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AUTOMATIC DIAGNOSIS OF THE SITE OF MYOCARDIAL INFARCTION WITH SPECT. Y. Sekiai, M. Sawai, S. Murayama, T. Tanno, A. Mikuniya, K. Onodera, K. Nishizawa, K. Okamoto, H. Kamata, 2nd Dep. of Int. Med., Hirosaki Univ., Dept. of Radiol., Hirosaki Univ., Dept. of Int. Med. and Radiol., Hirosaki Municipal Hospital, Hirosaki

In order to diagnose the site of myocardial infarction, we studied relation between the site of infarction and coronary artery, and program of diagnosis was developed. We studied 30 patients with myocardial infarction. (16 patients with LAD lesion, 6 patients with LCX lesion, 8 patients with RCA lesion). Circumferential profile curve was created in 10 shortaxis sections with SPECT, and we devised the infarction map. Coronary perfusion territories were determined by mean infarction area in each sections. Territory map was developed by this method. LAD territory was overlapped in apex and anteroseptal with RCA territory. LCX territory was overlapped with LAD and RCA territory. The infarct size was 60% in LAD lesion, 19% in LCX lesion, 40% in RCA lesion. Automatic diagnosis was done by this territory map. Whereas LAD lesion was divided 2 groups (group 1: proximal lesion to 1st diagonal branch, group 2: distal lesion). The difference was lateral wall infarction in two groups. We conclude that this diagnostic program may be useful in differential diagnosis of coronary artery lesion.

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REEVALUATION OF DIAGNOSTIC ACCURACY FOR ISCHEMIC HEART DISEASE BY ELECTROCARDIOGRAM AND Tl-201 MYOCARDIAL IMAGING (PLANAR AND SPECT). S. Nabeyama, M. Aoki, Y. Yamamoto, T. Ashihara, I. Ogata, T. Inou and T. Fukuyama. Cardiology, Matsuyama Red Cross Hospital.

Coronary arteriogram was performed in 136 suspected ischemic heart disease patients. In 50 normal, 41 angina pectoris and 45 myocardial infarction, sensitivity (SE) and specificity (SP) of the electrocardiogram (ECG), planar and tomographic (SPECT) Tl-201 scintigram for the detection of coronary artery disease (more than 51% stenosis) were analyzed. SE of ECG, planar and SPECT in myocardial infarction group were 88, 95, and 98%, and SP were 89, 80 and 59% respectively. In the group of angina pectoris, each SE was 78, 61, 81% and SP was 80, 100, 90% respectively. Thus, high SE of ECG and Tl-201 imaging using nonreversible defect for the detection of myocardial infarction was noted, although SP of the SPECT was low. In the tomographic imaging, false positive diagnosis for infero-posterior infarction was frequent. SE in the group of angina pectoris was lower than that in myocardial infarction, since the diagnosis of angina pectoris using reversible defect was difficult in some cases with mild coronary stenosis (51-75%) or those with old myocardial infarction.

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QUANTITATIVE ESTIMATION OF RIGHT VENTRICULAR ACCUMULATION BY Tl-201 MYOCARDIAL SPECT. E. Kunieda, K. Ogawa, I. Nishiguchi, H. Kumagai, A. Kubo, J. sakurada, S. Hashimoto, S. Iwanaga, S. Handa. Keio University School of Medicine, Tokyo.

Correlation between Tl-201 right ventricular accumulation shown in SPECT and right ventricular systolic pressure is evaluated in patients with 12 right ventricular overload disease and 7 normal right ventricular pressure. On a short axis slice of about 20mm thickness, polygonal roi are chosen so as to include as much myocardial wall as possible. The counts in roi are divided by the path length of the ventricular wall in the roi and the result value show the average Thallium uptake per path. Those suggest the degree of wall thickness if it was supposed that the count in roi represents the volume of myocardium. Though other methods (box roi, maximum count in the roi) were done, as the result, our polygonal roi method shows most excellent correlation ($r=0.88$ with ASD and $r=0.96$ without 2 ASD cases) to the values of right ventricular systolic pressure. Besides, especially in the case of comparatively mild right over load, the polygonal method shows fairly good sensitivity and clearly separate them from normal pressure case. As a conclusion, Tl-201 myocardial SPECT appears to be a sensitive technique for assessing right ventricular overloading.

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EVALUATION OF PRESSURE OVERLOADING OF RIGHT HEART VENTRICLE BY Tl-201 SPECT. H. Koide, Y. Yonekura, S. Yamaoka (Kyoto University School of Medicine), K. Torizuka (Fukui Medical College)

Tl-201 SPECT is established as a useful method to diagnose ischemic heart disease and many investigators have recently reported it is indicative of the assessment of cor pulmonale in chronic obstructive pulmonary disease (COPD).

In our study, we defined the ratio of activity in right to left ventricular wall as Tl-index and compared it with the results of cardiac catheterization and blood gas analysis, and RVEF measured by Kr-81m method.

Statistically it was revealed that Tl-index was positively correlated well with pressures in pulmonary artery and right ventricle and negatively with RVEF ($r=-0.79$, $n=18$) and not correlated with blood gas data.

Therefore we confirmed that RV overloading could be evaluated by Tl-201 SPECT and concluded that it was a noninvasive method suitable for follow up study.