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CIRCUMFERENTIAL PROFILE ANALYSIS (CPA) OF EXERCISE SCINTIGRAPHY AND ITS CLINICAL USEFULNESS. O. Doi, K. Mitsudo, K. Nakada and M. Shigeyasu. Kurashiki Central Hospital. Kurashiki.

As visual interpretation of Tl-201 exercise scintigraphy is subject to observer variability, several kinds of objective, computerized techniques have been developed. But which method is best has not been settled. We examined the methodology and clinical usefulness of CPA. Four methods were compared; A) Mean CPA with LVROI including both the wall and cavity (ROI A), B) Mean CPA with LVROI including only the wall (ROI B), C) Maximum CPA with ROI A and D) Maximum CPA with ROI B. At first standard profile curves of each methods were calculated from 20 pts. without coronary artery disease (CAD) and the curve representing two standard deviation below the mean was taken as the lower limit of normal. The four methods were applied to analyze the stress images of 37 pts. with CAD and 20 pts. without CAD. The sensitivity and specificity of each method for detection of CAD were not significantly different (A: 84%, 80%. B: 76%, 75%. C: 78%, 70%. D: 81%, 70%). These values were also not significantly different from those of visual analysis (VA) (73%, 65%). The sensitivity of CPA for detection of moderately stenosed coronary arteries (75-90%) was better than that of VA (56% vs. 29%). Both CPA and VA could not identify multivessel disease accurately.

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USEFULNESS OF EXERCISE-NITROGLYCERIN MYOCARDIAL IMAGING USING DUAL ADMINISTRATION OF THALLIUM-201 TO PREDICT ISCHEMIA IN THE INFARCTED REGIONS. H. Shiotani, T. Kajiya, Y. Ohmori, Y. Kano, Y. Nakashima, K. Fujitani and H. Fukuzaki. Dept. of Int. Med., Div.1, Kobe Univ. Sch. of Med. K.Maeda. Kobe Univ. Sch. of allied Med. Sci. Kobe.

To assess the usefulness of exercise-nitroglycerin (NTG) thallium-201 imaging in predicting ischemia in the infarcted regions, 37 patients with prior myocardial infarction were studied. At the peak exercise, 1.4 mCi of thallium-201 was injected and after exercise images were performed, 0.3 mg of NTG was sublingually administered, and 0.6 mCi of thallium-201 was readministered. Both exercise and NTG images were evaluated quantitatively. Patients were divided according to the percent increase in relative activity from exercise to NTG images into two groups. The percent increase was >18% in Group I (16 patients), and <18% in Group II (21 patients). Patients in Group I had higher prevalence of angina with ST depression than Group II in exercise tests. Among 14 patients of anterior myocardial infarction who had pacing contrast ventriculography, new wall motion abnormalities in the infarcted regions were found in 89% (8 of 9) of patients in Group I compared with 20% (1 of 5) of patients in Group II. Thus, exercise-NTG myocardial imaging of thallium-201 appears to reliably predict ischemia in the infarcted regions.

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RELIABILITY AND UTILITY OF % INFARCT SIZE ESTIMATED BY Tl-201 MYOCARDIAL SCINTIGRAPHY. K. Kaneko, T. Kondo, Y. Watanabe, Y. Kato, T. Kiriyama, M. Sakurai, H. Hishida, Y. Mizuno, A. Takeuchi, S. Koga. Department of Internal Medicine and Radiology, Fujita Gakuen University School of Medicine. Toyooka.

35 patients with acute myocardial infarction (MI) including 20 anterior MI, 10 inferior MI, 5 posterior MI, were studied by circumferential profile method in order to estimate infarct size (% infarct size) and the % infarct size was compared with infarct size by other methods and cardiac function parameters.

(1) Correlation between % infarct size by Tl-201 and infarct size by other methods. 1) Correlation with infarct area by PYP scintigraphy. Coefficiency of correlation (r) was 0.76 in anterior MI and 0.72 in anterior or inferior MI. 2) Correlation with peak CK. r was 0.68 in anterior MI and 0.76 in anterior or inferior MI.

3) Correlation with % abnormal contracting segment by left ventriculography (LVG). r was 0.71 in all patients with MI.

(2) Correlation with left ventricular cardiac function.

1) Ejection fraction by cardiac blood pool scintigraphy. r was -0.65 in anterior MI. 2) Ejection fraction by LVG. There was not significant correlation.

Although % infarct size was not available in patients with inferior MI and posterior MI, this parameter was useful in order to estimate the infarct size and cardiac function in patients with anterior MI.

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A STUDY OF AN EXERCISE ²⁰¹Tl MYOCARDIAL SCINTIGRAPHY (DUAL I.V. INJECTION METHOD) IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION AT DISCHARGE. T. Maruoka, N. Konno, K. Ozawa, Tokyo Seamen's Insurance Hospital. Y. Koga, Showa University, Fujioka. H. Niitani, Showa University, Tokyo.

An exercise ²⁰¹Tl myocardial scintigraphic test utilizing a bicycle ergometer was performed on patients with AMI at discharge, and the results were compared with those of the exercise ECG. At exercise end points, the subjects received 2 mCi of ²⁰¹Tl intravenously, and scanned in five directions. After about 1 hour of resting, the subjects received an additional I.V. dose of 1 mCi and were scanned again (delayed scan). We compared the results of the initial and delayed scans, and classified the subjects into four sub groups: G-I (no change); G-III (worsened delayed scan); and G-IV (both scans normal). Most of the subjects who discontinued exercise due to ST elevation were in G-I, while many of the cases with ST depressions belonged to G-II.

We studied the role of collaterals by relating their presence to the extent of ischemia observed by the exercise ²⁰¹Tl scintigraphy. No significant differences in the presence of collaterals were observed between G-I and G-II. However, G-II tended to include more cases with severe coronary stenosis than G-I.

We believe that the exercise ²⁰¹Tl scintigraphy is useful in the follow-up of patients with AMI.