aged. This study has examined 109 people between the ages of 50 - 69 years picked at random from a suburban health centre practice. Cardiovascular disease was excluded by history, examination, a resting electrocardiogram and an echocardiogram. 53 men and 56 women, mean age 57.3 years, had a 24 or 48 hour twin-channel electrocardiogram recording analysed by the same observer on a Reynolds Pathfinder analyser. 85 showed ventricular ectopics on their resting electrocardiogram, whilst these appeared on 72% of the ambulatory recordings. 46% of the subjects had more than 20 ectopics per day, 23% had more than 100 ectopics per day whilst 8% had more than 1000 ectopics per day (3307 ± 221); mean ± S.D.). 148 showed short runs of atrial tachycardia, but only 1 subject developed ventricular tachycardia (4 beats). Most middle-aged people, free from apparent cardiovascular disease, have some ectopic activity, and while this is usually less than 100 ectopics per day, a small proportion have considerably more.

110 COMPARATIVE HAEMODYNAMIC DOSE-RESPONSE EFFECTS OF LABETALOL AND PROPRANOLOL IN CORONARY HEART DISEASE

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The haemodynamic dose-response effects of intravenous boluses of labetalol (cumulative doses 10, 20, 40 and 80mg) or propranolol (cumulative doses 2, 4, 8 and 16mg) were evaluated in a randomised study of 20 male patients with angiographically proven coronary heart disease. Following control exercise, the resting haemodynamic variables were recorded between the second and fourth minute following each i.v. bolus, and finally repeated during 4 min of supine bicycle exercise (25-50 W) following the maximum dose of each drug (labetalol 80mg or propranolol 16mg). Intravascular pressures were externally transduced; cardiac output measured by thermodilution (variance 6%).

Comparison of the haemodynamic profiles at rest showed dose-related reductions in blood pressure following labetalol without change following propranolol. Propranolol reduced the heart rate (control 73±2; propranolol 64±2 beats/min; P<0.05) and increased pulmonary occluded pressure (control 11.5±3; propranolol 16±1.1 mmHg; P<0.01) whereas both variables were unchanged following labetalol. The cardiac output was unaltered following labetalol but showed dose-related reductions following propranolol (control 3.5±0.2; Propranolol 3.0±0.1 l/min/m²; P<0.01).

During exercise the elevation in pulmonary occluded pressure was greater on propranolol (propranolol 20.7±1.2 to 29.1±4.4 mmHg; labetalol 25±5 to 28±4 mmHg; P<0.05); propranolol also depressed cardiac output (control 6.1±0.4; propranolol 4.8±0.3 l/min/m²; P<0.05) without change after labetalol.

These findings suggest that alpha-blockade offsets some of the haemodynamic disadvantages of beta-blockade in coronary heart disease.

111 COMPUTER ANALYSIS OF 12 LEAD TREADMILL EXERCISE TESTS

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R wave amplitude increase and ST depression at peak exercise have been shown by us to be more than 90% predictive of coronary artery disease in patients with chest pain undergoing diagnostic 12 lead exercise tests (Baron et al., Br Heart J 1980; 44: 512-517 and Baron et al., Eur J Cardiol 1980; 11: 259-267). Detailed analysis of the ECG recorded every 3 min during a stress test is time consuming and subjective. Computer analysis may improve visual interpretation by providing objective measurements and allowing for rapid assimilation and presentation of data. We have adopted the Hewlett Packard 3600C ECG management system to evaluate serial ECGs during and after maximal treadmill exercise tests in 51 consecutive patients undergoing coronary angiography for the investigation of chest pain. All ECGs were analysed by hand prior to computer analysis.

The test population comprised 15 with normal angiography and 14 with one, 14 with two and 8 with three vessel disease. The computer consistently underestimated by 0.2mV (p < 0.01) R wave amplitude in leads 2, 3, VF and V4-6 in all patients although the correlation coefficient between computer and manual measurements was 0.990. ST depression ( 80 ms after the J point) was usually overestimated by an average of 0.01 mV per lead (r = 0.90). Significant (> 0.1mV) ST change was identified in 17 patients by hand and 19 by the computer.

Computerised 12 lead ECG analysis during exercise is accurate. The addition of an interactive graphics display terminal provides rapid visualization of the derived data and may allow new interpretive criteria to be tried and developed with greater facility.

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112 BRONCHIECTASIS - INFECTION FREE OR PURULENT FREE?

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Active proteolytic enzymes are potentially harmful to the lung and leucocyte elastase damages respiratory epithelium and impairs ciliary activity (Tegner, H. Rhinology, XVII, 199-206, 1979). This enzyme is regularly found in bronchial secretions from patients with bronchitis but is only active in purulent secretions with clinical infection (Stockley and Burnett, Am Rev Respir Dis 120, No.5, 1979).

Patients with bronchiectasis produce excess bronchial secretions which are often purulent even in the absence of clinical infection. We have studied the sputum sol phase proteins and elastolytic activity from 15 patients with bronchiectasis in the stable clinical state.