A Case of Ischemic Stroke in a Patient with Atrial Fibrillation and Hypertrophic Cardiomyopathy

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ABSTRACT

A 54-year-old woman visited an outpatient clinic for recurrent palpitations. A 12-lead electrocardiogram obtained at the time of the event showed atrial fibrillation with rapid ventricular response. There was no risk factor for thromboembolism, but two-dimensional echocardiography showed typical findings of hypertrophic cardiomyopathy. We administered amiodarone, a beta-blocker, and aspirin. Six months later, the patient developed sudden hemiplegia. Brain magnetic resonance imaging showed multiple embolic infarctions in the middle cerebral artery territory. After conservative treatment and rehabilitation, the patient recovered without sequelae. Anticoagulation therapy with warfarin was continued thereafter.

Key words: atrial fibrillation, hypertrophic cardiomyopathy, stroke

Case

A 54-year-old woman visited an outpatient clinic because of recurrent palpitiation. She did not have a history of any relevant medical illness. A 12-lead electrocardiogram obtained at the time of the event demonstrated atrial fibrillation with rapid ventricular response (Figure 1). The patient did not complain of palpitation at the clinic and the ECG showed normal sinus rhythm. Typical findings of hypertrophic cardiomyopathy were found on performing two-dimensional echocardiography for the evaluation of structural heart disease (Figure 2).

Amiodarone was prescribed for maintaining sinus rhythm and we administered a beta-blocker for the management of hypertrophic cardiomyopathy. The patient had a low CHADS2 score (0 points) and CHA2DS2-VASC score (1 point for female gender); therefore, to prevent cerebral infarction, aspirin therapy was started.

The palpitations markedly reduced after medication and there were no clinical events during follow up. Six months later, however, the patient...
was admitted to the ER for sudden onset hemiplegia. Brain MRI showed multiple embolic infarctions in the temporal and parietal lobes, which are supplied by the middle cerebral artery (Figure 3). Consequently, the patient received anticoagulant therapy and rehabilitation treatment. She was then discharged from hospital without neurologic sequelae. To prevent recurrent cerebral ischemia, the patient continued with warfarin therapy as an outpatient.

**Figure 1.** Twelve-lead electrocardiogram of the clinical event showed atrial fibrillation with rapid ventricular response.

**Figure 2.** Two-dimensional echocardiography showed asymmetric septal thickening that was compatible with hypertrophic cardiomyopathy.
Discussion

Cerebral infarction caused by thromboembolism is the principal clinical problem in patients with atrial fibrillation. Guidelines for anticoagulation therapy should be applied not only to cases of persistent atrial fibrillation, but also to cases of paroxysmal atrial fibrillation. Various risk factors have been proposed for the stratification of embolic risk and the CHADS2 scoring system has been widely used to date. The CHADS2 scoring system is based on a point system, which includes congestive heart failure, hypertension, advanced age, diabetes, and a history of ischemic stroke (2 point). Anticoagulation therapy with warfarin is recommended for patients scoring more than 2 points.1 2 A new scoring system was devised by the European Society of Cardiology in 2010. The new scoring system, CHA2DS2-VASc, proposed the addition of risk factors such as female gender and vascular disease, in addition to the factors in the CHADS2 scoring system.3 These scoring systems are applicable to nonvalvular atrial fibrillation. Patients with mitral stenosis and prosthetic heart valves should undergo anticoagulation with warfarin, irrespective of scoring.

The CHADS2 score of the patient in this case was 0 and the CHA2DS2-VASc score was 1. Aspirin was therefore considered sufficient for the prevention of ischemic stroke. However, the initial evaluation showed typical findings of hypertrophic cardiomyopathy in this patient. In previous studies, a higher incidence of atrial fibrillation was observed in patients with hypertrophic cardiomyopathy than in the normal population1 and patients with atrial fibrillation accompanied by hypertrophic cardiomyopathy had poor clinical outcomes and a higher incidence of cerebral infarction.5

ACC/AHC/ESC guidelines also recommended anticoagulation with warfarin in patients with
hypertrophic cardiomyopathy who developed atrial fibrillation. So consideration for the presence of structural heart disease should precede the application of a scoring system in this present case.

References


