Three-dimensional transoesophageal echocardiography for the assessment of clip attachment to the leaflets in percutaneous edge-to-edge repair of the mitral valve.

Abstract:
Single leaflet clip attachment (SLA) is a prevalent complication in percutaneous edge-to-edge repair of the mitral valve, leading to the recurrence of significant mitral regurgitation. The objective of this retrospective analysis was to evaluate a novel 3-D transoesophageal echocardiographic method for the assessment of clip attachment to the mitral leaflets. We analysed a total of 87 patients treated for symptomatic mitral regurgitation. In 47 patients, clip attachment to the leaflets was assessed by conventional 2-D transoesophageal echocardiography supported by biplane TEE images (biplane TEE group). In 40 patients, clip attachment to the leaflets was assessed by the intraprocedural 3-D volume method in addition to the conventional method (volumetric TEE group). The primary endpoint was defined as clip complications consisting of SLA and clip displacement at any time after clip implantation. Clip complications occurred in nine patients (19.1%) in the biplane TEE group and in two patients (5%) in the volumetric TEE group (p=0.06). Regarding the grade of mitral regurgitation, in the follow-up period we observed a more pronounced deterioration in the biplane TEE group than in the
These findings suggest that the additional use of 3-D volumetric transoesophageal echocardiography for the assessment of clip attachment to the mitral leaflets may contribute to a reduced rate of subsequent clip complications.