Studies on Cardiac Function with Scintillation Camera
(5th Report)
—Method of Separate Recording of the Right and Left Cardiac RI Dilution Curves, and its Clinical Application—

H. Matsuo, Y. Nimura, A. Kitabatake, Y. Hamanaka and H. Abe
First Department of Medicine, Osaka University Medical School, Osaka

Y. Yamada, Y. Shimizu and H. Kawata
Department of Medicine, Osaka Rosai Hospital, Osaka

Separate recording of RI dilution curves of the right and left ventricle was developed employing a gamma-scintillation camera. The serial changes of radioactivity of 99mTc within the cardiac chambers were recorded on films with time-lapse camera, by means of the technique of PROGRAMMING SCINTIPHOTOCARIOGRAPHY, which permits one to take scintiphotos of the heart at any phase in a cardiac period. The areas corresponded to the right and left ventricle were determined visually on the serial cardiac scintiphotos. Then, the degree of darkness of the ventricular regions on a film, which showed the concentration of radionuclei, was measured by means of a film densitometer frame by frame. These measurements allowed one to delineate time-concentration curves (RI dilution curves) of the both ventricles, separately. From these curves, cardiac output and pulmonary circulation time, as well as pulmonary blood volume could be calculated.

In cases of interventricular septal defect with left to right shunt, the descending slope of the right ventricular curve fell slowly, showing the inflow of the radioactive substance to the right chamber through the defect. In a case of coronary arterio-venous fistula, the another peak appeared on the descending slope of the right ventricular curve following the inflow of blood into right atrium through the fistula. On the other hand, cases of interventricular septal defect with right to left shunt revealed the characteristic change on the left ventricular curve, that is, early rise caused by direct inflow from right ventricle, followed another peak by inflow via pulmonary circulation.

Lung Scanning in Aortitis Syndrome and Others

K. Nakagawa and K. Hisada
Department of Radiology and Nuclear Medicine, Kanazawa University, Kanazawa

Lung scanning should be performed in many diseases, where pulmonary blood flow may be affected directly or indirectly, whether abnormal shadows are present in the chest roentgenograms or not.

Our aim is to show how much lung scan can aid the radiologist in understanding of the function of the pulmonary circulation.

Lung scannings were performed utilizing iodinated macroaggregated albumin (131I-MAA) in patients with aortitis syndrome, sarcoidosis, Wegener's granulomatosis.

Two hundred of 131I-MAA was intravenously.

As “133Xe-rebreathing technique” 3 mCi of