

The Impact of Sickle Cell Disease on Acute Coronary Syndrome Outcomes: A Retrospective Observational Study in the United States for the Year 2020

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Introduction: Sickle cell disease (SCD), a multisystem disorder resulting from a single gene mutation, has been recognized as a global health issue, affecting more than 300,000 infants every year with an expected rise to 400,000 by the year 2050 (1). The influence of Sickle Cell Disease (SCD) on Acute Coronary Syndrome (ACS) outcomes have been the focus of a number of previous studies.

Objective: In this current study, we investigated the clinical characteristics and outcomes of SCD patients admitted with ACS and assessed the impact of SCD on ACS patient outcomes.

Methods: This was a retrospective observational study of a large cohort of adult patients who died with a primary diagnosis of SCD and a secondary diagnosis of ACS within the United States in the year 2020. The focus of our study was on in-hospital mortality, length of stay, and total hospital charges which were compared between the two cohorts. Procedure Classification System (ICD-10-CM) codes were used to identify codes for diagnosis with the final study sample of patients admitted with ACS comprising 779,895. Of the patients admitted with ACS, 23085 also had established diagnosis of SCD.

Results: Our findings revealed that firstly, SCD patients admitted with ACS demonstrated a heightened prevalence of hypertension, drug abuse, and chronic lung diseases, further highlighting the association between SCD and these co-morbidities. Secondly, among patients admitted with STEMI, SCD patients exhibited higher inpatient mortality rates, although this disparity did not reach statistical significance. Lastly, among SCD patients admitted for ACS who underwent PCI, the study revealed a statistically significant elevation in the risk of coronary dissection. Additionally, there were notable increases in the occurrences of atrial fibrillation and acute heart failure in this group; however, these associations did not reach statistical significance.

Conclusion: These findings provide valuable insights into the outcomes of SCD patients in the context of ACS and PCI, particularly in regard to the increased risk of coronary dissection posed to these patients. However, future studies are warranted to explore the underlying mechanisms and potential implications between SCD and ACS.

References:

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