

Summary

Non-Invasive Assessment of Coronary Microvascular Function in Patients with Syndrome X Using Exercise and Rest Myocardial SPECT with ^{99m}Tc -Tetrofosmin

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The purpose of this study was to evaluate impaired coronary microvascular function in Syndrome X (Sx) by measuring % uptake increase in myocardial counts. Global and regional myocardial uptake was determined with ^{99m}Tc -tetrofosmin and a 4-hour exercise (370 MBq iv) and rest (740 MBq iv) protocol, in 11 patients with anginal syndrome and normal coronary arteriograms (Sx) and in 10 control subjects (C). The parameter of % uptake increase (ΔMTU) was calculated as the ratio of exercise counts to rest myocardial counts with correction of myocardial uptake for dose administered and physical decay between the exercise study and the rest study. Global ΔMTU was significantly lower in Sx than C ($12.9 \pm 5.4\%$ vs. $22.3 \pm$

10.8% , $p < 0.05$). Regional ΔMTU in each of 4 left ventricular regions (anterior, septal, inferior, posterolateral) was significantly lower in Sx than in C ($p < 0.05$), except for the inferior region. However, there were no significant differences between ΔMTU in the 4 left ventricular regions in the same group. None of the patients with Sx exhibited an ischemic pattern in the ST-segment/heart rate loop. ΔMTU was useful as a non-invasive means of evaluating impaired coronary microvascular function in Sx.

Key words: Syndrome X, Coronary flow reserve, ^{99m}Tc -tetrofosmin, SPECT, ST-segment/heart rate loop.