TWISTING MOTION ESTIMATED BY 3D SPECKLE-TRACKING STRAIN ACUTELEY ONSET AFTER STEMI PREDICTS INFARCT SIZE AND LV REMODELING

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Background: 3D speckle tracking echocardiography (3D tracking) is a novel promising tool and it can assess twist motion accurately.

Methods: The study included 80 consecutive patients (65 men, 65 years, maxCPK=3123±3977 IU/l) presenting with a first STEMI who underwent primary PCI within 12 hours of onset. Within 24 h of PCI, 2D and 3D speckle tracking echocardiography were performed by iE33 and Q-lab ver 8.1 (CMQ, Philips) and 4D LV-Analysis (TOM-TEC, Germany). Final infarct size was defined using Tc99m-sestamibi as the total area of <50% uptake area at 2 weeks. Echo was repeated 12 months later and LV remodeling was defined as an absolute increase in LVEDV of 20%.

Results: Both twist and torsion estimated by 3D speckle tracing echo had significant relationships with infarct size (r=0.42, 0.40, p=0.01, respectively). Furthermore, they could predict LV remodeling at 12 months (Twist: Odds ratio=1.103, 95%CI 1.012-1.345, p<0.05, Torsion: Odds ratio=1.097, 95%CI 1.009-1.278, p<0.05).

Conclusion: In patients with a first STEMI, decreased LV twisting motion assessed by 3D speckle tracking echocardiography immediately after PCI was associated with final infarct size and can predict LV remodeling at 12 months.