Summary

The Characteristics of Myocardial Fatty Acid Metabolism in Patients with Left Ventricular Hypertrophy

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We evaluated the characteristics of myocardial fatty acid metabolism in patients with left ventricular hypertrophy (LVH). Myocardial imaging with ¹²³I-betamethyl iodophenyl pentadecanoic acid (BMIPP) was performed in 28 patients with hypertrophic cardiomyopathy (HCM), 15 patients with hypertensive heart disease (HHD), 13 patients with aortic stenosis (AS) and 8 normal controls (NC). The patients with HCM consisted of 13 patients of asymmetric septal hypertrophy (ASH), 7 patients of diffuse hypertrophy (Diffuse-HCM) and 8 patients of apical hypertrophy (APH). Planar and SPECT images of BMIPP were acquired 15 minutes and 4 hours after tracer injection. Resting ²⁰¹Tl SPECT images and echocardiography were also performed on other days. We calculated heart/mediastinum count ratio and washout rate of BMIPP by using planar image. In patients with LVH,

the incidence of reduced BMIPP uptake was more frequent than that of reduced ²⁰¹Tl uptake. In delayed images, more than 60% of patients with LVH reduced BMIPP uptake, especially remarkable for patients with ASH and APH. The washout rate of all cardiac hypertrophic disorders was tended to be higher than that of normal subjects. Reduced BMIPP uptake was frequently found in septal portion of anterior and inferior wall in patients with ASH, in inferior wall in patients with Diffuse-HCM and HHD, in apex in patients with APH and AS. These results suggest that BMIPP scintigraphy can differentiate three types of cardiac hypertrophy.

Key words: Left ventricular hypertrophy, Disturbed myocardial fatty acid metabolism, ¹²³I-betamethyl iodophenyl pentadecanoic acid (¹²³I-BMIPP), ²⁰¹Tl, Myocardial scintigraphy.