

A Mexican Standoff: Mitral stenosis, mitral balloon valvuloplasty, Tp-e interval, Tp-e/QT and Tp-e/QTc ratios and sympathetic activity

To the Editor,

I have read with great interest the study entitled, "Evaluation of Tp-e Interval, Tp-e/QT Ratio and Tp-e/QTc Ratio in Patients with Mitral Valve Stenosis Before and After Balloon Valvuloplasty" (1). The authors demonstrated that Tp-e interval and Tp-e/QT and Tp-e/QTc ratios were prolonged in patients with mitral stenosis compared with healthy subjects and these parameters were favorably affected by percutaneous mitral balloon valvuloplasty (PMBV) even 24 h after the procedure. In addition, they affirmed that the link between ventricular repolarization abnormality, mitral stenosis, and effects of PMBV was sympathetic activation. Improvement seen in these arrhythmic markers in such short time and limited number of patients is striking and may be debatable. Similar to the present study, Özdemir et al. (2) showed that heart rate variability indices improved 1 day after PMBV. However, in another study, Ashino et al. (3) showed a reduction in sympathetic activity measured by muscle sympathetic activity in patients with mitral stenosis at 1 week after PMBV. Similarly, Yuasa et al. (4) demonstrated that muscle sympathetic nerve activity attenuated and cardiopulmonary baroreflex sensitivity improved 1 week after PMBV in patients with mitral stenosis. In the studies in which sympathetic activity is evaluated 1 week after PMBV, significant changes in electrocardiographic parameters just 1 day after PMBV seem to be too early. I believe that it would be more accurate and valuable if a sympathetic activity marker is measured and analyzed to determine significant correlations with electro- and echocardiographic parameters before and after the procedure.

In conclusion, this study can be a source of inspiration for further research in patients with aortic stenosis treated with transcatheter aortic valve implantation and hypertrophic cardiomyopathy treated with septal ablation because of similar mechanisms.

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Author's Reply

To the Editor,

First, we would like to thank you for your interest in our article entitled, "Evaluation of Tp-e Interval, Tp-e/QT Ratio and Tp-e/QTc Ratio in Patients with Mitral Valve Stenosis Before and After Balloon Valvuloplasty" (1).

It has been demonstrated that sympathetic nervous system activation increases the Tp-e interval, and this increase immediately develops after stimulation (2). Previous studies have shown that sympathetic activity in patients with mitral stenosis (MS) reduced by balloon valvuloplasty after 1 week (3, 4). Moreover, it has been shown that the effects of reduction in sympathetic activity after balloon valvuloplasty occur much earlier. Özdemir et al. (5) showed significant improvement in heart rate variability parameters 1 day after balloon valvuloplasty in their study. The investigators attributed these results to reduced sympathetic activity and increased parasympathetic activity after balloon valvuloplasty. Similarly, our study showed that there was a significant reduction in Tp-e interval 1 day after balloon valvuloplasty in patients with severe MS. The reduction in sympathetic activity after balloon valvuloplasty in such a short time, such as 1 day, and the important parameters of ventricular repolarization are the distinctive results of our study.

As noted, our study could be more valuable if the sympathetic biomarker level was observed and correlated with the other parameters. Only those who had a sinus rhythm and did not have any additional cardiovascular disease were included in the study. Therefore, the number of patients in our study was relatively low. However, the analyses were performed after power analysis of the group sample sizes.

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