THE KOREAN SOCIETY OF NEPHROLOGY
APCN & KSN 2024
June 13(Thu) - 16(Sun), 2024 Coex, Seoul, Korea
Promoting Sustainable Kidney Health: The Asia-Pacific and Beyond

Abstract Submission No.: A-0423

Interdialytic blood pressure variability and all-cause mortality in patients undergoing maintenance hemodialysis: a multicenter study using the DialysisNet

Eunmi Jo[1], Ji Eun Kim[2], Ji In Park[3], Seong Han Yun[4], Kyung Don Yoo[5], Yunmi Kim[6], Eun Young Seong[1], Sang Heon Song[1], Hoseok Koo[8], **Hyo Jin Kim[1]**
[1]Department of Internal Medicine, Pusan National University Hospital, Korea, Republic of
[2]Department of Internal Medicine, Korea University Guro Hospital, Korea, Republic of
[3]Department of Internal Medicine, Kangwon National University Hospital, Korea, Republic of
[4]Department of Internal Medicine-Nephrology, Changwon Fatima Hospital, Korea, Republic of
[5]Department of Internal Medicine, Ulsan University Hospital, Korea, Republic of
[6]Department of Internal Medicine, Inje University Busan Paik Hospital, Korea, Republic of
[7]Department of Biomedical Informatics (SNUBI), Division of Biomedical Informatics, Seoul National University College of Medicine, Korea, Republic of
[8]Department of Internal Medicine, Seoul K Internal Medicine Clinic, Korea, Republic of

Objectives : Traditionally, the goal of blood pressure (BP) management is to control mean blood pressure, which is achieved by office BP measurement. However, the importance of BP variability has been increasingly emphasized recently. Therefore, this study aimed to analyze all-cause mortality according to interdialytic BP variability (BPV) in hemodialysis patients.
Methods : Data on pre-dialysis BP and clinical information were extracted from four dialysis units through the DialysisNet system, which enables efficient HD management by utilizing common data elements. Interdialytic BPV was evaluated as the coefficient of variation (CV) of predialysis BP at each dialysis session over a 12-month period. The CV of systolic blood pressure (SBP) and diastolic blood pressure (DBP) was divided into tertiles. The primary outcome was all-cause mortality according to the CV of predialysis SBP, which was analyzed using Cox regression analysis.
Results : Data of 357 hemodialysis patients (55.5% male), aged 62.9±13.2 years, with a median dialysis vintage of 24 (5–68) months, were analyzed. Patients in the third SBP CV tertile were older (P=0.010), had a higher prevalence of underlying diabetes (P=0.017), and had lower serum albumin levels (P=0.010). During a mean follow-up of 44.0±10.7 months, 55 (15.4%) patients died. Compared with the first SBP CV tertile, the third tertile showed significantly increased all-cause mortality after adjustment (hazard ratio [HR], 2.11; 95% confidence interval [CI], 1.04–4.24; P=0.037). Compared with the first DBP CV tertile, the third tertile showed significantly increased mortality in univariable analysis (HR, 2.18; 95% CI, 1.10–4.30; P=0.025) but not in multivariable analysis (HR, 1.88; 95% CI, 0.89–3.95; P=0.096).
Conclusions : Increased interdialytic BPV in hemodialysis patients is associated with all-cause mortality. This was more prominent in SBP than in DBP. Particular attention should be paid to large BPVs in older adults, women, and patients with a relatively longer dialysis vintage.

Figure1_KM.jpg

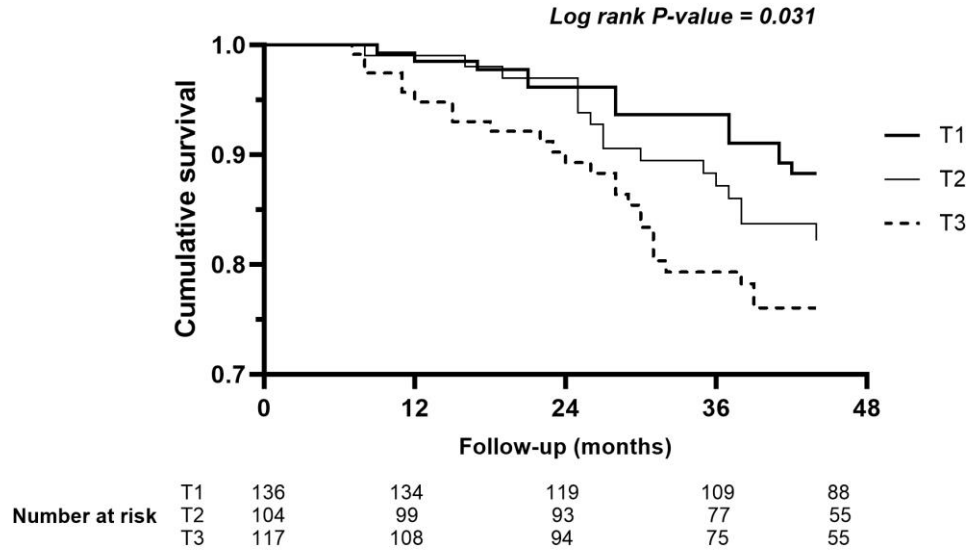

Figure1_KM.jpg

Table 3. All-cause mortality according to the SBP CV tertiles

	CV tertile of SBP	Events, n (%)	Model 1		Model 2		Model 3	
			HR (95% CI)	*P*-value	HR (95% CI)	*P*-value	HR (95% CI)	*P*-value
All cause mortality	T1	14 (10.3)	Reference		Reference		Reference	
	T2	16 (15.4)	1.56 (0.76, 3.21)	0.222	1.13 (0.52, 2.48)	0.757	1.05 (0.47, 2.33)	0.902
	T3	25 (21.4)	2.34 (1.22, 4.50)	0.011	2.22 (1.10, 4.45)	0.026	2.11 (1.04, 4.24)	0.037

Model 1: Unadjusted

Model 2: Adjusted for age, sex, BMI, DM and HTN

Model 3: Model 2 + adjusted for hemoglobin, albumin and phosphorus

CV, coefficient of variation; SBP, systolic blood pressure; HR, hazard ratio; CI, confidence interval; BMI, body mass index; DM, diabetes mellitus; HTN, hypertension