Background

- Hyperkalemia (HK), defined as an elevated serum potassium (K+) level (≥5.0 mEq/L), is a common complication of chronic kidney disease (CKD), particularly among patients who have coronary heart failure (CHF) and are receiving renin-angiotensin-aldosterone system (RAAS) therapy.

- HK is associated with increased healthcare resource utilization (HRU) and costs; however, there is limited data on the effect of HK recurrence on HRU and costs in patients with CHF.

Methods

- The retrospective cohort study used de-identified data from Optum Market Clarity, a large US integrated health plan that covers 15.7 million members.

- Because only de-identified data were used, the study was exempt from Institutional Review Board approval.

- Eligible patients were aged ≥18 years, had ≥1 serum K+ laboratory measurement, and had ≥1 index date (CHF diagnosis code at index) during the baseline period.

- Patients with kidney transplants, CKD stage 5, end-stage kidney disease, or ≥2 RAASi use (≥14 days) were excluded.

- Index dates were the date of the first event of the first eligible index pair (rHK and nrHK cohorts) or a randomly selected index date.

- Baseline characteristics were assessed for a 15-day post-index window in addition to baseline: CKD stage, Charlson Comorbidity Index (CCI) and comorbidities (except cardiac dysrhythmias), non-HK treatments, eGFR lab values.

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- Costs and HRU during the 12-month follow-up were compared between matched cohorts using generalized linear models (GLMs) to account for matching.

Results

- There were 459,539 patients in the rHK and 381,210 in the nrHK cohorts, with 15,999 patients in each cohort. During the baseline period and 12-month post-index window for each matched variable, we noted during the inpatient period (IP), emergency department (ED), and outpatient (OP) visits.

- The rHK cohorts were well matched with their corresponding nrHK cohorts, including for medical costs and HRU during baseline.

- All-cause medical costs

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>rHK</th>
<th>nrHK</th>
<th>Difference</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-cause medical cost per patient, $</td>
<td>7890</td>
<td>5237</td>
<td>2653</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

- Patients with rHK also had significantly higher mean numbers of ED and OP visits than patients with NK (Figure 3 and 4).

Conclusions

- This retrospective cohort study demonstrated that recurrent HK is associated with increased HRU and costs in patients with CHF.

- Because only de-identified data were used, the results may not be generalizable to patients who lost coverage or were uninsured.

- Study strengths include tight matching on observable confounders and the utilization of a large, adjudicated, and validated clinical database.

Study Limitations

- Residual confounding from unmeasured variables is possible. Because continuous insurance enrollment was required, the results may not be generalizable to patients who lost coverage or were uninsured.

- Study strengths include tight matching on observable confounders and the utilization of a large, adjudicated, and validated clinical database.

References


Author Disclosures

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