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 sucroferric 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).

Table 1: Adjusted hospital admission rates among mSO and dSO patients over the 2-year follow-up[6]

	Incidence Rate (per PY)	Incidence Rate Ratio* [95% CI]	Incidence Rate Difference* [95% CI]	P-Value	LOS (days per PY)‡	Difference in LOS per PY‡ [95% CI]	P-Value
mSO	0.92	0.7	–0.4	0.006	2.97	–1.25	0.035
dSO	1.31	[0.54, 0.91]	[–0.80, –0.14]		4.22		

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 sucroferric oxyhydroxide, and were treated with non-SO PB; LOS, length of hospital stay; mSO, patients who received 2 years maintenance therapy with sucroferric oxyhydroxide; PY, patient year

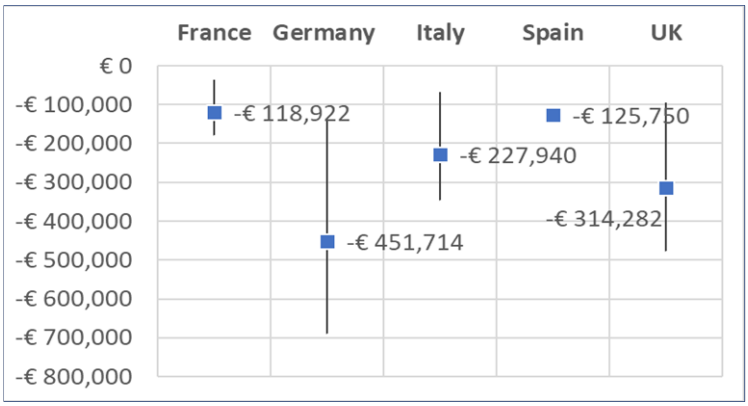
Table 2: Inpatient cost inputs per country

Country	Data description	Cost (€,2018)
France	Cost of "other hospitalizations" per dialyzed patients (in-center dialysis)	€3,026 [7]
Germany	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	€11,494 [8]
Italy	Weighted average all-cause hospitalization costs per hospitalization of dialyzed patients (HD&PD)	€5,800 [9]
Spain	Cost per hospitalization day of CKD patients	€1,006 [10]
UK	Incremental cost of a major vascular event for patients on HD per case	€7,997 [11]

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.

Figure 1: Inpatient cost-savings per 100 PYs for patients receiving SO vs. patients receiving other PBs in the EU5



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

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