

LETTER TO EDITOR

Diastolic dysfunction in end-stage renal disease patient: what the ticking clock has told us?

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We reported an effect of maintenance hemodialysis on diastolic left ventricular function in end-stage renal disease in the October 2010 issue of Clinics Journal.¹ We read with interest the letter to the editor about our article titled "Diastolic dysfunction in end-stage renal disease patient: what the ticking clock has told us?" by Dr. Chao.² We thank him and reply to this interesting comments on our article.

Firstly, we agree about the shortening of the follow-up period. Long term effects of hemodialysis on left ventricular diastolic functions may be due to left ventricular hypertrophy, myocardial ischemia, and heightened cardiac afterload. However, several studies have shown that a single hemodialysis session is associated with acute deterioration of diastolic and systolic parameters of myocardial function.^{3,4} This may be related to many factors, such as the ultrafiltration rate, the interdialysis weight gain, change of serum ionized calcium concentration, sympathetic hyperactivity, increased oxidative stress during hemodialysis treatment, and disease of smaller resistance vessels.³ Dr. Chao noted that in several studies, the average length of the follow-up period ranged from just over half a year to four years. Of course the duration of the follow-up period is very important for identifying myocardial remodeling in hemodialysis patients. But we must not ignore the acute effects of hemodialysis. In our study, the median duration of the follow-up period was approximately two months.¹ This period is small for myocardial change but it is a relatively long and sufficient time to detect the acute effects of hemodialysis on left ventricular diastolic functions.

Secondly, although echocardiography is inherently deficient in determining the echo window and spatial resolution,

and suffers from an operator-dependent nature, we know that echocardiographic parameters are useful markers for predicting the development of left ventricular dysfunction.⁵ Also, to avoid the influence of operator-dependent factors, all echocardiographic evaluations were performed by the same medically qualified operator. Dr. Chao noted that the volume-dependent effect also attenuates diagnostic accuracy. To avoid a volume-dependent effect, the second echocardiographic evaluations were performed after 6-8 hours from the last hemodialysis session. As Dr. Chao emphasized, cardiac magnetic resonance imaging, left atrium circulation transit time, and late gadolinium enhancement sequence are the newer techniques to detailed depiction of left ventricular geometry and structural variation. However, our study design did not allow us to use these techniques.

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