Clinical Outcomes for VA-ECMO Patients Associated with Hyperlipidemia: An Analysis of the National Inpatient Sample

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Clinical Outcomes for VA-ECMO patients Associated with Hyperlipidemia: An Analysis of the National Inpatient Sample

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Veno-arterial extracorporeal membrane oxygenation (VA-ECMO) is considered the most advanced temporary life support which provides complete hemodynamic support in addition to gas exchange.¹

There is limited data available on the impact of hyperlipidemia (HLD) on VA-ECMO patients.

This study included 3,885 VA-ECMO patients, of which 1,082 (27.8%) patients had HLD.
VA-ECMO patients with hyperlipidemia had higher prevalence of hypertension (57.3% vs. 71.4%, p <0.001), and chronic kidney disease (26.3% vs. 17.0%, p <0.001) compared to VA-ECMO patients without HLD.
In-hospital mortality was higher among those with HLD (61.5% vs. 45.5% p <0.001).

Multivariate regression showed that VA-ECMO patients with HLD had higher inpatient mortality (OR 1.371, 95% CI 1.332-1.410, p <0.001).
On secondary analysis it has shown that those patients had higher odds of having ventricular arrhythmia, acute kidney failure, intracranial hemorrhage, deep vein thrombosis (DVT), and sepsis compared to VA-ECMO patients without HLD (Table 1).

In this nationally representative population-based retrospective cohort study, HLD was associated with higher mortality and worse outcomes among VA-ECMO patients.

Methods

Data was extracted from the NIS Database for the years 2019 and 2020.
The NIS was searched for hospitalizations of adult VA-ECMO patients with and without a concomitant diagnosis of HLD using international classification of diseases 10th revision codes.
Multivariate logistic was used to adjust for confounders. The primary outcome was inpatient mortality.
SPSS software was used for statistical analysis.

Aims

We sought to examine the National Inpatient Sample (NIS) database to describe in-hospital outcomes among these patients.

Results

Table 1. Odds ratio, 95% confidence interval, and p-values for various outcomes in VA-ECMO patients with HLD compared to VA-ECMO patients without HLD

Table 1. Odds ratio, 95% confidence interval, and p-values for various outcomes in VA-ECMO patients with HLD compared to VA-ECMO patients without HLD

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Odds Ratio</th>
<th>95% Confidence Interval</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventricular Arrhythmia</td>
<td>1.472</td>
<td>(1.416 - 1.531)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Acute Kidney Failure</td>
<td>1.394</td>
<td>(1.359 - 1.429)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Intracranial Hemorrhage</td>
<td>1.157</td>
<td>(1.099 - 1.219)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>DVT</td>
<td>1.252</td>
<td>(1.200 - 1.306)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Sepsis</td>
<td>1.226</td>
<td>(1.195 - 1.257)</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

References