

Comparison Between Radiocardiograms Obtained with Simultaneous Injection of ^{99m}Tc - and ^{131}I -Labelled Human Serum Albumin

M. KINOSHITA*, S. KAWAKITA*, A. ISHIHARA**, M. MOTOMURA** and R. KUSUKAWA**

*The First Division of Internal Medicine Shiga University of Medical Science Faculty of Medicine

**Tenri Hospital

^{99m}Tc -labelled human serum albumin (^{99m}Tc -HSA) has been increasingly applied for nuclear angiocardigraphy. The quantitative analysis of the angiocardigraphy may require ^{99m}Tc -HSA to be stayed in blood pool during measurement.

In order to estimate the in vivo stability of ^{99m}Tc -HSA radiocardiograms were obtained by simultaneous injection of ^{131}I and ^{99m}Tc -HSA with a single scintillation probe and dual pulse height analyzer. ^{99m}Tc -derived blood volumes had 7.5% on the average higher values than ^{131}I -derived ones. The ratio of cardiac output (CO) to blood volume (BV) were found to be lower in ^{99m}Tc study than in ^{131}I one. As a result there

was no significant difference in cardiac output between ^{99m}Tc - and ^{131}I -HSA. However, external counting values for ^{99m}Tc -HSA showed a significantly faster decline, as compared with that for ^{131}I -HSA. Comparison in the pattern of radiocardiogram showed that the ratio of left to right peak count was significantly lower in ^{99m}Tc -radiocardiogram than in ^{131}I -one, indicating more tissue absorption of the radioactivity of ^{99m}Tc .

It was concluded that a significant difference in BV and the pattern of radiocardiogram, and no difference in CO were noted between ^{99m}Tc and ^{131}I -HSA.

ECG Gated High Resolution Analysis of Left Ventricular Pool Images

K. CHIBA, S. KAWAGUCHI, H. TOYAMA, H. MURATA, M. IIO, H. YAMADA,
K. MATSUI and S. YONAMINE

Tokyo Metropolitan Geriatric Hospital

The gated cardiography was performed in 38 cases (9: normal, 4: hyperthyroidism, 11: myocardial infarction, 4: myocardial infarction with congestive heart failure, 10: other cardiac diseases) using R wave trigger of ECG.

1) Contraction pattern. The contours of gated sequential left ventricular images were traced every 80 msec. during systolic & diastolic phases. Normal 4 cases had uniform contraction patterns. The contraction patterns of all myocardial infarctions were non-uniform, showing asynergy corresponding to the infarcted areas. When associated with congestive heart failure (CHF), the enlarged left ventricles were observed. In hyperthyroidism the distance between the contour lines was wider, due to hyperkinesia of left ventricle. The contractive function of myocardiodis showed decrease without non-uniform movement.

2) Ejection fraction of left ventricle. The

relative volume curve was obtained by the counting method of ROI placed over left ventricle. The background was calculated by multiplying total channel numbers of ROI by average counts per channel obtained from the region deduced by subtraction of the left ventricular area of diastole & systole. The ejection fraction of normal cases was 55 to 88%. Hyperthyroidism was normal in the ejection fraction. The myocardial infarction indicated 47% in the mean ejection fraction. When associated with CHF the ejection fraction decreased to 21% in the cases with myocardial infarction. One of two cases with angina pectoris showed normal value, while the other showed 45%. Two cases with myocardiodis showed decreased ejection fraction which were 45 & 53%.

3) Relative volume velocity. The relative volume velocity was obtained by the differentiation of the relative volume curve. The maximum values of the