

the scanned myocardium of HCM was significantly higher than that of healthy subjects, and that of CCM was lower than that of healthy subjects.

In order to examine asymmetric hypertrophy, the ratio of RI count of interventricular septum to the left ventricular wall was obtained. The ratio of HCM was significantly higher than that of CCM and healthy subjects. And no difference in

this ratio was observed between CCM and healthy subjects.

Furthermore, auto-correlation technique was applied for the quantitative evaluation of homogeneity of myocardial RI image. In healthy subjects and HCM, correlograms showed little randomness. But most cases of CCM revealed abundant randomness.

### **Studies of Determination of Ischemic Myocardium by Surface Mapping Method —Using myocardial surface pH measurement and radioisotope detection ( $^{131}\text{I}$ -MAA)—**

K. MURAKAMI et al.

*Dept. of Surgery, Tokyo Medical College*

The purpose of this study was the determination of the extent and size of ischemic myocardium produced by occlusion of experimental left anterior descending coronary artery (LAD).

The myocardial surface pH in nonischemic areas was  $8.05 \pm 0.27$  in average. In the ischemic areas 15 min. after LAD occlusion, myocardial surface pH fell to  $7.58 \pm 0.25$  ( $p=0.01$ ) in average.

The ST segment of ischemic areas 15 min. after occlusion was  $6.25 \pm 2.28$  mV higher than nonischemic areas in average. There was a reasonable coefficient of correlation ( $r=0.767$ ) between myocardial surface pH and ST segment elevation.

The radioisotope ( $^{131}\text{I}$ -MAA, 50–100  $\mu\text{Ci}$ ) was

injected in the both coronary arteries through the balloon catheter after occlusion of LAD. The radioisotopic counting ratio in ischemic areas detected from the myocardial surface was  $35.09 \pm 7.2\%$  ( $p=0.002$ ) of nonischemic areas (100%). The ratio between radioisotope counts and myocardial surface pH was  $r=0.8479$ . This fact correlated well with surface pH and ST segment elevation.

We concluded that the extent and size of an area of ischemic myocardium may be defined by mapping of surface pH measurement and surface radioisotope detection as a traumatic method during surgery for acute myocardial ischemia.