P1182 REAL-WORLD CHARACTERISTICS AND CLINICAL OUTCOMES IN RELAPSE/REFRACTORY DIFFUSE LARGE B-CELL LYMPHOMA PATIENTS WHO RECEIVED CAR-T THERAPY

**Topic:** 19. Aggressive Non-Hodgkin lymphoma - Clinical

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**Background:** A significant proportion of patients diagnosed with diffuse large B-cell lymphoma (DLBCL) experience refractory or relapse (RR) disease. Approval of chimeric antigen receptor T-cell (CAR-T) therapies has resulted in a novel therapeutic option for eligible patients with RR-DLBCL. However, progressive disease post CAR-T remains a common scenario as patient identification, timing, and effectiveness of CAR-T in the real-world setting is still evolving.

**Aims:** To further understand clinical outcomes of standard of care CAR-T in RR-DLBCL in clinical practice.

**Methods:** This retrospective analysis identified adult patients diagnosed with RR-DLBCL [01/01/2014 – 03/31/2021] who received CAR-T therapy. COTA’s Real World Evidence (RWE) database is comprised of longitudinal, HIPAA-compliant data abstracted from the electronic health records (EHR) of healthcare provider sites, representing diverse treatment U.S settings from over 200 sites of care; roughly 60% of patients are seen at academic sites and 40% are seen at community sites. Patients were categorized as having received CAR-T therapy in 2L, 3L, 4L, or 5L. Baseline characteristics was reported for CAR-T patients. Best response rate, treatment failure, and overall survival (OS) were reported by line of therapy. Disease characteristics were derived from the EHR, including the presence of high-grade lymphoma (positive rearrangement in C-MYC and BCL-2 or BCL-6 biomarkers) and primary refractory disease (2L started within 6 months not due to patient preference, drug shortage, insurance reasons, toxicity, or pandemic reasons). CAR-T treatment failure was defined as the earliest of death, initiation of subsequent line of therapy, or documented progression event after CAR-T.

**Results:** A total of 97 CAR-T patients were identified whereby 17 received CAR-T therapy in a clinical trial setting and were excluded from this real-world evidence study. Of the 80 patients that remained, 10 (13%) received CAR-T in 2L, 31 (39%) in 3L, 24 (30%) in 4L, and 15 (19%) in 5L+. CAR-T patients had a mean age of 57 years, most were male (58%), 16% were diagnosed with high-grade lymphoma, and 60% were primary refractory. Median time from diagnosis to initiation of CAR-T was 15 months. Overall, 38% of patients achieved a complete response with a decrease in response in later lines (2L: 70%, 3L: 58%, 4L: 29%, 5L+: 33%). Within a median follow up of 13.5 months (2L: 13.5 mo, 3L: 15.2 mo, 4L: 12.8 mo, 5L+: 9.5 mo), treatment failure occurred in 45% of patients, with an increase in later lines (2L: 20%, 3L: 48%, 4L: 63%, 5L+: 80%). Median OS was 31.2 months (Not reached (NR); 2L: NR, 3L: NR, 4L: 26.3 mo, 5L+: 13.5 mo) with unequal survival probabilities across lines of therapy (Log-rank test: p=0.004) (Figure 1).

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Summary/Conclusion: CAR T-cell therapies are considered a major advance in DLBCL, yet over half of those patients eventually fail. Outcomes are inferior in later lines with a decrease in complete response rates and shorter survival by line of therapy, thus, highlighting the need to provide CAR T-cell therapies in earlier settings.