control subjects and 16 patients with ischemic heart disease documented by selective coronary arteriography (10 angina, 6 infarction).

Methods; All imagings were performed in the anterior, left anterior oblique and left lateral views using scintillation camera (TOSHIBA GCA-202) with high resolution collimator equipped with computer system (DAP 5000N). A total fo 300,000 counts per image was directly photographed on Polaroid film and stored on magnetic tape. MPI was begun 10 minutes after injection of 2 mCi of Thallium-201 at rest, and apart from at least a week, for exercise study Thallium-201 was injected 2 minutes prior to termination of Masters two-step exercise. Original images were processed with contrast enhancement by 55% cut off (documented by phantom study) after nine point smoothing. Region of interests were selcted on non-ischemic (ROI 1) and ischemic (ROI 2) area by lightpen.

Results; 2 control subjects showed normal images and ROI 2/ROI 1 mean activity ratio did not change both at rest and exercise. 10 patients with angina had normal rest MPI and positive stress MPI. Stress ECGs were all positive. The ratio dropped from 0.82 to 0.67. 6 patients with infarction had abnormal rest MPI and 5 showed positive stress MPI. Stress ECGs were all positive. The ratio changed from 0.64 to 0.51. Thallium-201 MPI was more sensitive and specific for detection of transient ischemic area than stress ECG.

Studies on Coronary Circulation and ^{201}Tl Scintigraphy in Experimental Chronic Myocardial Infarction

Yoshikazu NAGAI*, Yoshinobu KANEKO*, Nobutaka YAOITA*, Sadamichi KIYOMI*, Hajime TAKAHASHI*, Keiji TSUBOUCHI*, Eiko SAKOTA*, Senichiro KANNO*, Ikuhiro YAMASAWA*, Yoshitsugu NOHARA*, Yasuhiro MURAYAMA** and Shyujiro OKAMOTO**
**The Second Department of International Medicine, **The Department of Radiology, Tokyo Medical College Tokyo*

Ten mongrel dogs each weighing 10 to 15 Kg with chronic myocardial infarction caused by ligation of the left anterior descending branch were used in this study of coronary circulation by the fluorescein Na method. The results of ^{201}Tl scintigraphy were studied on correlation with the findings of the fluorescein Na method.

In the heart exercised after one to seven days of coronary ligation, the fluorescein Na in the myocardium was decreased in the ischemic area, especially more marked in the endocardial side of the ischemic myocardium than in the epicardial side. The area of cold imaging in ^{201}Tl scintigraphy is wider than that of the ischemic myocardium by the fluorescein Na method. In this study, ischemic area in ^{201}Tl scintigraphy revealed almost same in width in spite of long period of coronary ligation.

On the other hand, although the coronary artery was ligated for five days, in only one case, the ischemic area of the myocardium shows neither decrease of fluorescein Na nor cold imaging in ^{201}Tl scintigraphy. The reasons for these phenomenons must be studied further.