Comparing Protein Supplementation Days Versus Non-Supplementation Days and Effects of Nutrition Status on KDQOL Scores

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ABSTRACT: BACKGROUND/PURPOSE: The current focus in dialysis treatment has shifted to home modalities from in-center treatment. One of the home modalities is peritoneal dialysis (PD). Malnutrition is a common problem afflicting dialysis patients; it has been shown to be associated with increased mortality rates. Malnutrition is assessed using the Subjective Global Assessment as well as nutritional markers such as albumin and net catabolic protein rate. Current research on how to improve malnutrition includes protein supplementation. Peritoneal dialysis is done nightly, which means protein losses through treatment occur more frequently than hemodialysis. Current research on daily supplementation for peritoneal dialysis patients has provided mixed results. Some research indicates an improvement in protein intake, protein biomarkers (albumin and net protein catabolic rate), weight, and physical assessments. Other research has not seen a significant improvement in the aforementioned areas with daily protein supplementation. Not only does nutrition status affect malnutrition, but it also has a positive association with scores on the Kidney Disease Quality of Life Survey (KDQOL) in hemodialysis and, most recently, with peritoneal patients. This dissertation
The project aims to compare protein intake on days with and without supplementation to assess if there is a significant difference, evaluate compliance with supplementation, as well as if there is a correlation between albumin and protein intake with the subsections of the KDQOL.

METHODS: This is a prospective observational cohort study conducted at DaVita dialysis in Midwest City Oklahoma. All participants were on continuous cycler peritoneal dialysis with an albumin less than 4.0 g/dL and on the oral nutrition supplement program. Consented participants were given a six-day food record to fill out and bring back to the facility; it was explained that participants should fill out the food record including all food, supplements, beverages, and to include portions. During monthly laboratory draw at the facility, participants were given the Kidney Disease Quality of Life (KDQOL) survey by the principal investigator. Answers from food records were entered into the FoodWorks software program to obtain protein intake. KDQOL answers were entered into DaVita’s Helping Hands program to obtain subsection scores. To assess protein intake, Wilcoxon sign rank test was utilized, an exact binomial confidence interval was used to estimate supplement compliance, and a Spearman Correlation Coefficient was used to compare albumin and protein intake to the KDQOL subsections.

RESULTS: There was no significant difference found between protein intake on supplement versus non-supplement days. Data showed that there is a 95% chance that compliance for protein supplementation ranges from 4.7-50.8%. KDQOL subscore for symptoms of kidney disease showed significant and moderate positive correlation with albumin. Burden of Kidney Disease and Physical Composite score also showed moderate positive correlations with albumin but were not statistically significant. Mental Composite subsection had a moderate negative correlation with protein intake but was not statistically significant. All other subsections had weak correlations and none showed statistical significance.

DISCUSSION/CONCLUSION: Overall, supplementation did not show an increase in protein intake although this could be explained with a small sample size with an underlying issue of compliance. Also, compliance within the population for consumption of the supplement is below 50%. The only significant correlation found between nutrition status and the KDQOL was between albumin and the subsection Symptoms of Kidney Disease. More research with a larger sample size could provide more significant results.