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Neuropsychiatric Disorders in Hospitalized Patients Undergoing Chimeric Antigen Receptor T-Cell Therapy for Multiple Myeloma

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**Context:** Chimeric antigen receptor T-cell (CAR-T) therapies have shown efficacy in treatment of relapsed/refractory multiple myeloma (MM). Neuropsychiatric disorders (NPD) in patients undergoing CAR-T have not been well described. **Objective:** To evaluate prevalence of NPD in patients who underwent in-hospital CAR-T therapy for MM and explore association of NPD with in-hospital outcomes of CAR-T therapy. **Design:** Retrospective. **Setting:** We evaluated NPD among patients undergoing in-hospital CAR-T therapy for MM in 2018 using data from the National Inpatient Sample (NIS). We applied discharge level weights to extrapolate findings to hospitalizations across the nation. **Patients:** Hospitalizations for patients ≥18 years who received investigational CAR-T therapy for MM were selected from the NIS database using International Classification of Disease, Tenth Revision (ICD-10) procedure and diagnostic codes. Demographic and CAR-T treatment variables were collected. Regression models were fit to assess association of NPD with clinical variables, and odds ratios (OR) were reported. **Main Outcomes Measures:** The primary outcome was prevalence and distribution of NPD. The secondary outcome was association of NPD with CAR-T outcomes. **Results:** A total of 200 CAR-T procedures met inclusion criteria: 65% males, 71% Caucasians, and 15.8% African Americans, with a median age of 59 years. Most CAR-T procedures (95%) were performed in urban teaching hospitals. Prevalence of NPD was 27.5%. Anxiety was the most common NPD, then depression and insomnia. Patients with NPD, compared to those without, were more likely to have Charlson comorbidity index (CCI) ≥3 (54.5% versus 20.7%, p= 0.01). There were no observed differences in the distribution of NPD with regard to race, age, gender, insurance, or prior receipt of bone marrow transplantation. Association was noted between NPD and CCI ≥3 (OR= 4.60, 95% CI= 1.29–16.40), between NPD and fever (OR= 0.16, 95% CI= 0.04–0.70). No significant association were found between NPD and neurotoxicity, in-hospital mortality, respiratory or renal failure, length of stay, or hospital charges. **Conclusions:** One in every four patients who underwent CART therapy for MM in 2018 had NPD. Patients with multiple comorbidities were at higher risk, while patients with fever during CART therapy were likely underdiagnosed with NPD. **Keywords:** CT, CAR-T therapy, neuropsychiatric disorders, multiple myeloma.