Education and training: impact of phosphate binders compliance

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Introduction

Patients with end-stage chronic kidney disease should undergo chronic non-curative treatments and take numerous drugs, at great physically, psychologically, socially and economically cost. In hemodialysis, the lack of adherence to treatment is a recurrent problem and causes unfavorable results in terms of quality of life, increased morbidity and mortality and health costs. In our unit, the drugs with lowest adherence data are phosphate binders (P), with the consequent difficulty to control phosphate levels (related to increased cardiovascular risk and morbidity and mortality).

Objectives

To evaluate how the adherence to phosphorus chelation treatment varies through the measurement of phosphorus and PTH levels, by means of two methods: on one hand, by increasing the degree of information about medication by the medical team and, on the other hand, carrying out an educational program (knowledge about the medication, schedules of the doses, constancy in the taking, delivery of pamphlets and training videos), by the nursing team.

Methods

A retrospective, longitudinal, single-centre, quasi-experimental study ("before and after" intervention study) conducted between June 2017 and January 2018. Thirty-eight patients, 11 women, and 27 men were included, with a mean age of 70.68. The inclusion criteria were: more than 3 months on dialysis, treatment with any phosphate binder and be of legal age.

In June 2017, we began the training period with a duration of 4 months: it consisted of increasing the information about the medication by the medical team and an educational program by the nurse team (knowledge about the medication, schedule of the doses, record of the dose, delivery of brochures and training videos). In October 2017, we gave a rest period of training and education for 4 months. The phosphorus + PTH levels were analyzed at the beginning and at the end of each stage, as well as at the end of the study. In addition, data about the reasons for non-adherence were collected.

The continuous variables were expressed as mean ± standard deviation or median and interquartile range depending on whether they followed a normal distribution or not. They were compared using t-student or Wilcoxon statistical tests for related variables. Categorical variables were expressed as percentages and compared using the MacNemar test

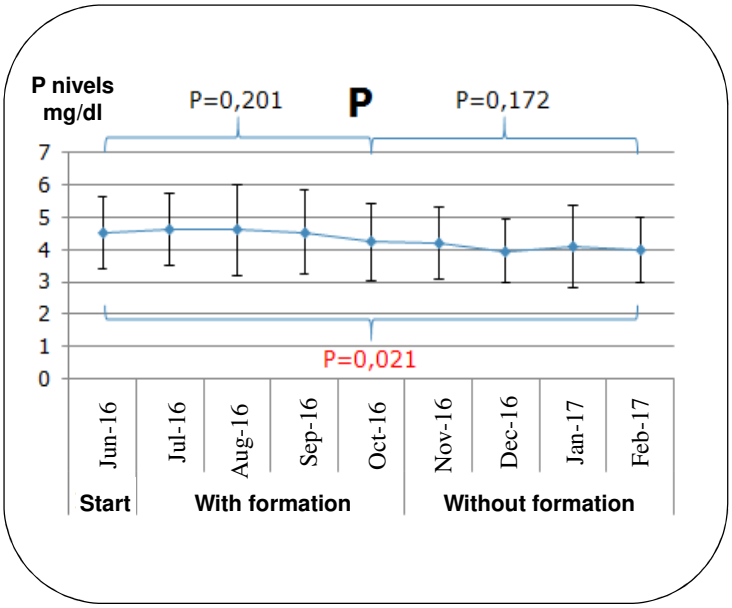

Fig1.Difference in phosphorus levels, with training and without training

Results

At the beginning of the study, P levels of 4.62 ± 1.12 mg/dL and PTH levels of 410.5 (258.75 - 856.25) ng/L were observed. After completing the training period of 4 months, these parameters were analyzed again, showing a clear decrease of the levels: P 4.24 ± 1.19 mg/dL (P=0,201) and PTH 392 (194.5 - 639.5) ng/L. During the training rest period of the following 4 months, the beneficial effects of the educational and training period continued to be perceived, with even lower levels compared to initial levels: P 3.97 ± 1.01 mg/dL (statistically significant decrease in phosphorus levels P = 0.021) and PTH 366 (212-774) ng/L. *(Fig.1)*

With regard to the causes of non-adherence, they were the following: "Doubts about the effectiveness of the drug" (9.38%), "Forgetting taking medication" (12.50%) and "Other: Size, taste, presentation, poor tolerance ... of the drug "(78.13%); and after the rest period of training and education, the reasons argued to non-adherence were the following two:

"Forgetting taking medication" (12.50%) and "Others: Size, taste, presentation, poor tolerance ... of the drug" (71.7%).

Conclusion

- **The positive impact of the increase of information and training about the treatment by the medical and nursing teams on the adequate control of P and PTH levels is demonstrated.**
- **This training action lasts over time improving the control of secondary hyperparathyroidism and hyperphosphatemia in the renal patient on hemodialysis, with the expected improvement in the vital prognosis.**