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THALLIUM-201 MYOCARDIAL IMAGING WITH A VASODILATOR IN CORONARY ARTERY DISEASE. R.Futatsuya, H.Seto, M.Kakishita, M.Hada, Y.Ishizaki, Y.Terada and T.Sugimoto. Toyama Medical and Pharmaceutical University Faculty of Medicine. Toyama.

Thallium-201 myocardial imaging with a coronary vasodilator (Dipyridamole) was done for noninvasive assessment of significant coronary stenosis in angiographically determined 14 normals and 27 abnormals. Dipyridamole 0.142 mg/kg/min was infused for 4 minutes. 2 mCi of Tl-201 was injected intravenously 4 minutes after the infusion. 10 minutes later, myocardial images were obtained in the 5 standard projections (Ant, LAO25°, 45°, 65°, L-Lat). ST-changes on EKG were seen in 54.2% of significant coronary stenosis patients. But these changes were disappeared rapidly following intravenous injection of Aminophylline, antagonist of Dipyridamole. Analysis of scintigrams was done by 3 independent interpreters. Comparison of scintigraphy and angiography is shown in the following table.

	scinti(+)	scinti(-)	total
angio(+)	20	7	27
angio(-)	2	12	14
total	22	19	41

sensitivity;74.1% specificity;85.7%  
accuracy;78.0%

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Evaluation of new method of quantitative analysis of thallium-201 myocardial image. S.Takaoka, H.Murata, H.Toyama, S.Kawauchi, E.Ohtake, M.Noquchi, H.Yamada, K.Chiba, M.Iio. Tokyo Metropolitan Geriatric Hospital. Itabashi, Tokyo.

A new method of quantitative analysis of thallium-201 myocardial image was evaluated. Myocardial image was divided to 12 segments surrounded by 12 radii and the outer edge of the myocardial image. Regional myocardial activity was determined by calculating the average activity per pixel in each segment. Instead of comparing only regional average activity profile in the conventional quantitative method, the distortion from the normal activity profile was evaluated in the new method. In order to correct activity profile to 100% flat line, correcting factor was multiplied to each counts. Correcting factor was obtained from 10 patients having normal coronary arteriography. Normal range of each segment in the new method was determined to be within two standard deviation which were calculated from the data in 10 normals, and the value deviated from the normal range was provided to be abnormal. Three cases of transmural infarction diagnosed by ECG change and elevation of serum enzyme were evaluated by this method. These cases revealed normal pattern by the conventional quantitative method. However, the lesion was detected by the new method demonstrating the distortion from normal profile using corrected curve.

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QUANTITATIVE APPROACH TO THE ANALYSIS OF THE Tl-201 MYOCARDIAL SCINTIGRAM. H.Miyanaga, H.Adachi, H.Katume, H.Ijichi, and Y.Torii. Kyoto Prefectural University of Medicine and Kyoto Prefectural Rakuto Hospital. Kyoto

Quantitative method in the evaluation of Tl-201 myocardial image is presented. Thirty six radii are generated from the center of left ventricular myocardial image. The average activity for matrix along each radii is calculated and normalized to the radii with highest average activity. Then graphic presentation is developed as a circumferential profile modified Burrows method and defect score is calculated by integrating the area under 70% level, which is the lower limit of the normalized radial count in normal subjects. In IHD pts. this method showed almost equal sensitivity and specificity to visual interpretation and exercise ECG in detecting new perfusion defect after exercise. In OMI pts defect score showed good correlation with number of Q wave in standard 12 leads ECG. Both a display as circumferential profile and a scoring of myocardial perfusion defect were found to be useful and reproducible not only in detection of the localization but also in quantification of myocardial ischemia

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PATTERNS OF LOCALIZATION AND THE SCORING OF THE OLD MYOCARDIAL INFARCTION (OMI) ON 5-VIEW Tl-201 MYOCARDIAL SCANS. H.Bunko, A.Tada, K.Nakajima and K.Hisada. Kanazawa University, Kanazawa.

Purpose of this study is to determine the criteria for localization of OMI and to evaluate the usefulness of the scoring method on 5-view Tl-201 myocardial scans. Anterior, 30°LAO, 60°LAO, left lateral and 30°RAO view images were obtained sequentially from 10 min. after i.v. administration of 1.5-2.0 mCi of Tl-201. High temporal resolution gated blood pool images using in vivo labeled Tc-99m RBC were also obtained and left ventricular ejection fraction (LVEF) was calculated in each patient. Five-view myocardial scans were divided into 15 segments (3 segments/view). Frequency of visualization of OMI in each segment was calculated according to ECG localization of OMI. Defect score was defined visually as definite defect (+)=1.0, equivocal or less definite defect (±)=0.5 and no defect (-)=0.0. Scan score was determined by adding each defect score of 5 different views. Ninety-three patients with OMI were included in this study. Sensitivity was 81% for 5-view scans. Typical patterns of visualization of defect were obtained for each OMI location. Tl-201 scan score correlated well with LVEF ( $r=-0.93$ ). In conclusion 5-view Tl-201 myocardial scans were useful for accurate localization of OMI. Visual 3-level grading was easy and practical, and Tl-201 scan score was thought to be a good parameter for LVEF and lateral extension.