BACTERIAL ENDOCARDITIS


The authors studied 11 cases of subacute bacterial endocarditis. The infecting organism was Streptococcus faecalis in three cases, Str. viridans in five patients, Staphylococcus aureus in one, Enterococcus coli in one, and no organism could be cultured in the remaining case. Aureomycin was successful in the treatment of only two of the eight cases in which it was used; in both instances the etiologic agent was a very sensitive strain of Str. viridans. Chloromycetin was used in five cases and considered to be effective in only one of them. The infecting organism in this case was Str. viridans. Neomycin was used in a single case because other antibiotics failed. This case was due to E. coli and although the blood cultures became negative the patient died of a cerebral embolus five days after the neomycin treatment was begun.

In no instance was Aureomycin effective when penicillin had failed, although in two patients penicillin was successful when Aureomycin had failed. All patients treated with Aureomycin displayed some gastrointestinal symptoms of intolerance to the drug. Since Aureomycin and Chloromycetin are primarily bacteriostatic, the authors suggest that relapses may be more frequent with these drugs than with penicillin which also has bactericidal properties. The authors conclude that an organism found to be sensitive to Aureomycin and Chloromycetin in vitro will not necessarily respond in vivo. They recommend an initial survey of the sensitivity of the organism in any given case to all antibiotics before treatment is begun.

ROSENBAUM
BLOOD COAGULATION


The emulsions used contained 50 mg. of vitamin K, per ml. and were given intravenously at a rate of administration which averaged one ml. per minute. The prothrombin times of the citrated blood were determined by the Link-Shapiro modification of the Quick method using human thromboplastin.

Seven patients having a variety of cardiac and vascular ailments were treated with Dicumarol in amounts to increase their prothrombin times to levels ranging from 43 to 85 seconds. These patients were given vitamin K, emulsion intravenously in doses of 5 to 20 mg. per K. of body weight or from 360 to 1290 mg. per patient.

All patients with Dicumarol-induced hypoprothrombinemia showed a prompt decline in prothrombin time following the administration of the vitamin K, emulsion. When a dose of 10 to 20 mg. per K. was administered, the prothrombin times of all the patients fell to 36 seconds or below in 120 minutes and to 30 seconds or below in five hours.

One of the seven patients showed an untoward response and this was manifested by flushing of the face and neck accompanied by a transient rise in blood pressure. These complications disappeared rapidly and the patient was able to get larger doses of vitamin K, emulsion without further difficulty. Four of the patients showed a transient, usually slight prolongation of the prothrombin time.

The 5 per cent emulsion of vitamin K, given intravenously acts more rapidly and is more convenient to use than the dilute suspensions. The emulsions of vitamin K, prepared by the authors in their laboratory and kept at room temperature out of the light, are stable and usable after four months.

Abramson

MINTZ


A method is described for the determination of the blood level of dicoumarin. It involves the extraction of the material from acidified plasma using ethylene dichloride. This, in turn, is extracted with alkali, and the aqueous extract is buffered to pH 7. It is then coupled with diazotized diaminidine to produce a stable red color.

The method will detect dicoumarin in very small quantities in the blood; the reaction appearing to have a high degree of specificity.

Abramson


An attempt was made to evaluate the various procedures generally used in prevention and treatment of thromboembolic disease. A large series of patients, operated upon for surgical, urologic and neurosurgical conditions, was studied. Phlebothrombosis or thrombophlebitis occurred in one out of 133, nonfatal pulmonary infarction in one of 487, and fatal pulmonary embolism in one of 896 postoperative patients.

General prophylactic measures, such as using elastic bandages and early ambulation, were not strikingly successful in the prevention of thrombembolic episodes. The treatment of diagnosed phlebothrombosis, thrombophlebitis and nonfatal pulmonary infarction by ligation or with anticoagulants was effective in most instances.

It was concluded that despite efforts to reduce their incidence, thromboembolic complications still occurred in approximately 1 per cent of postoperative patients.

Abramson

Fuller, B. F., and Barker, N. W.: The Effect of Vitamin K1 Administered Orally on the Control of the Coagulation Defect Induced by Dicumarol. Minn. Med. 34: 326 (April), 1951.

Experience with vitamin K1 (one of the naturally occurring substances having vitamin K activity) indicates that it is a satisfactory dicumarol antagonist when given in a single oral dose of 500 mg. The prothrombin time of 13 of 16 patients who were tested returned to near normal levels and that of the other three was significantly decreased 20 hours or less after administration of vitamin K1.

