

photogram of anterior view during 5 to 10 minutes after the injection. MBF/CO(%) was calculated by ratio of the myocardial uptake to the activity of total injected dose. The mean value of MBF/CO (%) was 3.35% in normals, 3.02% in myocardial infarction and 3.10% in angina pectoris, respectively. There was no significant difference between three groups. Cardiac output(CO) by a dye-dilution method was measured, and myocardial blood flow (MBF) was calculated by the following formula;

$MBF = MBF/CO(\%) \times CO$. The mean value of

MBF (cc/min/m²) was 95.1 in normals, 92.0 in myocardial infarction and 77.3 in angina pectoris, respectively. No significant difference were found between three groups, too. However, in 7 of 9 patients with low value, the findings of ST depression in ECG by Master's test or the experience of congestive heart failure were observed. It is concluded that the MBF (cc/min/m²) value is more useful than the relative value as MBF/CO (%) for the expression in reserve of coronary blood flow or status of cardiac function.

Measurement of Mass Change of Regional Myocardium by ECG-GATED Thallium SCAN

Kengo MATSUI, Hajime MURATA, Masahiro IIO, Shinichiro KAWAGUCHI,
Hinako TOYAMA, Kazuo CHIBA, Hideo YAMADA and Keiji UEDA
Tokyo Metropolitan Geriatric Hospital

The purpose of the present study is to estimate the mass change of regional ventricular myocardium with cardiac motion.

High temporal resolution ECG gated analysis was performed after intravenous injection of 4mCi of ²⁰¹Tl-chloride to obtain sequential images of left ventricular myocardium during cardiac motion. Using scintillation camera-computer system and LIST mode data acquisition, sequential events at each 40 msec intervals were recorded continuously for 1500 cardiac cycles. On the myocardial image at end-diastolic phase, ROIs with adequate size were placed upon left ventricular free wall, apex and intraventricular septum. Then time activity curves for the three regions were obtained throughout the cardiac cycle

The curve, which indicates the mass change of

regional myocardium with cardiac motion, showed maximum at end-systole and minimum at end-diastole. In hearty control group rate of mass change of apex and septum were larger than that of ventricular free wall. On the other hand, in the group with hyperthyroidism rates of mass changes of the three regions increased respectively compared with those of control group.

However, in this hyperkinetic state change of myocardial mass of free wall remained still lesser than those of apex and septum as were observed in control group. The curves of regional mass change showed several characteristic patterns in various cardiac disorders.

The method proved to be of value for the evaluation of regional myocardial motion and myocardial mass change during cardiac cycle.

Thallium-201 Myocardial Perfusion Imaging at Rest and During Exercise in Patients with Ischemic Heart Disease

Kenji ABE*, Masayuki HAMADA*, Takeshi NAKANO*, Hideo TAKEZAWA*,
Hisato MAEDA**, Tsuyoshi NAKAGAWA** and Nobuo YAMAGUCHI**

**The 1st Department of Internal Medicine, Mie University School of Medicine*

***The Department of Radiology, Mie University School of Medicine*

Myocardial perfusion imaging (MPI) using Thallium-201 injected both at rest and during exer-

cise was compared to stress electrocardiography (ECG) for detection of transient ischemia in 2