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## **Atypical hemolytic uremic syndrome (aHUS) clinical characteristics associated with renal replacement therapy (RRT) initiation during index hospitalization and RRT requirement after discharge**

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### **Background**

aHUS is caused by dysregulation of the alternative complement pathway and is associated with significant renal morbidity. This study described the clinical characteristics and treatment patterns associated with RRT, using real-world evidence from one of the largest and most diverse incident aHUS cohorts in the US during the C5 inhibitor (C5i) era.

### **Methods**

This was a retrospective cohort study of 634 incident hospitalized adult aHUS patients derived from the Premier Healthcare Database, which contains ~25% of all US hospitalizations (1/2011–6/2021). aHUS was defined as presence of a diagnostic code for thrombotic microangiopathy (TMA) or HUS *and* a treatment code for a C5i in the absence of a diagnostic code for secondary causes of TMA or HUS. Demographic and clinical characteristics were analyzed using t-test, Wilcoxon rank test, Fisher's exact test or Chi-squared test as appropriate.

### **Results**

The in-hospital RRT initiation rate was 77%. Compared with patients not requiring RRT, those who initiated RRT were significantly more likely to be White (64% vs 53%,  $p=0.04$ ), have a history of heart failure (22% vs 9%,  $p<0.001$ ), and have a longer median duration of intensive care unit (6 vs 4 days,  $p<0.001$ ) and hospital (22 vs 16 days,  $p<0.001$ ) stay. Age, sex, ethnicity, hypertension (HTN), CKD, and diabetes were not associated with RRT requirement. Patients receiving in-hospital RRT had a longer delay between admission and therapeutic plasmapheresis (TPE) (3 vs 2 days,  $p=0.007$ ) or C5i (10 vs 7 days,  $p=0.006$ ), but not corticosteroids (CS). RRT was discontinued by discharge in 51% of survivors.

RRT requirement at discharge was associated with a history of HTN (79% vs 66%,  $p=0.004$ ) and CKD (37% vs 26%,  $p=0.02$ ) but not with age, race, ethnicity, sex, or diabetes. In-hospital

RRT discontinuation was associated with TPE (84% vs 65%,  $p < 0.001$ ) and CS (81% vs 73%,  $p = 0.04$ ) but not with time between admission and C5i, TPE, or CS.

### **Conclusion**

In patients with aHUS, preservation of renal function remains a challenge. Treatment and time to treatment are associated with renal outcomes. Future efforts should be made to measure the effect of aHUS treatment delay.

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### **Category**

1202: genetic diseases of the kidney: non-cystic

### **Keywords (3 maximum)**

complement, hemolytic uremic syndrome, outcomes

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