

IMMUNE EFFECTOR CELL-ASSOCIATED NEUROTOXICITY SYNDROME IN CAR-T THERAPY: INCIDENCE, FEATURES, AND OUTCOMES IN A TERTIARY HOSPITAL

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BACKGROUND AND IMPORTANCE

- Chimeric Antigen Receptor T-cell (**CAR-T**) therapy has **improved outcomes** in relapsed/ refractory haematological malignancies.
- Immune effector cell-associated neurotoxicity syndrome (**ICANS**) is a relevant complication, frequently associated with cytokine release syndrome (**CRS**), potentially requiring intensive care unit (**ICU**) admission.

AIM AND OBJECTIVES

Describe **incidence, features, and outcomes** of **ICANS** (focus on most prevalent diagnoses and **CAR-T** products).



MATERIAL AND METHODS

Study design

- Retrospective
- Observational
- CAR-T**
- January 2020- April 2025

Variables

- Demographics
- Diagnosis: diffuse large B-cell lymphoma (DLBCL), lymphoblastic leukaemia (ALL), multiple myeloma (MM), others.
- CAR-T product
- Hospital stay (days)
- CRS (yes/no)
- ICANS (incidence, duration, relapses, treatment and response, CRS concomitance, ICANS-related mortality)
- ICU admission

Data source

- Electronic health records: OrionClinic®

Statistics

- Continuous variables: Median (IQR)
- Categorical variables: absolute and relative frequencies: n (%)
- R v4.4.3

RESULTS

Population



N= 70
Age 61 (52–68)
54% men

Figure 1. **Diagnosis distribution**

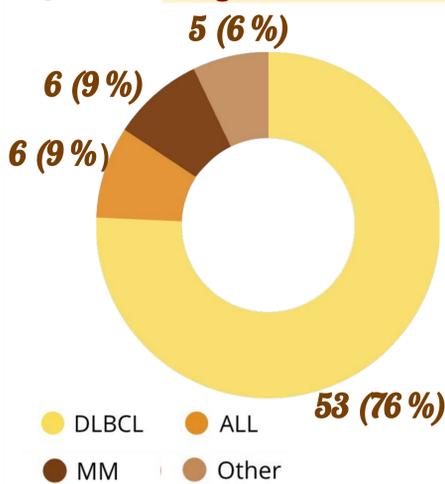
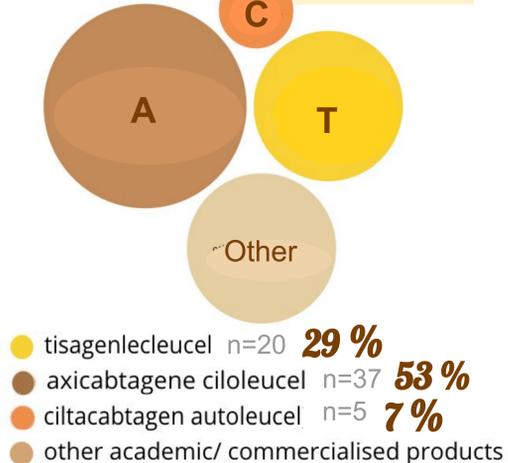


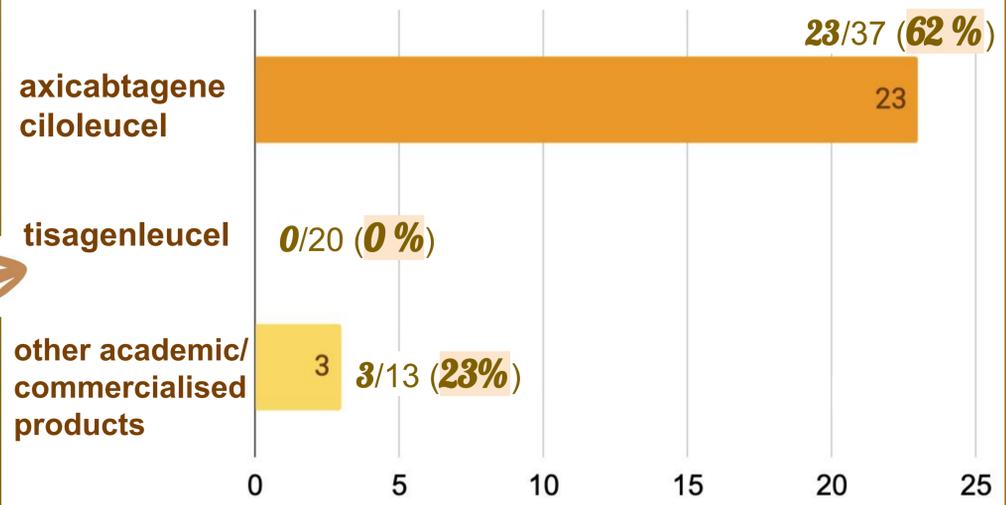
Figure 2. **CAR-T products distribution**



Key outcomes

- CRS**
60/70 (86%)
- ICANS**
26/70 (37%)
- ICU admission due to ICANS**
20/70 (29%)

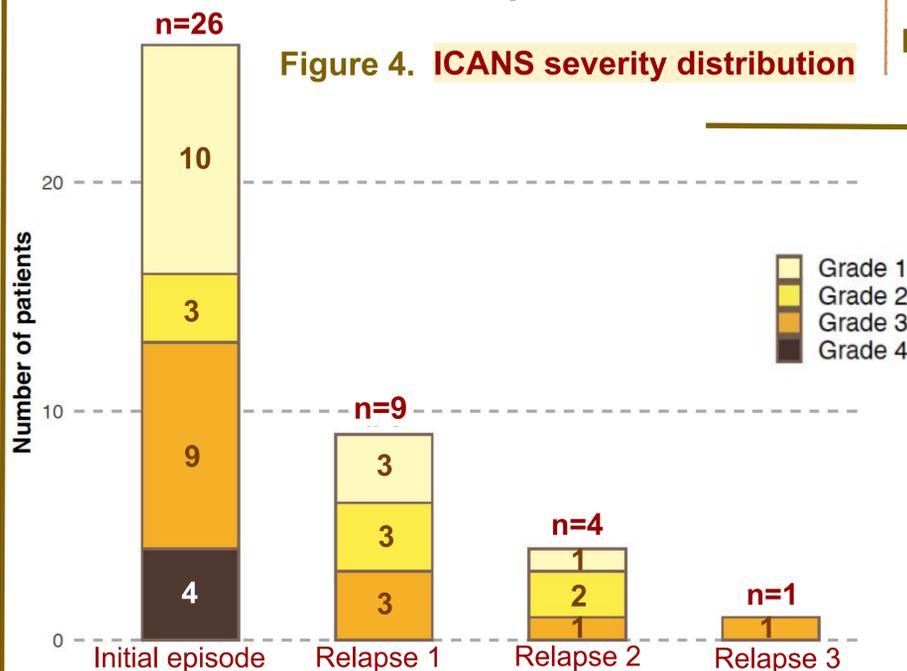
Figure 3. **ICANS incidence by CAR-T product**



ICANS onset: 6.5 days (4.25–8.0)

ICANS duration: 2 days (1–3)

Figure 4. **ICANS severity distribution**



ICANS relapse
9/70 (13%)

ICANS related death
1/70 (1%)

CONCLUSIONS

- ICANS** occurred in over **1/3** of patients: especially in **DLBCL** treated with **axicabtagene ciloleucel** (none reported with tisagenlecleucel).
- Despite **low mortality**, relapses increased **clinical complexity** and **ICU requirements**.
- Continuous monitoring** and **early management** are essential to optimise outcomes.

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