On-line education tools are becoming increasingly popular yet the level of patient participation and the utility of these tools is unclear. The 30-day Phosphorus Challenge, a web-based tool open to the general public, is designed to educate kidney patients, family members, caregivers, and health care teams through phosphorus-related emails, games, educational content (articles, recipes, handouts, videos) and community board-based social interaction.

We evaluated the effectiveness of this interactive tool in increasing phosphorus knowledge and improving phosphorus control in dialysis patients.

**Methodology**

- Forty-three dialysis patients from 22 dialysis centers geographically spread across the US, enrolled in the Phosphorus Challenge Evaluation.
- A total of 24 (56%) completed the pre- and post-tests and had phosphorus lab values available for each time point.
- Differences between the pre- and post-period in correctly answered questions and phosphorus levels were assessed by paired t-test.

**Results**

- On a test of 6 knowledge questions, these 24 patients got an average of 0.8 more questions right after the intervention (Table 1 and Figure 3).
- The mean phosphorus level change of -0.20 was not statistically significant in a paired t-test (Figure 4).
- 12 patients experienced declines in phosphorus levels, while 11 experienced an increase, and 1 was unchanged. Four of the patients with an increase from the pre-challenge level still maintained phosphorus below 5.5 mg/dL.
- In the post survey, over 75% felt they learned something about phosphorus and greater than 90% felt more confident about making lower phosphorus food choices after taking the challenge.

**Conclusions**

- The Phosphorus Challenge had a positive impact on phosphorus levels and knowledge for approximately half of those who completed it, indicating this may be a useful tool for phosphorus improvement in some kidney patients.
- It will be important to understand the characteristics of patients who did benefit from the Phosphorus Challenge and how this unique, interactive tool can be modified so that all participants elicit a benefit.

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