

Myocardial glucose metabolism in patients with hypertrophic cardiomyopathy: Assessment by F-18-FDG PET study

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In an investigation of myocardial metabolic abnormalities in hypertrophic myocardium, the myocardial glucose metabolism was evaluated with F-18-fluorodeoxyglucose (FDG) positron emission tomography (PET) in 32 patients with hypertrophic cardiomyopathy, and the results were compared with those in 9 patients with hypertensive heart disease. F-18-FDG PET study was performed in the fasting and glucose-loading states. The myocardial regional %dose uptake was calculated quantitatively. The average regional %dose uptake in the fasting state in the patients with asymmetric septal hypertrophy and dilated-phase hypertrophic cardiomyopathy was significantly higher than that in the patients with hypertensive heart disease ($0.75 \pm 0.34\%$, $0.65 \pm 0.25\%$, and $0.43 \pm 0.22\%/100$ g myocardium, respectively). In contrast, the average %dose uptake in the glucose-loading state in the patients with asymmetric septal hypertrophy and dilated-phase hypertrophic cardiomyopathy was not significantly different from that in patients with hypertensive heart disease ($1.17 \pm 0.49\%$, $0.80 \pm 0.44\%$ and $0.99 \pm 0.45\%$, respectively). The patients with apical hypertrophy had also low %dose uptake in the fasting state ($0.38 \pm 0.21\%$) as in the hypertensive heart disease patients, so that the characteristics of asymmetric septal hypertrophy and dilated-phase hypertrophic cardiomyopathy are considered to be high FDG uptake throughout the myocardium in the fasting state. Patients with apical hypertrophy are considered to belong to other disease categories metabolically. F-18-FDG PET study is useful in the evaluation of the pathophysiological diagnosis of patients with hypertrophic cardiomyopathy.

Key words: hypertrophic cardiomyopathy, positron emission tomography, glucose metabolism, F-18-FDG (fluorodeoxyglucose)