Prediction of the left atrial appendage function in patients with nonvalvular atrial fibrillation

Akane Kawai  
Hitoshi Mori  
Naganuma Kimura  
Akira Hamabe  
Hirotugu Tabata  
Mitsuki Yamaga  
Daisuke Kawano  
Osawa Takumi  
Shun Akai  
Toyokazu Kimura

Introduction: The decrease of the left atrial appendage (LAA) function is related to thrombus formation, even though patients receive anticoagulant medical therapy. Therefore, an evaluation of the LAA function would be useful before the catheter ablation of atrial fibrillation (AF). The aim of this study was to investigate whether transthoracic echocardiographic (TTE) parameters and clinical parameters can predict the LAA function.

Methods: Two hundred fifty nine patients (age 59.7±33.7; male, n [%], 212 [81.9]; Paf, n [%], 152 [58.7]) underwent transesophageal echocardiography (TEE) before the ablation of AF between January 2016 to April 2019 at our hospital. One hundred seventeen patients had an AF rhythm (AF group) and 142 had sinus rhythm (SR group). The correlation between the clinical parameters, TTE parameters, and LAA flow velocity was evaluated.

Result: The LAA emptying flow had a negative correlation with the age, BNP, LA diameter, E/e', and E wave in both groups (SR group; age, r=-0.3392, p<0.0001; BNP, r=-0.3042, p=0.0002; LA diameter, r=-0.2935, p=0.0005; E/e', r=-0.3117, p<0.0003; E wave velocity, r=-0.1857, p=0.0317) (AF group; age, r=-0.1972, p=0.0331, BNP, r=-0.2186, p=0.0184; LA diameter, r=-0.2948, p=0.0016; E/e', r=-0.3039, p=0.0023; E wave velocity, r=-0.3944, p<0.0001). A multiple regression analysis showed that age had a strong correlation with the LAA function in the SR group and the E wave velocity had a strong correlation in the AF group (SR group, age,β=-0.2820, p=0.0058; AF group, E wave velocity,β=-0.3934, p=0.0017).

Conclusion: Among the elderly patients, the LAA function could decrease even though patients are in SR, thus, TEE would be important for evaluating the LAA function and presence of thrombi before ablation.