A scintiphotographic method for measuring myocardial wall
by double tracer method


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This study was aimed to evaluate the noninvasive method of radioisotopic angiography and myocardial scan for detecting a disproportionate thickning of the interventricular septum relative to the left ventricular free wall in the patient with idiopathic hypertrophic cardiomyopathy.

The experimental study was performed to compare the imaged size of myocardial phantom. The myocardial phantom was composed of two concentric glass beakers, the smaller (150 ml) being suspended inside the larger (250 ml).

Positive myocardial image was obtained by filled with $^{201}$Tl in the space between the two vessels. Negative myocardial image was obtained by filled with $^{99m}$Tc in the inner beaker, simulating the cardiac chamber, and then lung phantom filled with $^{99m}$Tc labeled spong was placed beside the cardiac phantom.

The resultant correlation between positive and negative myocardial imaged size was excellent ($r=0.75$).

In the clinical application of this method, a gated cardiac scan was performed after the intravenous administration of $^{201}$Tl or $^{99m}$Tc labeled human serum albumin. The cardiac images were obtained in left anterior obliqued projection, evaluated by visual inspection and semi-quantitatively by tracing the myocardial borders. As a result, the imaged asymmetric septal hypertrophy was evident in all ten patients with PMD, with a ratio of septum to left ventricular free wall of 1.05–1.25 compared to 0.79–0.89 in six patients with left ventricular hypertrophy of known heart disease, and 0.92–0.94 in twenty-two miscellaneous cardiac patients without left ventricular hypertrophy.

Thus, double tracer method provides a safe, repeatable method for detection and evaluation of Primary Myocardial Disease.