

Neuropsychiatric disorders in hospitalized patients undergoing chimeric antigen receptor T cells therapy for multiple myeloma

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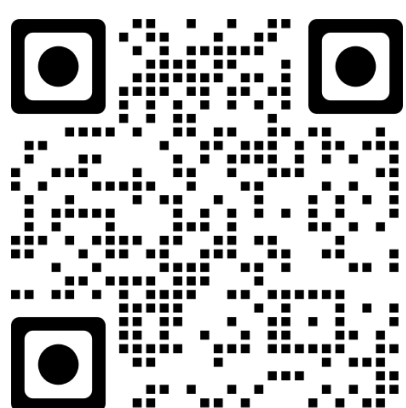
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Introduction

Chimeric antigen receptor T cells (CART) therapies have shown efficacy in treatment of relapsed/refractory multiple myeloma (MM). Neuropsychiatric disorders (NPD) in patients undergoing CART therapy have not been well described.

Background

Cancer and cancer treatments can affect the central nervous system and cause acute and chronic mental and cognitive disturbances which have important implications for the quality of life of cancer patients. Using data from the National Inpatient Sample (NIS), we evaluated NPD among patients who underwent inhospital CART therapy for MM in 2018.



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Objective

To evaluate prevalence of NPD in patients who underwent inhospital CART therapy for MM and explore association of NPD with inhospital outcomes of CART therapy.

Materials & Methods

We conducted a retrospective study of hospitalizations for patients ≥ 18 years who received investigational CART therapy for MM using the NIS database. International Classification of Disease, Tenth Revision (ICD-10) procedure and diagnostic codes were used to identify MM, CART procedures and CART acute complications from the database. Regression models were fit to assess association of NPD with clinical variables, and odds ratios (OR) with confidence intervals (CI) were reported.

Results

Baseline characteristics (n = 200)

Characteristics	Count	%
Median Age (years)	59	
Gender		
Male	130	65
Female	70	35
Race		
Caucasian	142	71
African Americans	~ 32	15.8
Others	~ 26	13.2
Hospital Setting		
Urban Teaching Hospital	190	95
Rural/Urban Non-Teaching Hospital	10	5

Results

Prevalence of NPD was 27.5%. Anxiety was 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%, $p = 0.01$). No observed differences in the distribution of NPD with regards 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). We found no significant association between NPD and neurotoxicity, inhospital mortality, respiratory or renal failure, length of hospital stay, hospital charges.

Conclusion

One in every 4 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.