B-cell lymphoma (LBCL). In some cases, patients are identified as being in radiographic complete remission (CR) after CAR T cell manufacturing. However, there are limited studies with small sample sizes that have reported outcomes for this specific group, and prospective data are lacking. We hypothesize that patients with LBCL who are in CR prior to CAR T cell infusion have favorable progression-free survival (PFS) and overall survival (OS) with lower toxicity.

Methods

We analyzed CIBMTR registry data from adult patients with LBCL who received commercial axi-cel, liso-cel, or tisa-cel infusion between 2018 and 2021 while in radiographic CR. Kaplan-Meier estimators were used to assess PFS and OS. The cumulative incidence of relapse, non-relapse mortality (NRM), cytokine release syndrome (CRS), and immune effector cell-associated neurotoxicity syndrome (ICANS) was reported according to the consensus ASTCT criteria. Univariable hazard ratios (HR) for PFS and OS were analyzed using a Cox regression model to evaluate the prognostic impact of each variable. A forest plot was generated to display relevant factors.

Results

A total of 134 LBCL patients in CR prior to CAR T cell infusion were identified across 53 centers. The median follow-up was 24.3 months (range 0.9-49.4). Baseline demographics are presented in Table 1. After CAR T infusion, 7/134 patients (5.2%) proceeded to subsequent transplant (6 allogeneic, 1 autologous). At two years post-infusion, the probability of PFS and OS was 43.5% (95% CI 34.4-52.8) and 63.8% (95% CI 54.4-72.6), respectively. The cumulative incidence of NRM at two years was 9% (95% CI 4.5-15.4), and the incidence of relapse/progression was 47.3% (95% CI 38.2-56.6).

The rate of grade 3 or higher CRS was 3/134 (2.2%), with median time to onset of 3 days (range 1-16). Grade 3 or higher ICANS occurred in 11/134 (8.2%) with a median time to onset of 6 days (range 2-15). On univariate analyses, PFS was worse in patients with 5 or more lines of prior therapy before CAR T cell infusion (HR 2.39, 95% CI 1.18-484) (see Figure 1).

The most common cause of death was relapse or disease progression, accounting for 26/46 (56.5%) deaths, followed by infection (8/46, 17.4%, including 4 (8.7%) from COVID-19), ICANS (2 out of 46, 4.3%), and other causes.

Conclusions

CAR T cell infusion in patients with LBCL who are in CR after receiving two or more lines of prior therapy is feasible, with a subset of patients remaining free of progression at two years. The high NRM rate of 9% at two years highlights the importance of continued follow-up in this at-risk population.

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Figure 1

Characteristic	N (%)
No. of patients	134
Age - Median (min-max)	64 (20-83)
Sex – Male (%)	74 (55)
Recipient race - White (%)	102 (76)
KPS– ≥90 (%)	60 (44)
High-grade B-cell lymphoma, with MYC and BCL2 and/or BCL6 rearrangements - Yes (%)	13 (10)
Stage at diagnosis – Advanced (III-IV) (%)	66 (49.3)
LDH before CAR-T – Elevated (%)	47 (35.1)
Extranodal involvement at diagnosis – Yes (%)	79 (59.0)
Refractory to first line of therapy - Yes (%)	34 (25.4)
Early therapy failure in 12 months - Yes (%)	93 (69.4)
No prior autologous or allogeneic transplant - (%)	81 (60.4)
Number of lines of therapy - median (min-max)	3 (2.0-9.0)
Bridging therapy - no. (%)	
No	75 (56.0)
Yes	41 (30.6)
Not reported	18 (13.4)
Type of CAR-T lymphodepletion -Flu/Cy. (%)	114 (85.1)
Product - no. (%)	
Tisa-cel	65 (48.5)
Axi-cel	67 (50.0)
Liso-cel	2 (1.5)
Follow-up - median (range)	24.3 (0.9-49.4)

Figure 2

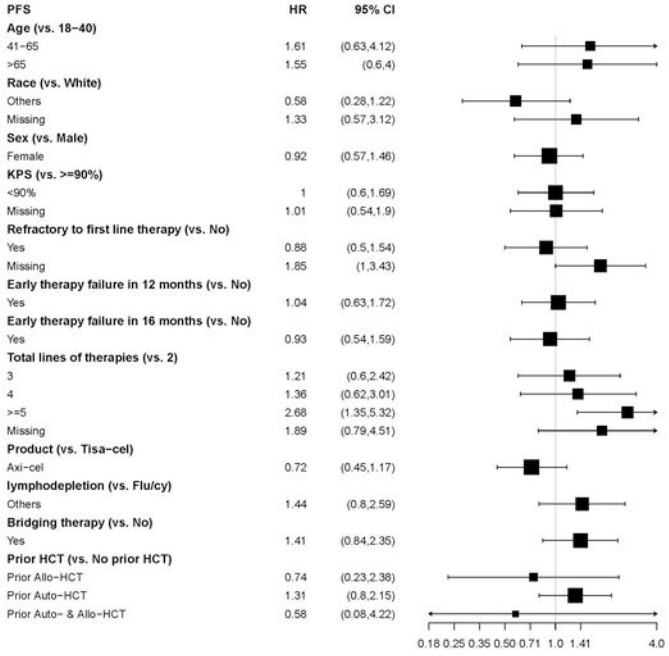

Figure 1

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