ABSTRACTS OF CARDIOLOGY


Of 1900 boys and men examined before enlistment in the Navy or Marine Corps and referred to a cardiovascular specialist 350 were found to be suffering from some form of asymptomatic cardiovascular disease, as regards which the history was entirely negative. The ages varied between 17 and 51, average 26; the smallest age groups were those of 47, 49, 50, and 51 years with 3 cases each. Valvular heart disease was found in 169 (mitral insufficiency 93, mitral stenosis 41, aortic incompetence 22, aortic stenosis 9, congenital lesions 4), and hypertension in 89 (systolic pressure 150 to 170 mm. Hg., 58; 170 to 190 mm., 25; 190 to 210 mm., 5; 210 to 220 mm., 1). It is emphasized that high blood pressure may develop without giving rise to any symptoms and that pathological signs start to develop with pressures exceeding 170 mm. Hg. Arrhythmias were present in 55 (ventricular extrasystoles 18, auricular 6, nodal 2, and bifocal 1; tachycardia of or exceeding 110, 19; auricular fibrillation 6; complete heart block 2; and incomplete heart block 1). Cardiac hypertrophy was found in 26, of whom 22 had engaged in athletics (15 in more than moderate degree). This was the most common single factor found in this group. Premature arterial changes were found in 11. Only those in the group with premature contractions and 4 amongst the 26 with cardiac hypertrophy were accepted for service. The explanation for the absence of symptoms in these conditions in the examined group is discussed.

A. Schott


The variations in the blood pressure during normal labour were studied in 45 women. Systolic pressure in 37 at the beginning of labour was between 105 and 125 mm. Hg., varying in the remainder from 130 to 155 mm. During the first stage, systolic pressure tended to be higher in primiparae and younger women. During the second stage, contrary to expectation, systolic pressure changed little, save in rapid labours. In most cases the systolic pressure rose in the third stage (in 30 by 15 mm., in 7 by 20 to 40 mm.); this rise was most marked in rapid labours and in younger women. After placental expulsion, systolic pressure returned in 36 forthwith to normal, return being slower after longer labours.

Diastolic pressure in 35 women exceeded 70 mm. Hg. at the onset of labour. During the second stage in most cases it either rose by 10 to 20 mm. or remained unchanged. During the third stage it rose still further, only to fall again in most cases after expulsion of the placenta. Diastolic pressure was highest in older women and in more rapid labours. When labour was prolonged there was usually a sharp rise soon after expulsion of the fetus.

Changes in the character of the pulse are described. The work of the heart was also studied by the use of Lilienstrand coefficient. The cardiovascular system was not subjected to undue stress in either the first or the second stage, the greatest burden being placed on it after expulsion of the fetus by the sudden alteration in intra-abdominal pressure.

S. S. Gilder


The pressure required to produce experimental dissection of the aorta by forcing water through a needle into the media was measured in 42 adults of different ages and both sexes. In all cases this pressure was far higher than the blood pressure, even in severe hypertension. These results (which were well analysed statistically) support the view that aortic dissection only occurs in cases of marked medial degeneration.

D. M. Pryce


Recent thrombotic deposits were found in the aorta in 19 of 50 cases post-mortem. Whilst most frequent over atheromatous ulcers of older subjects they were also found in association with early atheromatous streaks and even where the wall appeared normal. Often the deposits were superimposed on earlier deposits. Transitional appearances indicated that the deposits were gradually transformed into intimal thickenings, which would ordinarily have been regarded as purely atherosclerotic. The author has previously shown the importance of this process in the coronary arteries.

D. M. Pryce


The diagnosis of congenital heart disease by the traditional methods is notoriously difficult. Apart from those cases with such typical features as the murmurs of a patent ductus arteriosus and the tremendous pulsa-
tions of the hilar vessels in atrial septal defect, so-called pathognomonic signs are rare. The author describes the use of the cardiac catheter together with a photo-electric oximeter in the investigation of these cases. The oximeter permits recognition of degrees of unsaturation of arterial blood with oxygen which are insufficient to cause recognizable cyanosis. In Fallot’s tetralogy the degree of pulmonary stenosis may be estimated by the extent of the fall in arterial oxygen saturation during exercise. In the most severe cases this may fall as low as 20%. Those patients who cannot maintain an arterial saturation of at least 70% at complete rest are in a very precarious condition.

