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Baseline Physical Function Predicts Toxicity Outcomes After Chimeric Antigen Receptor T-Cell Therapy in Non-Hodgkin Lymphoma

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Background
Baseline physical function may predict the toxicity of chimeric antigen receptor (CAR) T-cell therapy. The MD Anderson Cancer Center (MDACC) prehabilitation program evaluates older adults prior to CAR T-cell therapy to assess baseline physical function and optimize physical activity.
Objective
To evaluate the association of baseline physical function with the risk of CAR T-cell toxicity outcomes in non-Hodgkin lymphoma (NHL) patients.
Methods
This is a retrospective single-center study of NHL patients at MDACC evaluated in the prehabilitation program before CAR T-cell therapy. Baseline physical function measures included 6-minute walk test, five times sit to stand, 10-meter walk test, timed up and go test, activity measure for post-acute care (AM-PAC), and Edmonton Symptom Assessment Scale. Associations with cytokine release syndrome, immune effector cell-associated neurotoxicity syndrome, hospital length of stay, ICU admission, discharge disposition, and 90-day readmission were assessed with multivariable logistic regression models.
Results
A total of 131 patients with median age of 73 years (range 52-86) were included. The majority had large B-cell lymphoma, followed by mantle cell lymphoma, and follicular lymphoma. In the multivariable model, shorter 6MWT, slower 10MWT and longer TUG were associated with increased risk of ICANS. Shorter 6MWT and slower 10MWT were associated with longer LOS. Patients with TUG ≥12 seconds had higher risk of ICU admission and non-home discharge disposition. In contrast, 5XSTS, AM-PAC score, and ESAS showed no significant association to outcomes.
Conclusion
Baseline physical function by 6MWT, 10MWT and TUG independently predicted risk of ICANS and LOS in patients receiving CAR T-cell therapy for NHL. TUG was associated with increased risk of ICU admission and non-home discharge. Prospective studies are needed to determine whether interventions aimed at improving physical function can improve outcomes with CAR T-cell therapy.

Conflict of Interest: None

Keywords

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Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

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