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Blood 142 (2023) 5449–5450

The 65th ASH Annual Meeting Abstracts

ONLINE PUBLICATION ONLY

311.DISORDERS OF PLATELET NUMBER OR FUNCTION: CLINICAL AND EPIDEMIOLOGICAL

Comparative Analysis of Hospital Outcomes for Thrombotic Thrombocytopenic Purpura between 2018 and 20120: A National Inpatient Sample Database Study

Niraj Neupane, MD[1], *Arnav Srivastava*[1,1], *Shubham Agrawal, MD*[2], *Amir Mahmoud, MD MSc*[1], *Hassan Saeed*[3], *Peter A. Kouides, MD*[1,4,5]

[1] Rochester General Hospital, Rochester, NY
[2] Mercy catholic medical center, Philadelphia
[3] Rochester General Hospital, Rochester
[4] University of Rochester, Rochester, NY
[5] Mary M. Gooley Hemophilia Center, Rochester, NY

Background:
Thrombotic Thrombocytopenic Purpura (TTP) is a rare, life-threatening hematological emergency with a mortality rate of up to 20%. While plasma exchange and immunosuppression have long been the "pillars" of therapy, since 2019, a novel targeted therapy, caplacizumab, has become available. This study aims to analyze hospital outcomes before and after 2019 to assess the potential impact of this therapeutic advancement.

Methods:
A retrospective analysis of the United States (US) National Inpatient Sample (NIS) database was conducted using International Classification of Diseases (ICD-10) codes to identify TTP patients in 2018 and 2020. The data were analyzed using STATA version MP14.2. Fischer's exact test, student's t-test, and multivariate regression analysis were used to compare proportions and continuous variables and calculate the adjusted odds ratio. The database, however, did not consistently specify which patients received specific therapeutics like rituximab and caplacizumab and which patients did not.

Results:
The study included 1120 TTP hospitalization in 2018 and 975 in 2020. The majority of patients were African Americans (52.1% in 2018, 46.4% in 2020) and females (67.9% in 2018, 68.7% in 2020); 1.6% had COVID-19 infection in 2020, with a mean Charlson comorbidity Index (CCI) of 1.28 in 2018 vs. 1.34 in 2020. The multivariate analysis after controlling age, sex, CCI, and primary payer, revealed no significant change in the rates of stroke (AOR: 0.94, 95% CI: 0.64-1.40, P = 0.77), myocardial infarction (AOR: 1.01, 95% CI: 0.70-1.46, P = 0.95), acute kidney injury (AOR: 0.91, 95% CI: 0.72-1.14, P = 0.398), acute bleeding (AOR: 0.74, 95% CI: 0.51-1.09, P = 0.13), packed red blood cell transfusion (AOR: 0.95, 95% CI: 0.74-1.23, P = 0.71), and platelet transfusion (AOR: 1.20, 95% CI: 0.88-1.62, P = 0.25) in 2020 compared to 2018. Additionally, there were no significant changes in the mortality rate (AOR: 0.83, 95% CI: 0.52-1.33, P = 0.43) and mean length of hospital stay (12 vs. 11 days) in 2020. However, a significant increase in mean hospital cost ($189,749.9 vs. $267,835 US dollars, P<0.001), adjusted for inflation, was observed in 2020.
A subgroup analysis was conducted for 50 patients who received caplacizumab in 2020, revealing higher average hospital costs ($465,665 vs. $241,665) and an increased rate of intracranial bleeding (10% vs. 1.6%) compared to patients whose caplacizumab usage was unknown. Mortality was observed in none of the known caplacizumab-treated samples, while 6.5% mortality was recorded among those without known caplacizumab use.

Conclusion:
Compared to 2018, 2020 hospitalizations had a substantial increase in costs without a significant change in patient outcomes. This probability is related to the COVID-19 pandemic and the advent of caplacizumab use in the US. We were unable to sort out the impact of other costly therapeutics like rituximab. However, it would be given less frequently. Further study is needed to explore this indirect inference from the NIS database analysis and the attendant cost-benefit implications in the management of TTP and its impact on patient outcomes.

Disclosures No relevant conflicts of interest to declare.

https://doi.org/10.1182/blood-2023-190945