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The effect of emergency equipment preparation on patient survival in hemodialysis facilities: A Korean nationwide cohort study

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Objectives : Intradialytic cardiac arrest is a serious complication of hemodialysis (HD) in patients with end-stage kidney disease. Therefore, appropriate emergency equipment should be prepared before the initiation of HD. However, little is known about the effects of emergency equipment preparedness on the outcomes of patients undergoing HD. We aimed to evaluate the effects of emergency equipment preparedness on mortality in Korean patients undergoing maintenance HD.

Methods : We used HD Quality Assessment and National Health Service claims data from October to December 2015. We categorized 34,950 patients into two groups based on the availability of emergency equipment in the HD facilities. Cox proportional hazards models were used to assess the impact of emergency equipment preparedness on patient mortality over a mean follow-up period of 53.7 ± 23.0 months.

Results : The proportions of patients in emergency and non-emergency groups were 95.2 % (n = 33,267) and 4.8 % (n = 1,683), respectively. The emergency equipment group had lower serum calcium and phosphorus levels and systolic and diastolic blood pressures than that in the group without emergency equipment. Single-pool Kt/V was higher in the group with emergency equipment than that in the group without it. After adjusting for demographic and clinical parameters, emergency equipment preparedness was observed to be an independent risk factor for patient mortality (hazard ratio 0.87; 95 % confidence interval 0.79–0.96; p = 0.004).

Conclusions : Emergency equipment preparedness is associated with decreased mortality among patients undergoing HD. A well-equipped HD unit can help in increasing patient survival.