IRON-BASED PHOSPHATE BINDERS IN ON-LINE HEMODIAFILTRATION PATIENTS - A PORTUGUESE EXPERIENCE

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INTRODUCTION

- Hyperphosphatemia continues to be an unsolved problem in hemodialysis patients, associated with poor outcomes, including vascular calcifications, left ventricular hypertrophy and increased mortality.[1-3]
- In more than 50% of all patients treated by on-line hemodiafiltration (**HDF**), serum phosphorus concentrations cannot be maintained within recommended limits solely through dietary phosphorus restriction, requiring phosphate binders (**PB**) to comply with those targets.
- High pill burden and gastrointestinal complaints associated with PB therapy induce poor adherence and are a major limitation to the long-term control of phosphatemia.
- Sucroferric oxyhydroxide, a novel iron-based phosphate binder, was recently introduced in Portugal.[4]

OBJECTIVES

- To report the first 6 months of the authors' experience with sucroferric oxyhydroxide .
- To report the impact of sucroferric oxyhydroxide on prevalent chronic kidney disease (**CKD**) patients under on-line HDF, previously treated with other PB.

METHODS

Study design

Retrospective

Cohort study

Portugal

Multicenter

Three hemodialysis units

Figure 1 – Study design

Data collection

- Demographic data (including age, gender, and dry weight).
- Clinical data (including dialysis' vintage, and PB treatment history).
- Laboratory data (including hemoglobin [**Hb**], ferritin, calcium, phosphate [**P**], and intact parathyroid hormone [**iPTH**]).

Selection criteria

- Prevalent active patients in NephroCare Portugal units.
- Undergoing on-line HDF.
- Treated with sucroferric oxyhydroxide for at least 6 months, at the time of data extraction (November 2016).
- Previously treated with other PB.

Study diagram

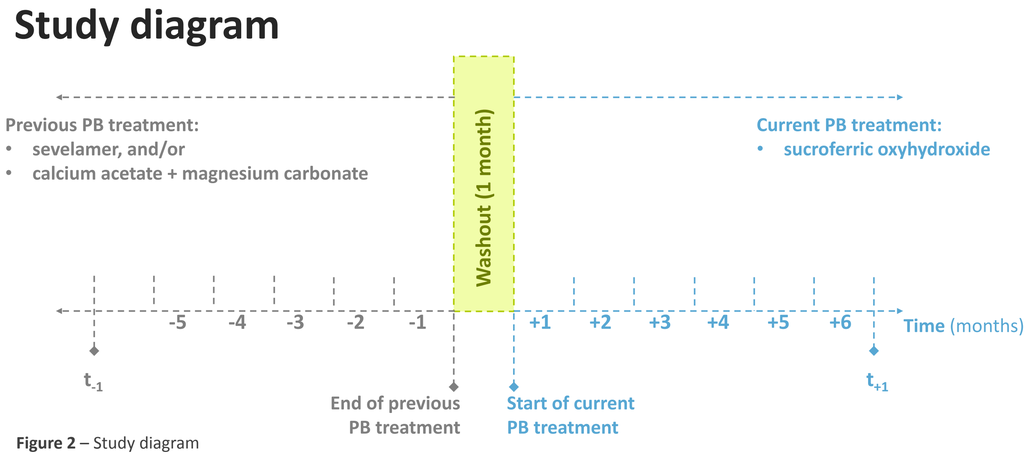

Figure 2 – Study diagram

RESULTS

- Total of patients under sucroferric oxyhydroxide: 64.
- Patients under sucroferric oxyhydroxide for at least 6 months: 42.
- Mean age was 53.2 ± 13.0 years, and 38% (n = 16) were below 50 years.
- There were 28 males (67%).
- Mean dry weight was 70.4 ± 13.7 Kg, and 50% (n = 21) were above 70 Kg.
- Mean dialysis vintage was 110.1 months.

- For both Hb and ferritin there was an increase on average semester values, from t-1 to t+1, respectively 11.14 vs. 11.29 g/dL (p = 0.31) and 474.07 vs. 486.21 µg/L (p = 0.72) (**Figures 3-4**).

