Impact of LAATs in Patients With Low CHADS2 Score Prior to Pulmonary Vein Isolation for Atrial Fibrillation: A Single Center Experience of 509 Consecutive Cases Undergoing Transesophageal Echocardiography

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Introduction: The incidence of cerebral infarction (CI) is relatively low in atrial fibrillation (AF) patients with low CHADS2 score under oral anticoagulation. It is reported that the risk factors of CI are high CHADS score and persistent AF, inappropriately reduced anticoagulants, history of congestive heart failure, left ventricular ejection fraction <35-56%, and increased brain natriuretic peptide (BNP) level (>75 pg/ml). However, there is no clear consensus of whether a screening transesophageal echocardiography (TEE) prior to pulmonary vein isolation (PVI) for AF should be performed in every patient. Furthermore, there are few reports their subsequent course of the patients detecting silent left atrial appendage thrombus (LAATs) by TEE prior to PVI.

Methods: In our hospital, 509 cases of PVI were performed on atrial AF patients from Jan.1, 2016 to Jun 28, 2019. Preoperative TEE was performed in all cases. We examined prevalence and risk factors of LAATs prior to PVI, and investigated their subsequent course.

Result: LAATs were detected in 12 (2.4%) of all cases. We decided to cancel PVI for those patients. There was no significant difference in patients with LAATs depending on the type of anticoagulant used prior to PVI (n=12, for Warfarin 0/34 [0%], Dabigatran 2/69 [2.9%], Rivaroxaban 3/132 [2.3%], Apixaban 3/131 [2.3%], Edoxaban 4/131 [3.1%], None 0/15 [0%]), but inappropriate usage was observed in 3 cases. All cases were persistent or long-standing persistent AF and their left atrial appendage blood flow velocity was less than 40 cm/s, however, they were not necessarily cases with prominent enlargement of the left atrial diameter, congestive heart failure, low EF, or high BNP level. In addition, for half of them, their CHADS2 score was less than 1. In 5 of 12 cases (41.7%), we subsequently underwent PVI after thrombus clearance. Among the other cases, in one case (CHADS2 score of 0) there was no disappearance of LAAT, one case (CHADS2 score of 3, HASBLED score of 3) developed CI and 3 cases (CHADS2 score of 0-3, HASBLED score of 0-3) developed digestive tract bleeding. In patients who developed CI, anticoagulants that were previously used were unchanged even after LAAT was detected. In patients who developed digestive tract bleeding, they had some underlying disease in the digestive tract and anticoagulants that were previously used were unchanged even after LAAT was detected.

Conclusion: We require careful attention to the LAATs in persistent or long-standing persistent AF
patients with slow left atrial appendage flow velocity, even if the CHADS2 score is low. If LAATs is
detected in the preoperative TEE, it is necessary to change the anticoagulation therapy while screening
for digestive tract diseases.