

Impaired coronary microvascular function in diabetics

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Global and regional myocardial uptake was determined with technetium-99m tetrofosmin and a 4 hour exercise (370 MBq iv) and rest (740 MBq iv) protocol, in 24 patients with non-insulin dependent diabetes mellitus and in 22 control subjects. The purpose of this study was to evaluate impaired coronary microvascular function in diabetics by measurement of % uptake increase in myocardial counts. The parameter of % uptake increase (Δ MTU) 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 Δ MTU was significantly lower in the diabetics than in control subjects ($14.4 \pm 5.4\%$ vs. $21.7 \pm 8.5\%$, $p < 0.01$). Regional Δ MTU in each of 4 left ventricular regions (anterior, septal, inferior, posterolateral) was significantly lower in the diabetic group than in the control group ($p < 0.01$) respectively, but there were no significant differences between Δ MTU in the 4 left ventricular regions in the same group. Δ MTU was useful as a non-invasive means of evaluating impaired coronary microvascular function in diabetics.

Key words: diabetes mellitus, coronary flow reserve, tetrofosmin, coronary microcirculation, SPECT