systolic & diastolic relative volume velocities were compared in the cardiac diseases. The value of the maximum systolic volume velocity (MSVV) ranged 2.74 to 4.72/sec. with a mean value of 3.76/sec. and the value of the maximum diastolic volume velocity (MDVV) ranged 2.22 to 5.18/sec. with a mean value of 3.64/sec. in normal cases. In hyperthyroidism the values of MSVVwere 4.46 & 4.6/sec., showing the upper limits of normal values, while the values of MDVV were 5.55 & 5.5/sec., resulting in an increase. In myocardial infarction with & without CHF, the values of MSVV ranged 1.22 to 2.69/sec. with a mean value of 2.11/sec. showing decreased values, while the values of MDVV ranged 0.73 to 2.72/sec. with a mean value of 1.87/sec., sowing decreased values.

Three groups, normal, myocardial infarction & hyperthyroidism, could be separated better by this parameter than ejection fraction.

Gated Myocardial Perfusion Scintigraphy

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High temporal resolution EKG gated analysis was performed for the study of left ventricular function. Four mCi of Thallium-201 Chloride was injected intravenously to visualize myocardium. Using 32 KW computer system and LIST mode data aquisition, sequential events during 10 to 50 msec. intervals are continuously recorded for 1500 to 2000 cardiac cycles. Besides 20 to 100 high temporal resolution sequential images of myocardial mass during a cardiac cycle, cyclic changes of muscle volume was obtained.

Thirty two cases including 6 normal control were examined. Gated myocardial perfusion image produced the sequential high temporal change of myocardial muscle volume during each cardiac cycle. By removing the cardiac motion, detection of the ischemic lesion became more clarified. Cyclic change of muscle volume was foumd to occur in the different grade when compared apex, free wall and septal wall. Asynchronous change of muscle contraction was clearly noted in such cases as OMI and PMD.

Out of 32 ^{201}Tl cardiac scan, right ventricle is hardly seen in 18 cases (56%), however 10 cases showed right ventricular accumulation and the rest of 4 cases showed remarkable accumulation indicating considerable thickning of the right ventricle. This 4 cases are consisted by 2 cases of COPP, 1 case of PMD, and OMI.

Out of 16 cases of old myocardial infarction (OMI), 11 cases showed defect in Tl scan indicating the presence of transmural infarction. EKG finding in these 16 cases correspond well in 10 cases. The rest of 6 cases showed discrepancy either due to false positive or false negative reading of EKG and recovery of ischemic region by collateral circulation without accompanying EKG change. Such analysis of left heart function when combined with gated pool scintigraphy have shown considerable promise in the daily diagnostic aid and investigational use.

Clinical Experience of Myocardial Imaging Using ^{201}Tl

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Scintigraphy of the myocardium using ^{201}Tl was performed in 12 patients with myocardial infarction, in 6 patients with angina pectoris, and in 3 patients with primary myocardiopathy.

Images were obtained with a gammacamera (GCA-102) using the high resolution 20000 parallel