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CLINICAL EVALUATION OF Tc-99m PYROPHOSPHATE MYOCARDIAL SCINTIGRAPHY IN PATIENTS WITH ISCHEMIC HEART DISEASE. Y.Nakashima, Y.Yoshida, S.Kida, Y.Ohtani. Hyogo Brain and Heart Center at Himeji. K.Minamiji. Kobe University School of Medicine. Kobe.

Tc-99m pyrophosphate (PYP) myocardial scintigraphy was performed on 73 patients admitted to the Coronary Care Unit. The time interval for imaging was 3.5 and 37 days from acute myocardial infarction (AMI). Thallium-201 (Tl-201) myocardial scintigraphy and gated cardiac blood pool scintigraphy were performed at the same time. Scintigrams with Tc-99m PYP were graded according to the distribution pattern of myocardial uptake as either localized or diffuse and the intensity of activity as either marked or faint. A positive scintigram with AMI was 84 % (51/61) and scintigrams with subendocardial infarction, unstable angina were negative. The group with localized pattern, marked intensity, large size showed higher value of serum maximum LDH than those of diffuse pattern, faint intensity, moderate and small size. Persistent positive scintigram from acute to chronic stage with AMI was 33 % (14/42) and almost patients of this group showed large defect size with increased lung uptake by Tl-201 myocardial scintigraphy. Sixty-three percent of dead patients (5/8) showed large or diffuse marked uptake with Tc-99m PYP myocardial scintigraphy. A localized pattern with marked intensity, large size is a strong indicator of severe case with AMI.

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EFFECTS OF PERFLUORO-CHEMICAL BLOOD AND CO₁₀ ON THE EXTENT OF EXPERIMENTAL MYOCARDIAL INFARCTION. N.Ikebe, Y.Naito, T.Watanabe, N.Akaba, Y.Kobayashi, T.Abe, H.Minami, Y.Nagai, I.Yamazawa, C.Ibukiyama, Y.Nohara, T.Hachiya*, H.Sasaza*, Y.Murayama**. The 2nd Dept. of Intern. Med. Pathol.* & Radiol.** Tokyo Med. College.

The effects of CoQ₁₀ and perfluorochemical blood (PFC), which is an oxygen carrier on the infarct size induced experimentally in dogs were examined. Ligation of the left coronary artery was performed in 33 dogs to induce MI and the dogs were separated into ligation-only controls, the PFC group, the CoQ₁₀ group and the PFC plus CoQ₁₀ group. The infarct size was evaluated by four methods (M, X, Y, Z) using Tc-99mPYP myocardial scintigrams at seven days after ligation, immediately after sacrifice, and the excised hearts were evaluated pathologically. The largest infarct size was seen in the ligation group, followed by the PFC, PFC+CoQ₁₀, and CoQ₁₀ groups showed a significant difference from controls by all methods of measurement, but a significant difference in the PFC group was only shown by method Z. Pathologically the best results were obtained in the CoQ₁₀, followed by the combined group then the PFC group. This investigation revealed good protective effects on the ischemic myocardium by CoQ₁₀ but complementary or additive effects of PFC were not recognized. Therefore the question of oxygen supply in MI and the potential of PFC as oxygen carrier require further elucidation by other methods.

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DIAGNOSIS OF RIGHT VENTRICULAR INFARCTION BY Tc-99mPYP SCINTIGRAPHY IN PATIENTS WITH ACUTE INFERIOR INFARCTION. H.Yoshida, E.Yasuda, S.Matsuo, I.Kanamori, S.Nakano, T.Shibata, H.Sassa. Radio-Nuclear Medicine and 1st Internal Medicine, Ogaki Municipal Hospital, Ogaki.

Tc-99mPYP myocardial scintigraphy was performed on 44 patients with acute inferior infarction within 8 days after their onset.

Results

- (1) Fifteen cases in 44 patients (34.1%) were complicated with RV-infarction (group-1), and this finding was not observed in the other cases (group-2)
- (2) There were significant differences between group-1 and group-2 in serum Peak-CPK and Peak-LDH₁ activities (P<0.001, P<0.005). In all cases of group-1, serum P-CPK activity was above 1000 IU and serum P-LDH₁ activity above 600 U.
- (3) There were not significant differences between group-1 and group-2 in Tl-score evaluated from Tl-201 myocardial scintigraphy.
- (4) Coronary arteriography showed more proximal stenotic lesions of RCA in group-1 than in group-2.
- (5) Intensive accumulations were obtained in 5 cases of group-1, whose scintigraphy were performed within 3 days after their onset.

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EFFECTS OF PERFLUORO-CHEMICAL BLOOD AND L-CARNITINE ON THE EXTENT OF EXPERIMENTAL MYOCARDIAL INFARCTION. T.Watanabe, Y.Naito, N.Ikebe, N.Akaba, Y.Kobayashi, T.Abe, H.Minami, Y.Nagai, I.Yamazawa, C.Ibukiyama, Y.Nohara, T.Hachiya*, H.Sasa*, Y.Murayama,** The 2nd Dept. of Intern. Med, Pathol.* & Radiol.** Tokyo Med. College.

The effects of perfluorochemical blood (PFC), which is an oxygen carrier and L-Carnitine on the extent of myocardial infarction induced experimentally in dogs were examined. Ligation of the left coronary artery was performed in 33 dogs to induce myocardial infarction and the dogs were separated into ligation-only controls, the PFC-treated group, L-C-treated group and the PFC plus L-C-treated group. The infarct size was evaluated by four methods (methods M, X, Y, Z) using Tc-99m-PYP myocardial scintigrams at seven days after ligation, and also the hearts were evaluated pathologically. On scintigraphy, the only statistically significant limitation of the infarct size was observed in the PFC group by method Z but measurement by other methods in that group and by all methods in the other two experimental groups were not significant statistically. Pathologically, the ligation-only group showed the greatest extent of infarction with better results in the PFC and L-C groups, but there was much individual variation. This study attempted to minimize the extent of experimentally induced myocardial infarction by supplying oxygen to the ischemic portion, using PFC and L-C but good results were not obtained and this subject therefore requires further investigation.