Letter

Korean Diabetes J 2010;34:135-136
doi: 10.4093/kdj.2010.34.2.135
pISSN 1976-9180 · eISSN 2093-2650

kdj
KOREAN DIABETES JOURNAL

Risk Factors Associated with Left Ventricular Diastolic Dysfunction in Type 2 Diabetic Patients without Hypertension (*Korean Diabetes J* 2010;34:40-6)

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To the Editor: We read with interest the study by Noh et al., which demonstrated that the duration of diabetes could be a marker for left ventricular (LV) diastolic dysfunction, independent of other diastolic dysfunction-related variables in type 2 diabetic patients without hypertension or ischemic heart disease [1].

Diabetic cardiomyopathy is diabetes-associated changes in the structure and function of the myocardium that are not directly attributable to other confounding factors, such as coronary artery disease. It is characterized by a latent subclinical period, during which there is evidence of diastolic dysfunction and left ventricular hypertrophy before overt clinical deterioration and systolic failure ensue [2].

Noh's study demonstrated that diabetes duration is an independent risk factor of LV diastolic dysfunction in a Korean population with type 2 diabetes.

Noh's study included type 2 diabetic patients with normal ECG and without history of ischemic heart disease. However, many diabetic patients have asymptomatic coronary heart disease. Thus, screening patients with only past medical history and normal resting ECG could limit the value of excluding patients with ischemic heart disease. Incorporating exercise testing into patient selection could provide more ideal study subjects [3].

Previous studies reported that LV diastolic dysfunction in diabetic patients is also associated with hyperglycemia, duration of diabetes, insulin resistance, and obesity [2,4]. Noh's study showed that higher body mass index and longer duration of diabetes were associated with LV diastolic dysfunction in patients with type 2 diabetes. These findings were consistent with the previous reports. Diastolic dysfunction is believed to be the earliest functional change in diabetic cardiomyopathy and is closely correlated with glycated haemoglobin [4]. Hyperglycaemic patients demonstrate an 8% increase in the risk of developing heart failure with every 1% elevation of glycosylated hemoglobin [4]. However, in authors' study, there was no significant difference in the level of HbA1c between the two groups. The small number of study subjects is one possible explanation for the negative result. Another is relatively poor glycemic control in both groups. Comparison of LV diastolic dysfunction between patients with good glycemic control (HbA1C < 7%) and patients with poor glycemic control (HbA1C ≥ 7%) is necessary to examine the association of glycemic control and LV diastolic dysfunction.

Echocardiography was used as a tool to diagnos LV dysfunction. A recent study showed that asymptomatic diabetic patients, even with normal resting LV dimensions and function, experience exercise-induced delayed onset of LV relaxation [5]. Although the predictive value of echocardiography for LV dysfunction is good, it might have not ruled out LV dysfunction completely. Therefore, stress tests, such as treadmill or dobutamine stress echocardiography, could detect

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more patients with LV dysfunction.

Increased LV mass is an independent risk factor for heart failure in type 2 diabetes, and may contribute to reduced myocardial compliance [6,7]. Thus, it would be more interesting to mention the association between LV mass and heart failure in the authors' study.

Considering the high prevalence and significant morbidity and mortality of heart failure in patients with type 2 diabetes, the evaluation of cardiac function in asymptomatic diabetic patients is very important to detect and prevent heart failure.

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