

Letter to the Editor

Left Ventricular Diastolic Dysfunction as Assessed by Echocardiography in Metabolic Syndrome

To the Editor:

I read with great interest the study by Dr. Masugata and his colleagues (1), which confirmed that both the ratio of the velocity of early rapid filling to the peak velocity of atrial filling (E/A) and the myocardial performance index (Tei index) differed significantly between metabolic syndrome and non-metabolic syndrome patients, suggesting that patients with the syndrome can have cardiac diastolic dysfunction even if they have neither left ventricular (LV) hypertrophy nor systolic dysfunction. The methods and interpretation of the results, however, raise several concerns:

It is well known that mitral annulus velocity determined by tissue Doppler imaging (TDI) is a relatively preload-independent variable and is superior to conventional mitral Doppler indexes for the early diagnosis of many heart diseases (2). In some clinical metabolic syndrome patients, the conventional mitral Doppler indexes could be normal in earlier stages of the syndrome. If they are normal, is LV diastolic dysfunction present at the moment? If it is present, this means the conventional mitral Doppler indexes did not identify LV diastolic dysfunction. Could mitral annulus velocity determined by TDI be used to identify LV diastolic dysfunction?

It is well known that elderly patients (>60 years) can show a pseudonormalization of LV diastolic inflow patterns that demonstrate normal values for E/A even if their LV diastolic function is impaired. In the study by Masugata *et al.* (1), however, the subjects were in their sixties and the authors did not well describe the incidence of a pseudonormalization of LV diastolic inflow patterns among them. Was there any relationship between the incidence of a pseudonormalization of LV diastolic inflow patterns in the patients and the identification of LV diastolic dysfunction in patients with metabolic syndrome? It is well known that mitral annulus velocity determined by TDI could precisely identify the pseudonormalization of LV diastolic inflow patterns. The mitral annulus velocity determined by TDI could, therefore, be a more useful tool for identifying LV diastolic dysfunction in elderly patients with metabolic syndrome.

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1. Masugata H, Senda S, Goda F, *et al*: Left ventricular dias-

tolic dysfunction as assessed by echocardiography in metabolic syndrome. *Hypertens Res* 2006; **29**: 897–903.

2. Farias CA, Rodriguez L, Garcia MJ, Sun JP, Klein AL, Thomas JD: Assessment of diastolic function by tissue Doppler echocardiography: comparison with standard transmitral and pulmonary venous flow. *J Am Soc Echocardiogr* 1999; **12**: 609–617.

Response to: Left Ventricular Diastolic Dysfunction as Assessed by Echocardiography in Metabolic Syndrome

To the Editor:

We thank Dr. Song for his attention to our article (1). Song correctly notes that mitral annulus velocity determined by tissue Doppler imaging (TDI) is superior for detecting mild left ventricular (LV) diastolic dysfunction in the earlier stages of metabolic syndrome, in which the conventional mitral Doppler indexes are normal. However, even the conventional mitral Doppler indexes were able to detect diastolic dysfunction in the metabolic syndrome cases in our study. This may be because our subjects included few patients with early-stage metabolic syndrome. However, it may not be appropriate to extrapolate our results to patients with early-stage metabolic syndrome.

Song also mentions that the mitral annulus velocity determined by TDI is a more useful tool for identifying LV diastolic dysfunction in patients with pseudonormalization of LV diastolic inflow patterns. However, we would point out that the subjects in our study included no patients with pseudonormalization of LV diastolic inflow patterns, as the E/A ratios in all patients were less than 1.0. Therefore, we were able to identify LV diastolic dysfunction by LV diastolic inflow patterns. In addition, we would like to emphasize that the Tei (myocardial performance) index was also able to detect LV dysfunction in our study. In conclusion, we were able to identify the LV diastolic dysfunction in metabolic syndrome patients using the conventional mitral Doppler indexes because the patients in our study included neither mild nor severe LV diastolic dysfunction. Early-stage metabolic syndrome cases and those with pseudonormalization of LV inflow patterns will have to be assessed in separate studies.

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1. Masugata H, Senda S, Goda F, *et al*: Left ventricular diastolic dysfunction as assessed by echocardiography in metabolic syndrome. *Hypertens Res* 2006; **29**: 897–903.