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FACTORS WHICH DETERMINE THE EXTENT OF EXERCISE-INDUCED ST ELEVATION IN INFARCTED AREA.

M.Saito, T.Sumiyoshi, T.Honma, T.Uchida, K.Haze, K.Fukami, K.Hiramori, T.Nishimura, T.Uehara, K.Hayashida. Department of Internal Medicine and Radiology. National Cardiovascular Center, Osaka

Exercise-induced ST elevation in infarcted area has been recognized to be related to LV asynergy, however myocardial ischemia can also induce ST elevation. In this study, factors which determine the extent of ST elevation was re-evaluated using stress myocardial scintigraphy(S-SG). Among 65 pts with previous anterior MI and documented LAD single vessel disease, 19pts who had $\Delta ST \geq 2.0$ mm had more abnormal Q waves, lower LVEF, more severe LV asynergy compared to those with $\Delta ST < 2.0$ mm. ΔST correlated with the extent of MI estimated from Tl images, indicating that ST elevation relates to LV asynergy. ΔST also correlated to the work load (double product) and inversely to the interval from the onset of MI. Among 23pts with previous MI and post-MI angina, ΔST correlated with the extent of redistribution in S-SG, indicating that myocardial ischemia also contributes to ST elevation. Ischemia-induced ST elevation had characteristic concave ST with T wave reversion. Thus, exercise induced ST elevation is determined by four factors; extent of MI, ischemia, work load and interval from the onset of MI.

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EFFECT OF PROPRANOLOL ON HEMODYNAMICS AND MYOCARDIAL BLOOD FLOW IN PATIENTS WITH CORONARY ARTERY DISEASE. Y.Kanoh, M.Ohnishi, T.Mori, H.Shiotani, Y.Ohmori, K.Maeda, Y.Yokota and H.Fukuzaki. Kobe University School Of Medicine, Hyogo.

Effects of propranolol on hemodynamics and blood distribution in myocardium in 18 patients with coronary artery disease during exercise have been studied. One week after first exercise Tl-201 myocardial scintigraphy(EXMCS), 0.1mg/kg of propranolol was intravenously administered, and second EXMCS was performed at the same work load. Pulmonary artery wedge pressure(PAWP) and cardiac index(CI) were measured during leg exercise, with and without 0.1mg/kg of propranolol. In the results, propranolol neither increased exercise tolerance, nor improved symptoms significantly. During exercise, propranolol increased PAWP and lung uptake of Tl, decreased CI significantly. On the contrary, propranolol improved ECG changes and exercise myocardial images by visual inspection. Thus, it is suggested that propranolol may depress cardiac function during exercise, but improve blood distribution in myocardium.

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EFFECT OF ISDN ON MYOCARDIAL PERFUSION STATE ASSESSED BY EXERCISE 201-Tl MYOCARDIAL PERFUSION IMAGING(MPI).

S.SATOH, I.TONO-OKA, T.KANAYA, M.MEGURO, Y.YAMAGUCHI, K.TSUIKI, S.YASUI, K.TAKAHASHI and A.KOMATANI. YAMAGATA UNIV.SCHOOL OF MEDICINE, YAMAGATA

We studied the effect of iv-ISDN on myocardial perfusion state in patients with coronary disease(CAD), assessed by exercise 201-Tl MPI. In control study, the response of myocardial perfusion state to exercise(EX) was divided into 3 regions; Normal(NL) region was a ROI with 100% uptake index(UI) during EX, redistributed(R) region was a ROI with diminished UI of lower than 85% during EX and sequentially increased by 5% or greater in delayed image, persistent defect(PD) region was a ROI with UI of lower than 75% during EX and not increased by 5% or more in delayed image. ISDN was administered by dose of 0.1 mg/kg/hr, and then EX was repeated to the same workload using same protocol. The R regions significantly increased in UI during EX after iv-ISDN. Although the PD regions didn't increase in UI. %Change of ROI counts was significantly greater in patients with one vessel disease than multivessel disease, and was greater in patients with collateral vessels than patients without collateral vessels after iv-ISDN. Our results suggested that ISDN improves myocardial perfusion state in ischemic myocardium and the effect are influenced by myocardial viability and severity of CAD.

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REGIONAL THALLIUM WASHOUT RATE IMAGE AS A NEW DISPLAY OF THALLIUM MYOCARDIAL IMAGE. Masaharu Ozaki, Tatsuro Shimizu, Yuhji Furutani, Tohru Ikezono, Takashi Yamagishi, Yasuo Matsuda, Toshiaki Kumada and Reizo Kusakawa. 2nd Dept. of internal Med., Yamaguchi Univ..

A usual display of thallium-201(Tl) myocardial image is not absolute but relative expression of myocardial ischemia, so it is not useful to express general myocardial ischemia without contrast. Then, we devised a regional myocardial Tl washout rate(WR) image with a regional Tl-WR which was used as a parameter of regional myocardial ischemia. This new Tl-WR image was expressed of the regional Tl-WR for 3 hours after exercise on each pixel of myocardial image, and expressed in 3 colors(red, yellow and blue) corresponding to the degree of regional Tl-WR. The regional Tl-WR on each pixel was calculated to subtract the delayed image which had been superimposed on the initial image from the initial image. This new Tl myocardial WR image was useful to evaluate the regional myocardial ischemia especially in cases with general myocardial ischemia without contrast in usual Tl myocardial image such as an angina pectoris with 3 vessels disease or severe aortic stenosis, and to evaluate the effect of the drug on myocardial ischemia during exercise with the same load.