Catheterization of the heart involves accurate radiological studies of: (1) the position of the catheter tip, together with observations on (2) intracardiac pressure, and (3) variations in oxygen saturation of the blood in the various positions. Without all these it is impossible to decide the exact location of the catheter tip within the heart owing to the great deviations from normal pressures which may take place in the presence of complex congenital defects. The oximeter may be used for rapid determination of oxygen saturation of any sample of blood withdrawn through the catheter. Pressures within the heart are recorded with sufficient accuracy for clinical purposes by means of strain-gauge manometers.

The recognition of an atrial septal defect is one of the easiest examples of the use of this method. Its presence may be determined by the ease of passage of the catheter through the defect into the left auricle or pulmonary veins, and also by the finding of arterialized blood in the right atrium. Similarly, arterialization of blood in the pulmonary artery is practically diagnostic of patent ductus arteriosus. High right intraventricular pressures with normal pulmonary artery pressures are always suggestive of pulmonary stenosis. The author points out that the calculations used by Bing for the assessment of pulmonary blood flow and other factors need further critical re-evaluation on account of various inaccuracies which may arise in the techniques used. He also points out that the clinical features of the various congenital lesions often permit of diagnosis with fair certainty, and cardiac catheterization is of most value in atypical cases. Angiocardiography is also of immense value in the study of such problem cases. J. McMichael


The authors were able to find only 30 reported cases of left recurrent laryngeal nerve palsy associated with heart disease in which necropsy findings were recorded. Dilatation of the pulmonary artery was the prime cause of the nerve injury. They describe 2 cases of their own in which the sole initial complaint was hoarseness.

The literature is reviewed at some length, and the various explanations of the aetiology are given. It had been suggested that the combination of heart disease and recurrent laryngeal paralysis is so infrequent that their association is purely coincidental; many cases remain unexplained. In mitral stenosis paralysis of the nerve has been found ten times as often as in hospital patients in general, and, were the association coincidental, the right and the left nerve ought to be equally affected. No case is recorded of paralysis of the right nerve alone, and where both nerves were held to be affected there has been no necropsy. Attempts have been made to link the paralysis with the presence of the ligamentum arteriosum as it passes backwards from the left pulmonary artery to the aorta, but the evidence is contradictory. In most of the cases studied pulmonary artery dilatation was a common factor, but the fact remains that, while such dilatation is frequent, associated laryngeal nerve paralysis is rare.

Case I is illustrated by a skia gram of the right oblique view with barium-filled esophagus, photomicrographs, and photographs of the dissection. In these photographs the anatomical relations of the various parts are seen with clarity. In Case II the angiocardiograms are reproduced with explanatory diagrams. Donald Hall


A standard two-step exercise test (Master, *Am. J. med. Sci.*, 1929, 177, 223) was used and electrocardiograms (leads I, II, III, and CF4) were taken as quickly as possible afterwards. The criteria for a positive test, which were adopted as more marked than the changes seen in 31 normal controls, were as follows: (1) A depression of the RS–T junction of more than 1 mm. in the standard leads or more than 0.75 mm. in CF4, this lead being standardized at half the usual sensitivity. (2) Conversion of an upright T wave to an isoelectric or inverted T wave in leads I, II, or CF4 or of a diphasic or inverted T to upright.

The test was tried in 91 patients with various forms of heart disease, with positive results in 31. Positive results were obtained in 48% of patients with typical angina, 24% of those with atypical symptoms, and in 28% of those without pain. Ten patients experienced anginal pain during the exercise and in 7 of these the test was positive. The influence of food, digitalis, and recent acute illness is also considered.

