Hypertrophic cardiomyopathy (HCM) is characterized by hypertrophy of the left ventricle with markedly variable clinical manifestations and morphological and hemodynamic abnormalities. The annual HCM mortality rate in referral center populations have been reported to be approximately 2% in adults and 4–6% during childhood and adolescence. However, lower annual mortality rates have been reported in outpatient-based adult populations. The major causes of death in HCM patients are sudden cardiac death, heart failure, and stroke. HCM-related death occurred in 12% of HCM patients over a mean follow-up period of 8 years; 51% of deaths were sudden, 36% were due to progressive heart failure, and 13% were due to stroke associated with atrial fibrillation. Patients with HCM are prone to both atrial and ventricular arrhythmias. It has been reported that ventricular premature beats were present in 88% and non-sustained ventricular tachycardia was present in 31% of HCM patients. Atrial fibrillation (AF) is the most common potentially serious atrial arrhythmia. It has been reported that AF occurred in 20% of patients with HCM (the annual incidence of AF is 2% per year). Recent data have shown a 3-fold increase in the risk of HCM-related deaths in AF patients compared with that in matched controls in sinus rhythm. The increase in HCM-related death in patients with AF is due to: (1) deterioration of cardiac condition by loss of atrial systole, (2) rapid heart rate that resulted in less ventricular filling, causing a greater degree of outflow obstruction, and (3) stroke-related death. Actually, HCM patients with AF showed an 8-fold increase in risk of ischemic stroke compared with that in HCM patients in sinus rhythm.

The authors found that AF is a major determinant for HCM morbidity. Embolic events occurred more frequently in patients with AF than in patients without AF (20% vs 2%). The percentages from their study coincide with the results of a prospective study showing that the incidences of embolic events were 21% in patients with AF and 2.6% in patients without AF, occurring 3.5–3.4 years after AF development. The authors also found that severe heart failure requiring hospitalization occurred more frequently in patients with AF. This is not surprising because the main pathophysiology of HCM is diastolic dysfunction with impaired filling due to abnormal relaxation and increased chamber stiffness. In addition, loss of atrial systole by AF resulted in less ventricular filling.

As to the prevalence of AF in patients with HCM, the authors reported that 74 patients (28%) had paroxysmal or chronic AF at registration. The prevalence of AF in this study is higher than previously reported prevalences of around 20%. The higher prevalence of AF in HCM patients in this study is probably due to the fact that age was more advanced than that previously reported and the fact that data were collected from non-referral hospitals. This study also clearly showed the impact of age on AF: the prevalence of AF increased proportionally with advance of age. As to the difference between referral and non-referral hospitals, it has been reported that the prevalence of AF is higher in non-referral centers than in referral centers.

The authors also studied the determinants of AF in patients with HCM and found that patients with AF were older and had larger left atrial diameter, and lower fractional shortening and larger LV end-diastolic diameter, compared to those in patients without AF. This study also reconfirmed that there is no relationship between the presence of an outflow tract obstruction and the occurrence of AF as previously reported.

This paper provides important information on patients with HCM, because there have been only a few studies on clinical features of HCM in a community-based and unselected patient cohort in Japan. This paper also shows that AF is the major determinant of morbidity in HCM patients. As this is a retrospective study based on baseline characteristics at registration in a regional Japanese population (Kochi RYOMA Study), we look forward to the results of follow-up data in the Kochi RYOMA Study. The prospective follow-up study should answer several questions regard-
HCM: (1) Is atrial fibrillation really a major risk factor for morbidity and mortality or just a marker of more advanced disease in HCM?, and (2) Does treatment of AF improve prognosis and morbidity in patients with HCM?

References