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EFFECTS OF ANTIARRHYTHMIC DRUGS ON LEFT VENTRICULAR FUNCTION ESTIMATED WITH MULTIGATED CARDIAC POOL IMAGING

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Effects of antiarrhythmic drugs on left ventricular function were evaluated in 22 patients with ventricular premature contractions using gated cardiac pool imaging.

Cardiac pool imaging was performed for 5 minutes before and after intravenous injection of 1mg/kgBW of lidocaine, disopyramide, or 2.5mg/kgBW of mexiletine and oral administration of 100mg aprindine or 200mg disopyramide. Left ventricular ejection fraction (EF) was measured, and plasma concentrations of disopyramide and mexiletine were determined.

%EF decreased significantly ($p < 0.01$) after i.v. lidocaine (-7.4%), i.v. disopyramide (-11.4%) and i.v. mexiletine (-10.0%). Cardiac output increased significantly after p.o. aprindine (+13.2, $p < 0.05$). Systemic vascular resistance decreased significantly (-15.5%, $p < 0.05$) after p.o. aprindine.

In conclusion, negative inotropic action of i.v. disopyramide was greater than that of i.v. lidocaine and i.v. mexiletine, and that of p.o. disopyramide was greater than that of p.o. aprindine.

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ACUTE EFFECT OF TRAPIDIL ON CARDIAC HEMODYNAMICS BY MULTI-GATED BLOOD POOL SCINTIGRAPHY.

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We evaluated the efficacy of trapidil by the multi-gated blood pool scintigram, a method of clinically proven usefulness for the noninvasive assessment of cardiac hemodynamics. [METHODS] The longitudinal image of the left ventricle was taken by using a γ -ray camera equipped with a 30° slant hole collimator (ZLC75 Siemens) and setting the collimator in the craniocaudal direction with a modified LAO. The R waves on the ECG and the 2nd sound on the phonocardiogram were used as synchronizing signals to clarify the target image. The ADAC system II nucleomedical data processor was used for the processing and statistical analysis of data. Ten subjects (mean age of 64 years) were injected i.v. with 100 mg of trapidil over 2 minutes, and the scintigram was taken from immediately after the i.v. injection on 5, and from 10 minutes after on the other 5. [RESULT] The following results suggesting the positive inotropic action of trapidil were attained: 1. lowering of B.P. and increase in H.R. ($P < 0.001$); 2. increase in the LVEF ($P < 0.01$), increase in CI. ($P < 0.01$); 3. increase in systolic Max DV/DT ($P < 0.05$) and increase in diastolic-Max DV/DT (N.S.); 4. increase in LVWI ($P < 0.05$); 5. decrease in TSVR ($P < 0.01$).

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EFFECTS OF TNG ON THE CARDIAC PERFORMANCE IN PATIENTS WITH ISCHEMIC HEART DISEASE-USING GATED BLOOD POOL SCINTIGRAPHY (GBPS) IN MULTISTAGE EXERCISE TESTING.

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To evaluate the effect of TNG on the cardiac performance, the exercise testing were performed twice a patient at drug free and TNG administration in 8 effort angina (AP) and 11 old myocardial infarction (OMI). GBPS had done before, during and after multistage bicycle ergometry in supine position, and from these images we analyzed the change of LV ejection fraction (EF), SD value of LV phase angle (SD), and another cardiovascular hemodynamic parameters (in some cases mean pulmonary pressure (PAM) were also recorded). In both group EF decreased at exercise and increased at rest after TNG, but in AP group, the decrease of EF by exercise were significantly improved after TNG. SD value at rest increased significantly in OMI group, and at exercise did not change in OMI group, significantly increased in AP group. After TNG, SD value in OMI group increased both at resting and exercise, and in AP group increase of SD by exercise were significantly improved. In OMI group PAM decreased after TNG at rest. In both group, PAM increased by exercise and the increased value were significantly reduced after TNG. We concluded that TNG significantly improved the cardiac performance hemodynamically in patients with ischemic heart disease.

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EVALUATION OF COMPARATIVE EFFECTS OF ANTIANGINAL DRUGS IN PATIENTS WITH EFFORT ANGINA BY CARDIAC BLOOD POOL SCAN.

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Multiple-gated equilibrium blood pool scans by supine ergometer were performed in 20 patients with effort angina, before and after administration of Isosorbide dinitrate (I-SDN), Nifedipine, and Propranolol to evaluate the comparative effect of these drugs using the indices derived from LV volume curve fitted for forth Fourier Harmonics. ISDN significantly reduced EDVI, and increased PER and SBP/ESVI, and also Nifedipine increased systolic function with improved 1/3 PFR and reduced systemic resistance. Propranolol reduced Double Products, PER and SBP/ESVI. ISDN and Nifedipine improve LV performance by reduction of preload and/or afterload, although Propranolol protected the myocardium from ischemia by reducing myocardial oxygen consumption.