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EVALUATION OF MULTI-GATED MYOCARDIAL PERFUSION IMAGING IN VARIOUS HEART DISEASES.

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Multi-gated myocardial perfusion imaging were studied in a hundred cases of various heart diseases to evaluate the dynamic myocardial motion and contractility of cardiac muscles. After intravenous injection of Thallium chloride(4mci), in the LAO position, gated data were acquwired using an Anger camera and on-line minicomputer system. In normal cases, ED ES image showed thinning and thickening of wall motion respectively to compare with static images. From these data, myocardial contraction ratio was generated using the ratio of ROI of ant, inf, post portion. In the myocardial infarction, the dynamic changes of wall motion was decreased at infarcted areas in all cases, moreover, the MCR was lower than non infarcted areas. In congestive cardiomyopathy, the dynamic changes of wall motion is smaller than normal cases in all cases, while in hypertrophic cardiomyopathy, change is not so hyperdynamic to compare with normal cases and by multigated images, asymmetric hypertrophy(ASH) was clearly detected in HCM than static images. In conclusion, These methods would be useful to detect the myocardial contraction stage in various herat diseases.

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MYOCARDIAL THALLIUM-201 IMAGE BY SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY.

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We studied single photon emission computed tomography with Tomogscanner II, and obtained Tl-201 myocardial image.
At rest, Tl-201 was injected I.V. 2-4 mCi, and 10 minuts after, scanning was began from apex to base of the heart. It cost 10-15 minuts/slice and one hour for 4 slice/patient.
In the normal case, the inferior wall was dipicted on the slice of apex. In the midleheart myocardial image was shown to ring shape, and in the left anterior portion, continued to apex, slightly decreased RI accumulation was noted. In the section of cardiac base, myocardial image was shown to horseshoe shape.
In the patients of myocardial infarction, the lesion was shown more clearly and more sensitive than conventional rest myocardial scanning.
On the future, ECG gated myocardial sectional image will be demanded for routine study.

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THE EVALUATION OF VENTRICULAR OVERLOADING BY TL-201 MYOCARDIAL SCINTIGRAPHY---COMPARISON OF PRE-AND POST-OPERATIVE IMAGINGS.

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In order to determine whether the morphological abnormalities of left (LV) or right ventricle (RV) caused by chronic overloading regress rapidly after removal of the overloading, pre-and post-operative (4 to 60 days) Tl-201 myocardial scintigraphy were obtained in 31 patients. The decrement of transverse diameter (D) of LV was demonstrated in 8 of 9 patients with LV overloading in whom hemodynamic improvements were recognized. Similarly, RVD was consistently decreased after repair of atrial septal defect in 6 patients. However, no significant change in RV free wall vesualization was shown in all patients.

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MYOCARDIAL IMAGING WITH Tc-99m-PYP OR Tl-201 -Cl AFTER REPERFUSION OF EXPERIMENTAL CORONARY OCCLUSION.

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Forty-eight mongrel dogs were used. Twenty-one of them had coronary occlusion (A group) and the rest had reperfusion after coronary occlusion (B group). After the removal of the heart, myocardial imaging with Tc-99m-PYP (Tc) or with Tl-201-Cl (Tl) was performed in addition to histopathological exams. Within 7 days' occlusion, Imaging with Tc in the ischemic myocardium (IM) could be clearly observed but after then it became increasingly harder to distinguish the IM from the healthy one. In reperfusion after 40 mins' occlusion, the uptake of Tc in the IM began to appear and also the period during which the IM could be detected with Tc observed to be longer than in the A group. Histopathologically, within 7 days occlusion, the influx of Tc was observable because early degeneration of the IM had occured and after then, both degree and extent of fibrosis of the IM had spread. In the A group, imaging with Tl could be clearly observed in all cases. In reperfusion with 6 hrs' occlusion, imaging with Tl showed no cold area of the IM.but in reperfusion more than 6 hrs' occlusion showed the cold imaging. Histopathologically, these findings corresponded to myocardial degeneration.