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Effects of Online Predilution Hemodiafiltration on Mortality in patients with HD

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Objectives: The beneficial effects of On-line postdilution HDF (hemodiafiltration) on mortality in HD (hemodialysis) patients have been reported in many randomized control trials and observational studies. In Korea, only 15% of HD patients were treated with HDF and pre-dilution method was more commonly used because of low blood flow rate. Therefore, there is a lack of evidence that predilution HDF (pre-HDF) have more benefits on mortality than conventional HD.

Methods: We studied 269 prevalent dialysis patients who have been treated in NHIC Ilsan Hospital from Jan 2012 to Aug 2019. The main exposure of interest was the modality of hemodialysis (HD vs. pre-HDF) and the primary outcome was the all-cause mortality. The participants were divided into HD group and pre-HDF group. The pre-HDF group was defined as the patients whose proportion of pre-HDF session was more than 50% during follow-up.

Results: Among the 269 prevalent hemodialysis patients, 61 (22.7%) patients were finally defined as the pre-HDF group. There were no significant differences in age, sex, diabetes, previous cardiovascular disease history. The median number of hemodialysis session per week was 2.7 (IQR, 2.1-3.0) and the median substitution volume for pre-HDF session was 29.1 L (IQR, 22.7-32.9L). Using cause specific Cox model, the adjusted hazard ratios for all-cause mortality were 0.55 (95% CI, 0.33-0.92) for the pre-HDF group compared with the HD group and 0.99 (95% CI, 0.98-0.99) per 1% increase for proportion of HDF session. We also performed same analyses in 141 incident HD patients and the association between all-cause mortality and the modality of hemodialysis was consistent as above.

Conclusions: Among prevalent and incident patients with HD, pre-dilution HDF was significantly associated with lower risk of all-cause mortality. Further studies using large-scale data are needed to verify the effects of pre-dilution HDF in Korea.