

The Effect of Using Dialysis Solution Containing Amino Acids on the Serum Albumin Levels in CAPD Patients with Hypoalbuminemia

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Introduction: In End stage renal disease (ESRD) patients, hypoalbuminemia was determined as the strongest indicative of the mortality with the studies carried out on this subject. Many factors including inflammation, acidosis, insulin resistance, anorexia affect the development of ESRD protein energy malnutrition. Two reasons are considered for hypoalbuminemia in patients treated with Continuous Ambulatory Peritoneal Dialysis (CAPD), one of the ESRD treatment options. The first reason is the albumin readings lower than their levels due to excessive volume, and the second reason is the daily loss of 5-15 g protein and 2-4 g amino acids due to dialysate. An additional factor is the protein excretion of the patients who have urine in varying percentages.

Objective: The aim of this study is to determine the use of peritoneal dialysis solution containing amino acids (AA) in hypoalbuminemia treatment in CAPD patients.

Method: In order to determine the effect of peritoneal dialysis solution containing amino acids based on time, patients who were monitored in peritoneal dialysis units in Bursa region and used this solution for at least 6 months were examined retrospectively. Patients who were treated with instrumental peritoneal dialysis and had no urine were excluded from the study. These patients were using dialysis solution containing amino acids once a day at the noon or evening sessions. Twenty five CAPD patients (15 female, 10 male) who had <3.5 g/dL albumin levels were included in the study. Laboratory findings of the months in which patients have started to use the solution and the lost month were evaluated (Table 1).

Results: The average age of the patients was 52.8±15.7 years, the average CAPD time was 42.08±23.9 months and the average time of using solution containing amino acids was 27.04±14.3 months. The reasons for renal failure were determined as 24% hypertension, 20% idiopathic, 16% polycystic kidney, 16% diabetes mellitus, 8% nephrotoxicity and 16% other reasons (dystrophic epidermidis bullosa, systemic lupus erythematosus, vesicoureteral reflux and congestive heart failure).

Conclusively, in this study, it was found that albumin levels have increased. Diet programs recommended for the prevention of hypoalbuminemia mostly fail due to loss of appetite and the problems in application. Orally administered essential amino acid solutions may be ineffective due to the challenges in use. Using CAPD solutions containing amino acids for these reasons may improve the nutritional parameters of the patients. With PD solutions containing amino acids, an 18 g amino acid supplementation may be provided and this comprises the 20-25% of the daily intake. In CAPD patients with hypoalbuminemia, in addition to the inspection of the patient's protein and energy intake, the underlying factors should be reviewed.

Keywords: Dialysis solution containing

Changes in biochemical parameters according to the time

| | Start (mean ± SD) | End (mean ± SD) |
|-------------------|----------------------|--------------------|
| Albumin (gr/dL) | 3.1±0.2 | 3.5±0.4 |
| Urea (mg/dL) | 108.7±31.1 | 124.2±30.8 |
| Creatinin (mg/dL) | 5.5±0.1 | 5.16±0.54 |
| CRP | 6.9±1.06 | 6.02±2.62 |
| Hemoglobin | 11.7±1.09 | 12.7±1.06 |
| HCO ₃ | 22,7±3,7 | 21.7±2.9 |
| URINE | 1966 | 1056 |