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MYOCARDIAL VIABILITY DETERMINATION BY I-123 BMIPP: A PRELIMINARY STUDY USING SIX HOURS DELAYED IMAGING. S. Kinoshita, S. Suzuki, A. Shindou, K. Miyahara, T. Serizawa, H. Matsuo, K. Ueda, Y. Yokote, R. Omoto, K. Suzuki, T. Miyamae. Saitama Medical School, Saitama, Japan

In animal study, BMIPP is metabolized through  $\alpha$  and  $\beta$  oxidation. But its washout is slow in human myocardium. We examined the feasibility for determination of myocardial viability using six hours late BMIPP (BM) image. Twelve old myocardial infarction patients (pts) were studied. The myocardium was regarded viable as below, that more than fifty percent of maximal uptake on six hours delayed image was attained with BM, redistribution was observed or 50% of maximal uptake was obtained in delayed or rest image with thallium (Tl). Except one case excluded because of bad delayed BM image, nine cases were regarded viable by both study, one case was by only Tl, another one by only BM. In later case, EF was improved from 21% to 41% by CABG. In myocardial uptake on delayed images, BM were higher than Tl in seven cases. In conclusion, myocardial viability determination by BM may be useful, the need for developed study including many pts was suggested.

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MYOCARDIAL FATTY ACID METABOLISM IN CHRONIC HEART FAILURE: DOES THE IMAGING WITH I-123 LABELED BMIPP VARY WITH THE UNDERLYING HEART DISEASES? T. Kurihara, M. Narita, T. Shindoh, M. Usami, and M. Honda. Sumitomo Hospital, Osaka, Japan

To evaluate if the myocardial fatty acid metabolism varies with the etiologies of chronic heart failure (CHF), patients with ischemic heart disease (IHD), idiopathic dilated cardiomyopathy (DCM), hypertension (HT) who had severe left ventricular dysfunction, and normal subjects were studied with I-123 labeled BMIPP and Tl-201 imaging. The ratio of cardiac uptake of BMIPP to that of Tl (uptake ratio) was significantly lower in each CHF subgroups based on etiology than in normal subjects. Among CHF subgroups, uptake ratio was significantly lower in DCM than IHD. BMIPP defects were larger than Tl defects in DCM, while BMIPP defects and Tl defects were identical in IHD and in HT. BMIPP defects were seen less frequent and were smaller size in HT than in IHD and DCM. Thus, the relation between the abnormalities in myocardial perfusion and fatty acid metabolism is different among subgroups of CHF, and it may be useful to compare BMIPP with Tl images in differentiation of underlying heart diseases of CHF.

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PREDICTIVE FACTORS FOR IMPROVEMENT OF Tl-201 AND I-123 BMIPP UPTAKE IN ACUTE MYOCARDIAL INFARCTION. M. Momose, K. Imamura, and H. Kobayashi. Tokyo Metropolitan Fuchu Hospital, and Tokyo women's Medical College, Tokyo, Japan.

It is reported that improvement of Tl-201 (Tl) and I-123 BMIPP (BM) from acute to chronic phase varies in each patient (pt) in acute myocardial infarction (AMI). To clarify the predictive factors for improvement of Tl and BM, 24 pts in AMI, who received reperfusion therapy (RT) underwent Tl and BM dual SPECT in both subacute (SUB) and 8 months after the onset (CH) of AMI, and clinical parameters related to AMI were studied. Defect score (DS) of both tracers was measured, and difference between DS in SUB and CH in each tracer (dTl, dBm) were regarded as the improvement of Tl and BM uptake. To assess which parameters predict the dTl and dBm, stepwise regression analysis was performed. Sum of collateral flow score (CF) and antegrade flow (AF; TIMI grade) before RT, and success of RT had significant independent ability to predict the dTl ( $R=0.64, p=0.004$ ), while discordance index between Tl and BM (DISC) in SUB had the independent ability to predict dBm ( $R=0.50, p=0.01$ ). Predictive factors for improvement of myocardial uptake are sum of CF and AF, and result of RT in Tl, however only DISC in BM.

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EVALUATION OF MYOCARDIAL FATTY ACID METABOLISM IN DIABETIC RAT USING I-125 BMIPP AND I-123 BMIPP SCINTIGRAPHY. M. Oshima, S. Higashi, Y. Kikuchi, T. Kaminaga, S. Ban, T. Shirai, S. Furui, H. Yasukochi. Teikyo University School of Medicine, Tokyo, Japan

This study was undertaken to evaluate the myocardial fatty acid metabolism of diabetes mellitus (DM) rat. In total, 5 DM rats and 5 control rats were studied.

The %I.D./g of each organ and whole body scintigraphy were performed using I-123 BMIPP. Autoradiography (ARG) of myocardium was obtained using I-125 BMIPP. Bioimaging analyzer was used to analyze the regional metabolism.

The results of %I.D./g of each organ were as follows: Blood (control =  $0.5 \pm 0.1$ , DM =  $0.8 \pm 0.9$ ); Heart (control =  $2.7 \pm 0.3$ , DM =  $1.9 \pm 0.8$ ,  $p < 0.05$ ); Lung (control =  $0.6 \pm 0.1$ , DM =  $1.0 \pm 0.3$ ); Liver (control =  $0.5 \pm 0.1$ , DM =  $0.9 \pm 0.4$ ).

The results from ARG of myocardium, the (PSL-BG)/AREA of each slice ( $n=40$ ) were as follows: control =  $243.4 \pm 60.9$ , vs DM =  $203.4 \pm 37.9$ ,  $p < 0.05$ . The whole body scintigram showed decreased uptake of myocardium and high uptake of kidneys in DM rat compared with control rat. These results indicated that hypo-metabolism of fatty acid of myocardium was recognized in the DM rat group compared with the control rat group.