RESULTS (continued)

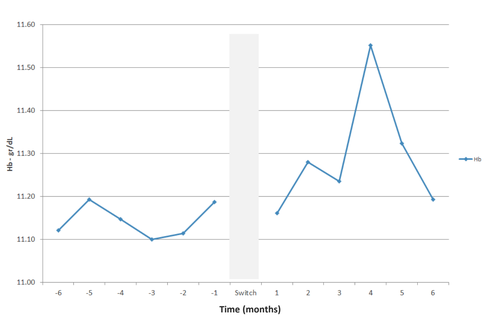

Figure 3 – Hb evolution: last semester on non iron containing PB vs. first semester on iron containing PB

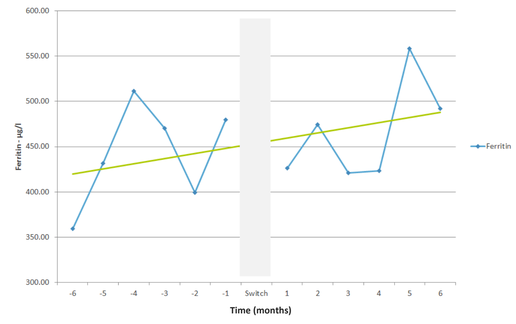

Figure 4 – Ferritin evolution: last semester on non iron containing PB vs. first semester on iron containing PB

- Interestingly, there was a decrease in the mean intravenous iron dose (2.94 vs. 2.43 mg/Kg/month) and a reduction of the number of patients on iron therapy (79% vs. 60%) (**Figure 5**).
- Regarding erythropoiesis-stimulating agent (ESA) therapy, the mean iron dose remained stable during both periods (**Figure 5**).
- Concerning the PB pill burden, there was a significant decrease from 6 pills on average to 2 pills (p < 0.05), between both periods, specially on patients under 70 years old (**Figure 6**).

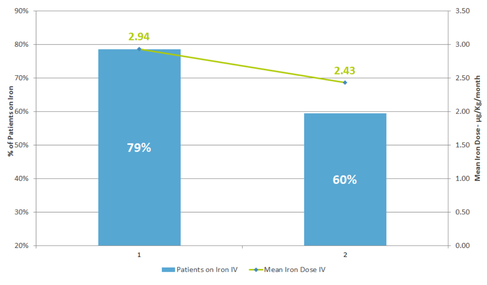

Figure 5 – Iron therapy (% of patients on iron & mean iron dose): last month before switch vs. last month after switch.

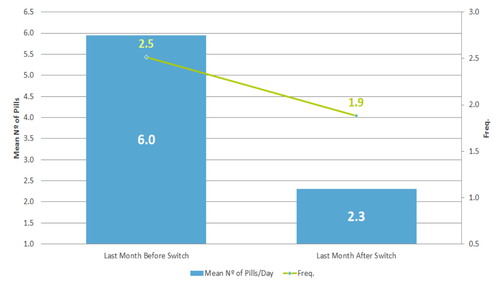

Figure 6 – Mean number of pills: last month before switch vs. last month after switch.

- Serum P levels remained stable with a trend for decreasing on t+1 (**Figure 7**).
- iPHT significantly increased from 585.4 to 698.0 pg/mL (p < 0.05) (**Figure 8**).

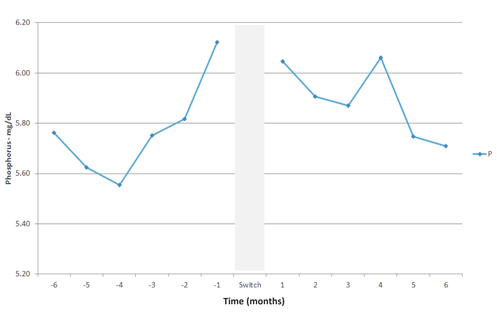

Figure 7 – P evolution: last semester on non iron containing PB vs. first semester on iron containing PB

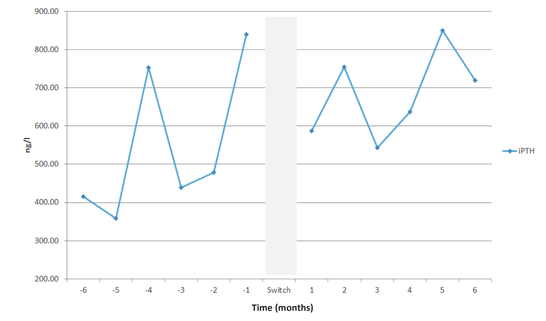

Figure 8 – iPTH evolution: last semester on non iron containing PB vs. first semester on iron containing PB

CONCLUSIONS

- **Sucroferric oxyhydroxide effectively controlled hyperphosphatemia in on-line HDF patients, with one third of pills** (which may enhance therapeutic adherence and serum phosphate control, contributing to improved clinical outcomes).
- **Hemoglobin and ferritin levels slight increase** may be due to minimal iron intake from sucroferric oxyhydroxide in association with intravenous iron administration.[5-6]
- **Intact parathyroid hormone significant increase during the second semester** could be due to interrupting magnesium intake (which has a known calcimimetic effect).

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