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POSTER ABSTRACTS

905.OUTCOMES RESEARCH-LYMPHOID MALIGNANCIES

Neurocognitive Performance Changes with Chimeric Antigen Receptor T-Cell Therapy in Patients with Hematologic Malignancies

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Introduction:
Chimeric antigen receptor (CAR) T cell therapy is a transformative therapy that has revolutionized the care of patients with hematologic malignancies. However, CAR-T cell therapy is associated with several short-term toxicities such as cytokine release syndrome (CRS) and immune effector cell-associated neurotoxicity syndrome (ICANS). The impact of CAR-T cell therapy on neurocognitive outcomes is unknown. Here, we report on our prospective study examining the changes in neurocognitive performance before and after CAR T cell therapy.

Methods:
This single-center prospective cohort study recruited consecutive recipients of CAR-T cell therapy enrolled in a prospective study NCT05556928 and a phase II clinical trial NCT04975555. Patients underwent neurocognitive assessment using the NIH Toolbox Cognition Battery (NIHTB-CB). Baseline assessment was done within 3 weeks before receiving CAR-T cell therapy. Follow up assessment was conducted at 90 days of receiving CAR T therapy. Domain specific T-scores adjusted for age, sex, race/ethnicity, and education were calculated. Change in T-scores between pre and post assessments were evaluated, with significant cognitive change defined as +/- 0.5 standard deviations from the mean.

Results:
Twenty-six eligible patients were identified, of which 9 completed both pre and post assessments. The median age was 66 years (range 45-79) at the time of CAR T cell therapy with 76.9% males and 38.5% being Non-Hispanic Black. Cancer types included diffuse large B-cell lymphoma (46.2%), multiple myeloma (38.5%), and follicular lymphoma (11.5%). Our baseline cognitive assessment showed that our eligible patient cohort had a median total composite T-score of 42 (range 30-64); twelve (46%) patients were one or more standard deviations below the mean. Of the 9 patients that completed a follow up assessment, a decline in one or more cognitive domains was seen in 89% of patients. Largest declines were seen in the cognitive domain of processing speed (66.7%, Figure 1).

Conclusion:
CAR T cell therapy recipients experienced a short-term cognitive decline in multiple domains. These findings can be used to educate future patients on potential toxicities of CAR T-cell therapy. We continue to enroll participants into our study and updated data will be presented at the meeting.

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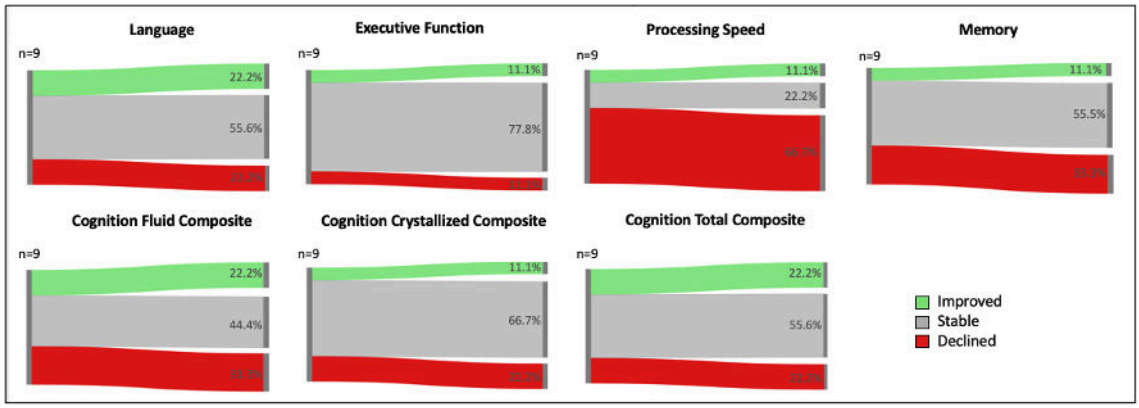

Figure 1. Sankey diagram for change in cognition of older adults before and after CAR T-Cell Therapy

Change in cognitive status was defined as clinically meaningful change in corrected T-Score (≥ 5-points) at follow-up assessment.

Figure 1

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