Transesophageal Echocardiography

Tissue doppler imaging of left atrial appendage during transoesophageal echocardiography predicts successful cardioversion in patients with atrial fibrillation

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Introduction: Restoration of sinus rhythm in patients with atrial fibrillation (AF) prevents from thromboembolic events, decreases the risk for cardiomyopathy and improves quality of life.

Purpose: This study aimed to determine whether Tissue Doppler Imaging (TDI) during transesophageal echo (TEE) could predict successful electrical cardioversion (CV) of AF lasting more than 48 hours but less than 6 months.

Methods: One hundred patients, 74 men and 26 women of mean age 64.7 ± 9.8 years old with non-valvular AF were included. Pulse wave (PW) Doppler velocities as well as TDI velocities of the medial and lateral walls of the left atrial appendage (LAA) were recorded during TEE before cardioversion. Synchronized electrical cardioversion was occurred within 12 hours after TEE using 100-200 Joules. We also evaluated LA size and the global strain of LAA.

Results: Sinus rhythm restoration was succeeded in 80% of patients and maintained until discharge, 48 hours later. TDI velocities > 8cm/s were correlated with successful cardioversion (sensitivity 70% and specificity 63%) and were more predictive compared to PW Doppler velocities of > 40cm/s. TDI recordings at the medial LAA wall were more accurate, with less artefacts and better positioning of the sample volume. Global longitudinal strain was not significantly correlated with CV outcome.

Conclusion: Our results indicate that TDI velocities of the LAA walls more than 8cm/s could be used as a cut-off value predicting successful cardioversion of AF.