ORIGINAL ARTICLE

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Abnormal fatty acid metabolism in patients with coronary vasospasm

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Although various noninvasive methods have been used to detect vasospasm, none of them are sensitive enough for patients with sporadic attacks. Since abnormal fatty acid metabolism is observed in ischemic myocardium, ^{123}I-β-methyl-p-iodophenyl pentadecanoic acid (BMIPP), a radiolabeled fatty acid analog, has recently been proposed as a useful tracer for detecting myocardial damage. The aim of this study was to clarify the clinical implications of decreased myocardial BMIPP uptake in patients with vasospastic angina. We evaluated 53 patients with vasospastic angina (32 with clinically documented vasospasm [Group-A] and 21 with vasospasm induced by ergonovine provocation [Group-B]) and 27 control subjects, 20 in Group-A were re-evaluated 6 months after medical treatment. The territorial regions of vasospasm-induced coronary artery, the wall motion by left ventriculography, and BMIPP uptake were compared. Vasospasm was induced in multiple coronary arteries in 29 (55%) patients. Reduced wall motion and decreased BMIPP uptake were observed in 19 (36%) patients and 47 (89%) patients, respectively. The sensitivity and specificity of determination of vasospasm-induced coronary arteries with BMIPP scintigraphy were 71% (69/97 coronary arteries) and 88% (126/143), respectively. Vasospasm was re-induced by ergonovine provocation in 8 patients (Group-I) and not re-induced in 12 (Group-II) after treatment. In Group-I, improvement of decreased BMIPP uptake was lower than in Group-II (19 $\pm$ 11 vs. 59 $\pm$ 22%, mean $\pm$ SD, $p < 0.001$). The regions in which vasospasm was re-provoked exhibited decreased BMIPP uptake.

Abnormal fatty acid metabolism was more often observed than wall motion abnormality in the vasospastic region in patients with vasospastic angina. BMIPP scintigraphy is a highly accurate and non-invasive technique for determining the presence and location of vasospasm.

Key words: ^{123}I-β-methyl-p-iodophenyl pentadecanoic acid (BMIPP) scintigraphy, fatty acids, vasospasm, myocardial stunning