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National Inpatient Sample Analysis: Examining Clinical Outcomes in Cardiac Ablation Patients with Hyperlipidemia

Tony Elias
Rowan University

Mena Elmalh
Rowan University

Kyrillos Girgis
Newark Beth Israel Medical Center

Taha Syed
Virtua Health

Rafail Beshai
Jefferson Health NJ

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Tony Elias[1], Mena Elmalh[1], Kyrillos Girgis MD[2], Taha Syed DO[3] Rafail Beshai DO[4]
(1) Rowan-Virtua School of Osteopathic Medicine (2) Beth Israel Newark IM (3) Virtua IM (4) Jefferson NJ IM

Background

Cardiac ablation, utilizing radiofrequency or cryoablation, is a therapeutic approach for correcting abnormal heart rhythms by disrupting specific electrical pathways within the heart. Despite the growing utilization of cardiac ablation, limited research exists on the impact of hyperlipidemia, a prevalent cardiovascular risk factor, on outcomes in patients undergoing this procedure. Previous studies underscore the importance of understanding how comorbid conditions, such as hyperlipidemia, influence the efficacy and safety of cardiac ablation.[1,2] Consequently, this study aimed to leverage the national inpatient sample database to investigate in-hospital outcomes among cardiac ablation patients with hyperlipidemia.

Methods

Data from the National Inpatient Sample (NIS) Database for 2019 and 2020 were extracted to identify adult patients who underwent cardiac ablation, stratified based on a concomitant diagnosis of hyperlipidemia using international classification of diseases 10th revision codes. Multivariate logistic regression was employed to adjust for confounders, with inpatient mortality as the primary outcome. Statistical analyses were conducted using SPSS software.

Results

The study encompassed 25,754 cardiac ablation patients, of whom 14,800 (57.4%) had hyperlipidemia. Patients with hyperlipidemia exhibited a higher prevalence of hypertension (58.8% vs. 51%, P<0.001) and chronic kidney disease (26.7% vs. 23.6%, P<0.001) compared to those without hyperlipidemia. In-hospital mortality was significantly elevated among patients with hyperlipidemia (1.3% vs. 1.2%, P<0.001), with multivariate regression demonstrating a higher risk of inpatient mortality (OR 1.799, 95% CI 1.650-1.961, P<0.001). Secondary analysis revealed increased odds of adverse events including ventricular arrhythmia, acute kidney failure, stroke, and deep vein thrombosis among patients with hyperlipidemia.

Outcomes	Odds Ratio	95% CI	P-Value
Ventricular Arrhythmia	2.393	2.309-2.480	< 0.001
Acute Kidney Failure	2.503	2.424-2.585	< 0.001
Stroke	2.868	2.725-3.019	< 0.001
DVT	2.312	2.067-2.587	< 0.001

Conclusion

This nationally representative retrospective cohort study highlights the association between hyperlipidemia and adverse outcomes, including increased mortality, among patients undergoing cardiac ablation. These findings underscore the necessity of considering hyperlipidemia management strategies in the comprehensive care of cardiac ablation patients.

References

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2.Jones A, Smith B. Management of Hyperlipidemia in Patients Undergoing Cardiac Ablation: A Review. J Cardiol Ther. 2021;7(2):89-97.