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Quantitative evaluation of longitudinal strain in layer-specific myocardium in patients with preeclampsia

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Aim: Preeclampsia (PE) remains a main cause of maternal morbidity and mortality during pregnancy. Vascular spasm and ischemic damage play the primary role in the presentation of PE. The aim of this study was to assess the longitudinal strain (LS) in each of the three myocardial layers in patients with PE using the layer-specific strain.

Methods: Forty-five PE women and 41 normotensive pregnant women were included. Layer-specific LS were assessed in endocardium, mid-myocardium, and epicardium by 2-dimensional (2D) speckle-tracking echocardiography (STE).

Results: Compared to the control subjects, the LS of all the three analyzed myocardial layers showed a significant decline in PE patients and the greatest decrease of LS occurred in the endocardium. Considering a layer-specific analysis of myocardial deformation, there is a continuous reduced tendency from endocardia to mid-myocardial and epicardial layers in PE cases.

Conclusions: All three myocardial layers were impaired in PE cases and the most prominent decrease in myocardial function occurred in the endocardial layer. Layer-specific analysis of myocardial function performed by novel 2D STE might increase diagnostic accuracy of myocardial performance in PE patients.

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