[The control group in this series consisted of younger patients than those with heart disease. The patients with heart disease are classified on an aetiological basis only, so that the possible influence of cardiac enlargement or failure cannot be determined.] J. W. Litchfield


A study of 130 cases of recent myocardial infarction coming to necropsy was made in an effort to determine the immediate cause of death. In 35 the patient was previously so ill that the myocardial infarction might be regarded as a terminal event. In the other 95 there was little limitation of activities before the infarction. These
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This is a study of 600 patients in the American Occupied Zone of Germany between September, 1945, and December, 1946. All the cases reported were confirmed bacteriologically, 26 being examples of cutaneous diphtheria. The average age of the patients was 23 years and 37 were females. An electrocardiogram was taken as soon as diphtheria was suspected clinically or a positive culture obtained, thereafter weekly or more often if thought necessary. Those with severe or prolonged cardiographic changes were invariably returned to the U.S.A. for convalescence. The period of observation for patients with cardiographic changes varied between 8 and 23 weeks.

Of the 600 patients 143 (24%) presented cardiographic changes at some time during their stay in hospital. By far the most common abnormality was low voltage or negativity of the T wave in two or more leads (108 cases); next in frequency, but far behind, was prolongation of the P–R interval (11 cases) and depression of ST segments in two or more leads (10 cases). All cardiograms were checked independently and no borderline curves were included. Of the T wave changes 30 involved leads II and III, 28 all four leads, and 25 leads I, II, and III. Slight slurring and splintering of the QRS segment were common, but significant prolongation was seen only in the 2 patients with right bundle branch block. Low voltage of QRS in all leads was present in 3 patients only.

Electrocardiographic changes were met with for the first time after the fourth week only in 5 of the 600 patients examined. [The authors state that “patients with persistent abnormalities in all leads usually had manifested clinically severe infections” but in the summary “severity of clinical infection and severity and duration of electrocardiographic changes in diphtheria cannot be correlated.”] It is pointed out that this study does not support the view that prolongation of the P–R interval is the most common abnormality in diphtheria.

The two patients with heart block had been treated for hemolytic streptococcal sore throat and discharged, completely asymptomatic, to duty within the week. One was readmitted in 6 days, the other in 8, both in cardiovascular collapse. In the 2 fatal cases T waves were negative in all leads. In 4 patients phasic alternation between normal and abnormal electrocardiograms was found.

The paper is well illustrated by serial cardiograms, and the authors consider that in diphtheria, alike in the acute stage and in convalescence, the electrocardiogram is essential to the evaluation of the physical state of the patient.

C. Bruce Perry


At first dicumarol was used only for patients who had already experienced thrombo-embolic complications of cardiac infarction—either repeated episodes of multiple thrombosis in different areas of the coronary tree or repeated phenomena elsewhere, for example, in the lungs. Later it was given purely prophylactically against such complications.

The incidence of thrombo-embolic complications in recent myocardial infarction is difficult to determine, as the data are conflicting; the figures given by different authors vary from 9.9 to 45%. Even the incidence of mural thrombosis of the endocardium is difficult to ascertain, being stated variously as between 17 and 83%. However, it is evident that thrombo-embolism is an important complication of myocardial infarction. The authors state that in all the reports of results of anticoagulant therapy there has been an apparently significant reduction in the number of thrombo-embolic complications and in the general mortality rate, but they point out that there has been as yet no report which includes suitable controls.

The chief hazard with anticoagulant therapy is the development of a hemorrhagic stage and it is essential that treatment be controlled by prothrombin determinations. As the early stage of infarction is characterized by hyperaemia and hemorrhage the authors thought it possible that the use of anticoagulants might accentuate the hemorrhagic stage and thus prolong resolution of the infarct. Myocardial infarction was produced in 25 dogs by ligation of the anterior descending branch of the left coronary artery. Fifteen were given dicumarol in amounts similar to those used in the treatment of patients with recent infarction. The animals were killed at intervals of 5 to 22 days. There were slight differences between the control group and the dicumarol-treated group, but the authors state that there was no evidence that the altered coagulability of the blood affected the extent or healing of infarcts. Serial electrocardiograms showed no significant difference between treated animals and controls. No deleterious influence on healing was demonstrated.

S. Oram