INPATIENT COST-SAVINGS FROM THE USE OF SUCROFERRIC OXYHYDROXIDE IN CHRONIC KIDNEY DISEASE PATIENTS UNDERGOING DIALYSIS IN FIVE EUROPEAN COUNTRIES

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Research aims

• The objective of this analysis is to translate reduced hospitalization rates, associated with the use of sucralfate oxyhydroxide (SO), into potential cost-savings for healthcare systems in France, Germany, Italy, Spain and the UK.

Background

• Hyperphosphatemia is a predictable consequence of advanced chronic kidney disease (CKD), associated with increased morbidity and mortality in patients undergoing hemodialysis (HD).1 Patients with CKD on HD who develop hyperphosphatemia, require oral phosphate binders (PBs) to control their serum phosphorus (SP) levels.1,2
• PBs must be taken with every meal, often in conjunction with other medications or nutritional supplements, leading to a high pill burden for patients on dialysis.3
• SO is a non-calcium, iron-based PB indicated for the control of serum phosphorus (sPhos) levels in adult CKD patients on HD or peritoneal dialysis (PD).4
• SO has shown a higher phosphate binding capacity and lower pill burden than other PBs, which might improve adherence and may hence lead to more patients achieving effective SP control.5
• Recent US retrospective data have shown that patients receiving SO showed reduced hospitalization rates and hospital stay compared to patients who switched from SO to other PBs.6
• Reducing hospitalization is expected to result in cost-savings for the healthcare budget.

Methods & Data

• US retrospective data showed that SO results in reduced >24 hours hospitalization rates, adjusted for length of stay included hospitalization counts and serum ferritin at baseline (Table 1).6
• A cost-model was used to convert real-world hospitalization incidence rates among patients receiving SO or other PBs into hospitalization costs per patient year (PY).
• A literature review was conducted, and hospitalization cost data were identified for the in-scope countries and converted to €2018 (Table 2).

Results

• Compared to patients not receiving SO, patients receiving SO had 39.0 fewer hospital admissions (>24 hours) per 100 PYs [incidence rate ratio = 0.7 (0.54, 0.91)].
• Patients receiving PBs other than SO are expected to result in hospitalizations costs of €396,406, €1,505,714, €759,800, €424,532, €1,047,607 per 100 PYs for France, Germany, Italy, Spain and the UK, respectively.
• SO is likely to result in average hospitalization cost-savings of 30% [Range: 9% - 46%] in France, Germany, Italy and the UK.
• Figure 1 shows the savings per 100 PYs for patients receiving SO for the observed ranges of hospital admission rate reductions
• In Spain, the reduction of hospital stay (-1.25 days) was used to estimate savings of €125,750 per 100 PYs.

Table 1: Adjusted hospital admission rates among mSO and dSO patients over the 2-year follow-up6

<table>
<thead>
<tr>
<th>Incidence Rate (per PY)</th>
<th>Incidence Rate Ratio*</th>
<th>Incidence Rate Difference*</th>
<th>P-Value</th>
<th>LOS Difference in LOS per PY2</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>mSO</td>
<td>0.92</td>
<td>0.7</td>
<td>-0.4</td>
<td>0.006</td>
<td>2.97</td>
</tr>
<tr>
<td>dSO</td>
<td>1.31</td>
<td>0.54, 0.91</td>
<td>[-0.80, -0.14]</td>
<td>4.22</td>
<td>-4.51</td>
</tr>
</tbody>
</table>

Hospital admission rates were similar between mSO and dSO patients at baseline. Analysis carried out using *Poisson regression; † negative binomial model. Covariate adjustment for LOS included hospitalization counts and serum ferritin at baseline.CI, confidence interval; dSO, patients who discontinued sucralfate oxyhydroxide, and were treated with non-SO PB; LOS, length of hospital stay; mSO, patients who received 2 years maintenance therapy with sucralfate oxyhydroxide; PY, patient year

Table 2: Inpatient cost inputs per country

<table>
<thead>
<tr>
<th>Country</th>
<th>Data description</th>
<th>Cost (€2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>Cost of “other hospitalizations” per dialyzed patients (in-center dialysis)</td>
<td>€3,026</td>
</tr>
<tr>
<td>Germany</td>
<td>The cost per hospitalization in Germany for patients with CKD and cardiovascular morbidity was reported to be similar to the cost of the nephrological pediatric DRG tariff</td>
<td>€11,494</td>
</tr>
<tr>
<td>Italy</td>
<td>Weighted average all-cause hospitalization costs per hospitalization of dialyzed patients (HD&amp;PD)</td>
<td>€5,800</td>
</tr>
<tr>
<td>Spain</td>
<td>Cost per hospitalization day of CKD patients</td>
<td>€1,006</td>
</tr>
<tr>
<td>UK</td>
<td>Incremental cost of a major vascular event for patients on HD per case</td>
<td>€7,997</td>
</tr>
</tbody>
</table>

Conclusions

• SO is a highly effective PB that may result in substantial cost-savings from reducing the morbidity and hospitalizations attributable to uncontrolled hyperphosphatemia among dialysis patients.

References