DETECTION OF TRANSIENT MYOCARDIAL ISCHEMIA BY THALLIUM SCINTIGRAPHY, ECG CHANGE AND STRESS PAIN IN SINGLE VESSEL CORONARY DISEASE.


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Quantitative analysis of exercise Thallium scintigraphy (ExSG) was compared to ST change and chest pain as the diagnostic adjuncts for myocardial ischemia in 68 patients with single vessel coronary disease and no previous MI. Sensitivity of ExSG for detection of ischemia was higher than ST changes and chest pain; that is, 84%, 64%, and 57% in LAD disease, 75%, 83%, and 58% in RCA disease, and 52%, 64%, and 45% in LCX disease, respectively. In LAD disease, complete early RD was observed about two minutes after exercise, while in SVD early RD was higher in SVD compared to DVD and TVD. And diffuse slow washout was calculated early RD was higher in SVD compared to DVD and TVD. In the early RD cases of AP, coronary stenosis showed mild and collateral was not correlated, however, in the complete or incomplete RD of MI, coronary stenosis showed severe (>90%) and the incidence of collateral was higher compared to no RD cases. In conclusion, early RD was observed about 20% of coronary artery disease and the time to complete RD was closely related to the severity of coronary artery disease.

USEFULNESS OF MYOCARDIAL TI-201 WASHOUT RATE NORMALIZED BY PEAK HEART RATE IN DETECTING CORONARY ARTERY STENOSIS


It has been reported that a decrease in washout rate (WR) of Ti-201 from myocardium was sensitive but not specific index to detect coronary artery stenosis (CAS) because a decrease in WR was sometimes observed in normals (NL). In this study, to improve the specificity in detecting CAS with WR, segmental WR were calculated from ST changes and ventriculographic findings. The WR of 114 segments in 38 cases with CAS, in which 81 segments were perfused by stenotic vessels, were calculated to evaluate these lower limits of WR in normal. The result showed that a use of predicted lower limit of normal WR normalized by heart rate is useful in detecting CAS.

RELATION OF TIME TO COMPLETE REDISTRIBUTION TO THE SEVERITY OF CORONARY ARTERY DISEASE.


The relation between the severity of coronary artery disease and the time to complete redistribution (RD) was investigated in 66 patients with angina pectoris (AP) (28 SVD, 18 DVD, and 20 TVD) and 104 patients with myocardial infarction (MI) (45 SVD, 36 DVD, and 23 TVD). Stress thallium scan was performed immediately, 30 minutes (early) and 4 hours (delayed) after exercise. Early RD was observed in 15 (23%) of AP and 3 (3%) of MI cases. In both groups, the incidence of early RD was higher in SVD compared to DVD and TVD. And, diffuse slow washout calculated from exercise and RD study disturbed the incidence of early RD in DVD and TVD. In the early RD cases of AP, coronary stenosis showed mild and collateral was not correlated, however, in the complete or incomplete RD of MI, coronary stenosis showed severe (>90%) and the incidence of collateral was higher compared to no RD cases. In conclusion, early RD was observed about 20% of coronary artery disease and the time to complete RD was closely related to the severity of coronary artery disease.

SIGNIFICANCE OF EXERCISE INDUCED ST SEGMENT CHANGES IN RELATION TO THE RESIDUAL MYOCARDIUM WITHIN THE INFARCT AREA.


We compared ST changes during exercise with exercise-3hr delayed TI-201 scintigraphic, coronary arteriographic and left ventriculographic findings in 32 patients with MI. The presence of wall motion abnormality without significant stenosis in other coronary arteries. TI-201 images were evaluated by the following parameters: redistribution score (RS) was obtained from the area between exercise and 3hr-circumferential profiles; washout rate (WOR) in the infarct area was obtained using ROI method. Results were as follows; (1) of 9 pts without ST changes, only 2(22%) had abnormal RS and none had abnormal WOR and collateral vessels supplying to the infarct area. (2) of 13 pts with ST depression, all had collateral vessels, 11(85%) had abnormal RS and 10(77%) had abnormal WOR. (3) of 10 pts with ST elevation, 6(60%) had abnormal RS and 4(40%) had abnormal WOR. 4(40%) of 6 pts with normal WOR and 2(50%) of 4 pts with abnormal WOR had dyskinesia or aneurysm at resting left ventriculography. These data suggest that ST depression means the transient ischemia and ST elevation means the transient ischemia and/or advanced wall motion abnormality. The presence of collateral vessels indicates the presence of viable but jeopardized myocardium in the infarct area.