COMMENT ON VENSKUTONYTE ET AL.

Longitudinal Development of Left Ventricular Diastolic Dysfunction in Patients With Type 2 Diabetes. Diabetes Care 2014;37:3092–3097

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We read with interest the results of the Diabetes Mellitus and Diastolic Dysfunction (DADD) Follow-Up (DADD-FU) study by Venskutonyte et al. (1), which concluded that the prevalence of left ventricular diastolic dysfunction (LVDD) was low and that LVDD improved or remained stable over a 6-year period. We suggest these results may not be generalizable to all patients with diabetes, particularly as those studied were free of clinically detectable cardiovascular disease and 52% were on diet or no treatment for diabetes; among the exclusions were insulin use, blood pressure >160/95 mmHg, and renal impairment. The DADD-FU study comprised two separate groups—those with LVDD enrolled in the original DADD trial (n = 41) and those excluded from the DADD trial because no LVDD was present at baseline (n = 54). Figure 1 of the article shows that 22 of the 95 patients invited to the DADD-FU study were excluded (death, n = 2; no diabetes, n = 3; arrhythmias, n = 7; declined, n = 3; no contact, n = 4; low image quality, n = 3) (1). From the data provided in Fig. 2, the majority of those excluded (n = 18) were from the LVDD group, with only 4/54 of those with no LVDD excluded (1). Therefore, the prevalence of LVDD in the complete cohort is 43% (41/95) rather than 32% (23/73). As 44% of the LVDD group was not included in the follow-up study, it is not possible to state with certainty that LVDD remained stable or improved over time without further information in these patients.

The prevalence of LVDD varies considerably depending on the definition of LVDD and the characteristics of the patients recruited. We previously reported in outpatients with diabetes that LVDD was present in 59% of those with type 2 diabetes (n = 229) (2) and 20% of those with type 1 diabetes (n = 136) (3); we excluded only those with a clinically indicated echocardiogram. In the Action in Diabetes and Vascular Disease: Preterax and Diamicron MR Controlled Evaluation (ADVANCE) Echocardiography Substudy (n = 555) in type 2 diabetes, LVDD was present in 98% at baseline and worsened over a 4-year period despite better blood pressure control and a reduction in left ventricular mass (4). In patients with type 1 diabetes, one in five with a normal first study developed an abnormal second study, mainly LVDD over a mean follow-up period of 4 years (3).

Relatively little is known about the natural history or the consequences of LVDD in patients with diabetes. A retrospective analysis in patients with a clinically indicated echocardiograms reported that LVDD was associated with the subsequent development of heart failure and increased mortality (5), but information on glycemic control, diabetes complications, drugs, or even the type of diabetes was not available. Carefully conducted prospective outcome studies of silent or asymptomatic LVDD in "real-world" patients with diabetes are now warranted. Patients with diabetes are routinely screened for early kidney disease and appropriate therapy commenced. Identifying the optimal risk factors and/or biomarkers of LVDD may allow targeted intervention at an early stage and more aggressive management that would ultimately prevent progression of disease and may reduce hospitalizations with heart failure and cardiovascular deaths in patients with diabetes.

Duality of Interest. No potential conflicts of interest relevant to this article were reported.

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