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Trans-esophageal echocardiogram (TEE) is a gold standard test for diagnosis of left atrial (LA) appendage function

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Background : Trans-esophageal echocardiogram (TEE) is a gold standard test for diagnosis of left atrial (LA) appendage function.

Aim : To evaluate left atrial appendage (LAA) dysfunction using tissue Doppler mitral annular systolic velocity in acute embolic stroke young patients with sinus rhythm.

Methods : Transthoracic (TTE) and transesophageal echocardiography (TEE) were performed in 70 consecutive patients with sinus rhythm without obvious left ventricular dysfunction within 2 weeks after embolic stroke. Two groups were identified: LAA dysfunction [LAA emptying peak flow velocity (LAA-eV) <0.55 m/s, $n = 28$, age 52 ± 11 years] and without LAA dysfunction (LAA-eV ≥ 0.55 m/s, $n = 42$, age 54 ± 10 years) on TEE. Tissue Doppler mitral annular systolic velocity was obtained in apical four chambers view on TTE and D-dimer level estimated for all patients.

Results : Patients with LAA dysfunction (LAA-eV < 0.55) had significantly greater E/A ratio LAEF%, D-dimer and LAVI values compared to those without LAA dysfunction (LAA-eV ≥ 0.55). Sm was significantly lower in patients with than in those without LAA dysfunction ($P < 0.0001$). There were no significant differences in Simpson LVEF% between patients with or without LAA dysfunction. There was a significant correlation between Sm, LAVI, LAEF%, E/A ratio and LAA-eV in all selected patients groups. The optimum cut-off value of Sm for predicting LAA dysfunction was determined by ROC curve analysis; Sm below or equal 8 cm/sec had a sensitivity of 89.6% and a specificity of 94.2%.

Conclusion : Tissue Doppler mitral annular systolic velocity is an independent non-invasive easy predictor of LAA dysfunction and significantly correlated with LAA-eV ($p < 0.0001$). The optimal cut-off value for Sm < 8 cm/se (sensitivity 89.6 %, specificity 94.2 %) is a useful and convenient strong predictor of LAA dysfunction in acute embolic stroke young patients with sinus rhythm.

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