Signs of Early Myocardial Injury Seen in Gestational Diabetes

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Key Takeaways

- Advancing gestational diabetes mellitus (GDM) might promote adverse myocardial remodeling.
- In women with GDM, left ventricular (LV) relaxation might be impaired and LV filling pressure might be increased.
- LV global longitudinal strain (LV-GLS), measured with 2D-speckle tracking echocardiography (2D-STE), is a marker for early LV systolic myocardial deformation in women with GDM.
- Left atrial conduit strain might be the best 2D-STE parameter for early identification of LV diastolic dysfunction in GDM.
- 2D-STE was more sensitive in revealing cardiomyopathy than conventional 2D echocardiography.

Why This Matters

- Diabetes mellitus is a known risk factor for future CV events, and as GDM is a common complication of pregnancy, a more sensitive method to diagnose and monitor latent cardiac dysfunction could help to prevent later maternal and fetal complications.

Study Design

- Women with a singleton pregnancy — 47 with GDM and 62 without GDM, who served as control subjects — underwent transthoracic echocardiography at one center in China.
- 2D-STE and conventional echocardiography were performed on each subject. LV-GLS and left atrial (LA) phasic strain were assessed offline.

Key Results

- The mean LV-GLS of patients with GDM was lower than in the control subjects (18.14 vs 22.36; $P < .001$), but average left-ventricular ejection fractions were similar in the two groups.
- In univariate analysis, body mass index (BMI), systolic and diastolic blood pressure (BP), relative wall thickness (RWT), left ventricular mass index (LVMI), mean early diastolic annular velocity, LV-GLS, LA reservoir strain (LA-Sr), and LA conduit strain (LA-Scd) were associated with GDM.
- LV-GLS was independently associated with GDM in a multivariate model adjusted for BP, BMI, RWT, and LVMI (odds ratio [OR], 0.439; 95% CI, 0.320 - 0.603; $P < .001$).
- LA-Scd was independently associated with GDM in a different model adjusted for BP, RWT, LA-Sr, and early diastolic annular velocity (OR, 0.874; 95% CI, 0.802 - 0.952; $P = .002$).

Limitations

- The sample was small and from a single center.
- Software methodology was limited in the absence of an analysis package of LA strain.

- No follow-up outcomes information on the women with GDM was available.

Study Disclosures

- The authors declare that there are no conflicts of interest.
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This is a summary of a preprint research study, Two-Dimensional Speckle Tracking Echocardiography in Assessing the Subclinical Myocardial Dysfunction in Patients With Gestational Diabetes Mellitus , written by Zhenzhen Wang and colleagues from Zhejiang Provincial People's Hospital, Zheziang, and the Second Affiliated Hospital of Harbin Medical University, Harbin, China, on ResearchSquare.com provided to you by Medscape. This study has not yet been peer reviewed. The full text of the study can be found on ResearchSquare.com.

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