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The Impact of Early Hospitalizations after Initiation of Dialysis on All-cause Mortality in Incident Hemodialysis Patients

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Objectives : Hospitalization and mortality rates are relatively high within first several months after initiation of dialysis in end-stage renal disease (ESRD). Limited data are available about the association between early hospitalization after initiation of dialysis and clinical outcomes in ESRD patients. We investigate the association between early hospitalization and all-cause mortality in incident hemodialysis (HD) patients.

Methods : Incident dialysis patients were selected from the Clinical Research Center registry a prospective Cohort study on dialysis patients in Korea. Early hospitalization was defined as all-cause hospitalization within 90 days after initiation of HD. The primary outcome was all cause mortality and the secondary outcome was cardiovascular and infection-related mortality.

Results : A total of 1,584 hemodialysis patients were included. The median follow-up period was 24.5 months. During follow up period, 150/1,584 (9.5 %) was died. 43/1,584 (2.7%) and 33/1,584 (2.1 %) was died of cardiovascular and infection-related cause. Kaplan-Meier analysis showed that the all-cause mortality rates ($P < 0.001$, Log-rank) as well as cardiovascular infection-related mortality rates ($P < 0.001$ and $P < 0.001$, respectively, Log-rank) were significantly higher in patients with early hospitalization than in patients with no hospitalization. The multivariate Cox regression analysis showed that patients with early hospitalization remained at higher risk for all-cause mortality than those without early hospitalization after adjusting for confounding variables (HR 2.888 [1.806-4.616], $P < 0.001$). In addition, cardiovascular and infection-

related mortality were significantly higher in patients with early hospitalization than in patients with no hospitalization after adjusting for confounding variables (HR 7.547 [2.893-19.690], P < 0.001 and HR 2.900 [1.157-7.27], P < 0.001, respectively).

Conclusions : Early hospitalization within 90 days after initiation of dialysis was an independent predictor marker of all-cause mortality in incident HD patients, which suggest that careful attention for HD patients with early hospitalization is needed.

Keywords : Hemodialysis, Early Hospitalization, Mortality, Infection, Cardiovascular disease