Retrospective analysis of total metabolic tumour volume on prediction of CAR-T cell therapy outcome in large B-cell lymphoma

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Objectives

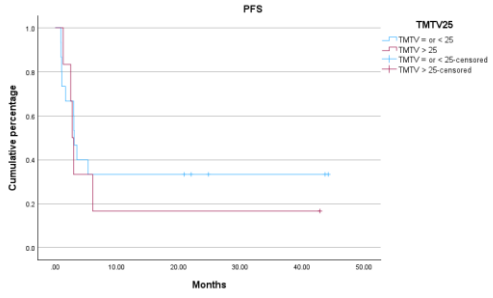
- Baseline total metabolic tumour volume (TMTV) assessed by 18F-FDG PET-CT is a potential biomarker of survival following CAR-T cell therapy for relapsed/refractory (R/R) large B cell lymphoma
- This study is the first in the region to analyze the predictive value of TMTV on local patient outcomes in patients treated with CAR-T cell therapy for R/R large B cell lymphoma as 3rd-line/beyond treatment setting

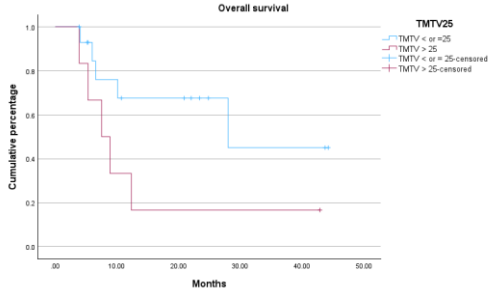
Materials and Methods

- Consecutive patients who underwent 18F-FDG PET/CT before CAR-T cell therapy from May 2021 till June 2025 were recruited
- 41% of SUVmax was used as the threshold for determining TMTV
- TMTV of 25ml was used as a cut-off to define high versus low TMTV
- Primary outcome was best response; secondary outcomes were progression-free survival (PFS) and overall survival (OS)
- Chi-square test was performed for categorical variables, and Kaplan-Meier curve and log-rank tests were performed for survival analysis and comparison

Results

- N=21 patients (age 64.0±8.6)
- TMTV ranged from 0-396mL
- In patients with low TMTV, there was a higher chance of achieving complete response, close to achieving significant statistical difference (p=0.06)
- Patients with low TMTV also had a better PFS and OS, though differences were not statistically significant (p=0.60 and 0.08, respectively)





Discussion

- This preliminary study suggested the predictive value of TMTV in CAR-T cell therapy based on local data, indicating that patients with low TMTV had better outcomes
- Nonetheless, this study was limited by small sample size and single-centre design
- Future research should employ larger, more representative cohorts from different centres with comprehensive multivariate analyses

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