FP583

EFFECTS OF INITIAL HYPOALBUMINEMIA ON THE LONGITUDINAL CHANGES OF RESIDUAL RENAL FUNCTION AND PERITONEAL MEMBRANE IN INCIDENT PERITONEAL DIALYSIS PATIENTS

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INTRODUCTION: Preserving residual renal function and peritoneal membrane are the most important factors for reducing patient mortality and technical failure rate in the maintenance peritoneal dialysis (PD).

Hypoalbuminemia was reported closely associated with increased patients' mortality and technical failure rate in PD patients. However, there were little studies that compared longitudinal changes of residual renal function or peritoneal membrane function according to the serum albumin level.

This study was aimed to evaluate this issue.

METHODS: We retrospectively included patients who started maintenance peritoneal dialysis between January 2010 to December 2015 and followed up at least three years in 3rd affiliated hospital. We divided patients into two groups according to the initial serum albumin level. Hypoalbuminemia group was defined as the serum albumin level lower than 3.5 g/dL at the time of peritoneal dialysis initiation. To compare longitudinal changes of residual renal function and peritoneal membrane status between two groups, we repeatedly collected data for urine output, uKt/V, peritoneal ultrafiltration, pKt/V, 4hr DPcr ratio per 1 year. Difference in changing trajectory was analyzed using repeated measure ANOVA-test. We also checked technical failure rate and all-cause mortality rate of them.

RESULTS: A total of 153 patients were included and 36.6% of them were hypoalbluminemia group. The mean initial serum albumin level of hypoalbuminemia group was 2.99±0.33g/dL and normal albumin group was 3.99±0.31g/dL. During the median follow up period of 42.5 months, 9.8% of the patients were dead, 30.3% of the patients received kidney transplantation and the other 30.3% of the patients changed modality to hemodialysis. When we adjusted Kaplan-meier survival analysis, all-cause mortality rate was significantly higher in the hypoalbuminemia group (log rank 0.001), however technical failure rate was not. In both groups, the amount of urine output and uKt/v showed decreasing trend, and their changing rates were more rapid in the hypoalbuminemia group ($p<0.05$). The amount of peritoneal ultrafiltration and pKt/V showed increasing trend in both two groups and the changing rates were more rapid in hypoalbuminemia group (Figure 1). 4hr DPcr ratio showed increasing trend however, its trajectory was not different between two groups ($p=0.751$). In both two

groups, the amount of total glucose exposure was not statistically different during follow up periods.

CONCLUSIONS: Although the relation between initial hypoalbuminemia and rapid peritoneal membrane deterioration was not defined, it was clearly associated with rapid decline of residual renal function and increased all-cause mortality rate in incident peritoneal dialysis patients. Thus, patients with hypoalbuminemia at the time of PD initiation needed to be closely monitored.