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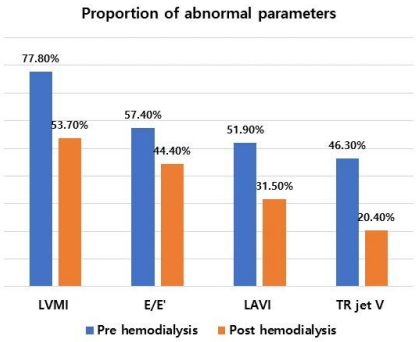
Pre- and Post-Hemodialysis Differences in Heart Failure Diagnosis by Current Heart Failure Guidelines in Patients With End-Stage Kidney Disease

Song Yi Kil, Byung Hwa Park, Youngeun Jo, Yeonji Choi, Kyumgmi Kim, Ye Na Kim, Ho Sik Shin, Yeonsoon Jung, Hark Rim
Department of Internal Medicine-Nephrology, Kosin University Gospel Hospital, Korea, Republic of

Objectives : Patients with end-stage kidney disease (ESKD) who are on hemodialysis (HD) have reduced vascular compliance and are likely to develop heart failure (HF). In this study, we estimated the prevalence of HF pre- and post-HD in ESRD using the current guidelines. METHODS: We prospectively investigated HF in ESKD patients on HD using echocardiography pre- and post-HD. We used the structural and functional abnormality criteria of the 2021 European Society of Cardiology guidelines
Methods : We prospectively investigated HF in ESKD patients on HD using echocardiography pre- and post-HD. We used the structural and functional abnormality criteria of the 2021 European Society of Cardiology guidelines
Results : A total of 54 patients were enrolled. The mean age was 62.6 years and 40.1% were male. Forty-five patients (83.3%) had hypertension, 28 (51.9%) had diabetes, 20 (37.0%) had ischemic heart disease. Mean NT-pro BNP level was 11959.9pg/dL. The mean ideal body weight was 59.3kg, mean hemodialysis time was 237.4 minutes, and mean real filtration was 2.8 kg. The mean LVEF was 62.4% and mean LVEDD was 52.0 mm in pre-HD. Post-HD echocardiography showed significantly lower LAVI (33.3 ± 15.9 vs. 40.6 ± 17.1, p=0.030), TR jet V (2.5 ± 0.4 vs. 2.8 ± 0.4 m/s, p<0.001), and RVSP (32.1 ± 10.3 vs. 38.4 ± 11.6, p=0.005) compared with pre-HD. There was no difference in LVEF, E/E' ratio, or LV GLS. A total of 88.9% for pre-HD and 66.7% for post-HD had at least structural or functional abnormalities in echocardiographic parameters according to recent HF guidelines, p=0.007).
Conclusions : Our data showed that the majority of patients undergoing hemodialysis satisfy the diagnostic criteria for HF according to current HF guidelines. Pre-HD echocardiography showed a 22.2% higher incidence of functional or structural abnormalities compared to post-HD echocardiography.

Figure 1.jpeg


Proportion of abnormal parameters
77.80%
53.70%
57.40%
44.40%
51.90%
31.50%
46.30%
20.40%
LVMI
E/E'
LAVI
TR jet V
Pre hemodialysis
Post hemodialysis