

## **Racial Disparities in Hospital Outcomes of Autologous Stem Cell Transplantation for Multiple Myeloma: A Comparative NIS 2016 to 2020 database Study.**

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### **Objective:**

Due to the paucity of data and the difference in-hospital outcomes in the two most common races in America remains controversial. This study aims to compare hospital outcomes in multiple myeloma patients undergoing autologous stem cell transplantation (ASCT) between White and Black patients using data from the National Inpatient Sample (NIS) from 2016 to 2020.

### **Methods:**

A retrospective analysis of the NIS database was conducted using International Classification of Diseases (ICD-10) codes to identify patients who underwent ASCT for multiple myeloma. STATA version MP14.2 was used for analysis. We used Fischer's exact test to compare proportions, the student's t-test to compare continuous variables, and multivariate regression analysis to calculate the adjusted odds ratio after controlling age, gender, primary payer, and CCI. Following are included in transplant complications (transplant rejection, failure, transplant infection).

### **Results:**

Among 31,389 hospitalizations, 19,065 (60.74%) were whites, and 6,110 (19.47%) were blacks. The mean age was 62 in whites and 59 in blacks ( $P < 0.001$ ). Most patients were male, constituting 59.46% among Whites and 71.11% among Blacks. A significantly higher proportion of blacks had comorbidities compared to whites, including CKD (18.9% vs. 14.98%), diabetes mellitus (25.94% vs. 14.29%), obesity (16.35% vs. 11.6%), and mean Charlson Comorbidity Index (2.51 vs. 2.42,  $P < 0.001$ ). On multivariate analysis compared to whites, blacks had a non-significant difference in the risk of acute kidney injury (adjusted odds ratio [AOR]: 0.94, 95% confidence interval [CI]: 0.76-1.17,  $P = 0.58$ ), cardiac arrest (AOR: 0.71, 95% CI: 0.16-3.20,  $P = 0.71$ ), and blood transfusion (AOR: 1.11, 95% CI: 0.89-1.37,  $P = 0.36$ ). Additionally, there was no significant difference in the average length (16.53 vs. 16.52,  $P = 0.85$ ) and total cost (\$195,971 vs. \$196,300,  $P = 0.76$ ) of hospital stay between blacks and whites. However, blacks had significantly lower transplant complications (AOR: 0.56, 95% CI: 0.37-0.87,  $P = 0.01$ ), ICU admission (AOR: 0.58, 95% CI: 0.35-0.97,  $P = 0.04$ ) and in-hospital mortality (AOR: 0.28, 95% CI: 0.09-0.91,  $P = 0.03$ ) compared to whites.

### **Conclusion:**

According to our study, blacks who underwent ASCT for multiple myeloma had better outcomes than Whites. Despite having a higher mean age and more comorbidities, this finding emphasizes the importance of conducting additional research and providing personalized interventions to enhance patient outcomes. It also suggests the potential for more black

Americans to undergo ASTCT and benefit from it while avoiding delays and improving overall survival rates.