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Tissue Doppler Imaging of S Wave in Mitral Valve Prolapse Syndrome

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Dear Editor

Mitral valve prolapse (MVP) syndrome refers to the combination of various symptoms and clinical findings associated with MVP (1). Mitral tissue Doppler imaging (TDI) represents the left ventricular (LV) systolic function. It is a good surrogate for diastolic function and can overcome the limitation of the mitral inflow, which is highly dependent on the left atrial (LA) volume (2).

In this article, Alizadehasl A et al. (3) demonstrated that the Sm wave was prominent in the MVP group compared to the normal control group. Moreover, Em was lower and Am showed a higher tendency. An increased E/Em implies elevated LA volume and LV end-diastolic pressure. Taken together with these findings, all of the other TDI findings in this investigation consistently indicated diastolic dysfunction in the patients with the MVP syndrome.

Diastolic dysfunction in the MVP syndrome is well understood by increased rigidity and a decreased ability for relaxation because of increased preload, positive sympathetic feedback, and a higher proportion of fibrin in the myocardium (4). With respect to the high Sm wave, the myocardial hypermobility appeared to be a result of increased sympathetic nervous system activity and increased blood volume due to the mitral regurgitation flow. In addition, decreased coronary blood flow and structural disarray near the MVP site resulted in a decreased response to exercise compared to that in the normal subjects.

However, the major focus of this investigation is the correlation between TDI and MVP. Is there a correlation between the prolapsed site and the lateral Sm wave, or does the degree of prolapse and mitral regurgitation impact the Sm wave? According to a previous investigation, high spike systolic velocity was selectively seen on the posterolateral mitral annulus, which has low resistance compared with the anteroseptal mitral annulus interacting with the right ventricle (5). Correlation between the prolapsed site and the degree of mitral prolapse and a prominent Sm wave has never been investigated. Moreover, the clinical implication of the prominent Sm wave observed in patients with MVP has never been studied from the aspect of a further treatment strategy and prognosis. Based on the observations in this article, future investigations providing further perspectives on the issues are warranted.

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