Noninvasive Diagnosis of Restenosis by Transhoracic Doppler Echocardiography After Percutaneous Coronary Intervention: Comparison With 201-TI SPECT
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Background and Purpose: Coronary flow velocity reserve (CFVR) determined by transthoracic Doppler echocardiography (TTDE) is useful for the physiologic assessment of coronary artery stenosis. However, feasibility of this method in diagnosing restenosis has not been evaluated, which plays a crucial role in treatment of the patient after PCI. Therefore, the purpose of this study was to diagnose the restenosis after PCI using CFVR measurement by TTDE. Methods: We studied consecutive 53 patients six months after successful PCI for the LAD lesions for relief of stable angina pectoris. The flow velocity in the distal LAD was measured by TTDE both at rest and during intravenous infusion of adenosine. CFVR was calculated as the ratio of hyperemic to baseline mean diastolic flow velocities. A new reversibility criterion was introduced in exercise TT-201 single-photon emission computed tomography (SPECT) as a physiological diagnostic of restenosis. The CFVR measurements by TTDE were compared with the results of SPECT. Results: Complete TTDE data were acquired for 51 of 53 study patients. Contrast agent was used to obtain adequate Doppler signals in 6 patients. There were 9 patients with CFVR<2, 42 patients with CFVR≥2 at baseline and 84% (33/39), Kappe 0.56) at peak stress. Among 33 patients who had completed both methods, standard quad screen display showed abnormal DSE results in 13/33 patients and 21/99 vascular territories. Sensitivity, specificity and diagnostic accuracy of CFVR by TTDE were compared with the results of SPECT. Conclusion: The application of CK was highly feasible during contrast-enhanced DSE and would provide objective assessment of WM. This method may result in a valuable adjunct to conventional visual interpretation of DSE.