Vitamin K appeared to exert a more rapid and more nearly complete action than menadione and no toxic or untoward effects were observed in any of the patients. A rebound phenomenon in which the prothrombin time rises after an initial drop following vitamin K1 administration, although no dicumarol is given, was noted in two patients. A second dose of vitamin K1 controlled this. The blood area of both of these patients was high.

Bernstein

CONGENITAL ANOMALIES


Two cases of congenital tricuspid atresia with autopsy findings are reported. The first patient, age five months, had tricuspid atresia with transposition of the great vessels and without pulmonic or subpulmonic stenosis, persistent ostium primum, patent ductus arteriosus, coarctation of the aorta, dilatation of the pulmonary artery. Principal clinical features included: retarded growth and development, bronchopneumonia and emphysema, mild cyanosis, no
clubbing, 14.5 Gm. of hemoglobin with 4.5 million red blood cells per cu. mm. of blood. The roentgenogram showed enlargement of the heart to the left, with distinct pulmonary markings. Left axis deviation was not present in the electrocardiogram. The poor growth and undernutrition were considered to be consequences of the poor peripheral circulation which made survival impossible despite good pulmonary flow. The author suggests that an aortopulmonary shunt might increase the blood flow into the peripheral vessels from the pulmonary artery where the flow was more than adequate because of the transposition of the great vessels. The second patient, also five months old, had the most common type of tricuspid atresia without transposition of the great vessels and with pulmonary stenosis. There was hypoplasia of the right ventricle and pulmonary artery, and persistent ostium secundum, interventricular septal defect, small patent ductus arteriosus, and hypertrophy of the left ventricle. The ante-mortem clinical diagnosis was suggested by the presence of cyanosis, polycythemia, left axis deviation of the electrocardiogram, and the x-ray configuration of the heart. The author believes that a shunting operation would have augmented the pulmonary blood flow and increased the oxygenation.

Hellerstein

CONGESTIVE HEART FAILURE


Studies of renal circulation were performed on 14 normal subjects, eight patients with congestive heart failure due to chronic rheumatic heart disease (“low output” failure), and 10 patients with congestive heart failure due to chronic chest disease (“high output” failure). The glomerular filtration rate, the effective renal plasma flow, and the renal blood flow were reduced in all patients, irrespective of the cardiac output. The patterns of renal circulation were closely similar in both types of failure. This lack of correlation between cardiac output and renal clearance indicates that the decreased renal circulation in congestive heart failure is not a simple response to a lowered cardiac output. No direct relationship was found between glomerular filtration rate and sodium excretion. Because of this the authors suggest increased tubular reabsorption may be a more important factor in the retention of salt and water observed in congestive heart failure than reduced glomerular filtration.

Sagall


The administration of mercurial diuretics to patients whose sodium chloride intake is restricted may result in an electrolyte deficiency manifested by anorexia, apathy, nausea, muscular pains, psychosis and coma. Oliguria and azotemia sometimes occur and may give one the erroneous impression that therapy (i.e., salt restriction and mercurialization) has not been vigorous enough. At such a point more rigid salt restriction and more frequent administration of mercurials are fraught with danger. The symptoms and signs of salt depletion are usually alleviated by the administration of adequate amounts of hypertonic sodium chloride solution.

Wendkos


Right heart catheterization was performed on 20 patients with pulmonary stenosis with and without an interatrial shunt. An isolated pulmonary stenosis was diagnosed when the systolic pressure in the right ventricle was markedly elevated in contrast to the pressure in the pulmonary artery and there was no evidence of intercardiac communications. There were eight patients of this type. There were 11 patients who presented evidence of an interatrial septal defect; in seven the catheter was passed from the right atrium into the left atrium and in the other four an interatrial shunt was demonstrated. The remaining patient had pulmonary stenosis with a patent ductus arteriosus.

There were no cases with marked elevation in the right atrial pressure, the highest being 16/4 mm. Hg, which occurred in a nophoneptic patient. There was no significant pressure gradient between the right and the left atrium in studies done on five cyanotic patients. The systolic pressure in the right ventricle ranged from 40 to 260 mm. Hg, and in the pulmonary artery from 2 to 28 mm. Hg. It was generally found that the higher the right ventricular pressure, the greater were the symptoms and physical findings. When there was a sharp rise in the pressure curve as the tip of the catheter was moved a short distance from the main pulmonary artery in the right ventricle, a valvular type of stenosis was suspected. In many cases there was a significant drop in the oxygen content of the blood from the pulmonary artery in comparison to blood from the right ventricle. This was attributed to the additional obstruction of the catheter in the stenotic pulmonary artery. Eight patients were studied using the modified Millikan ear oximeter. When the arterial oxygen saturation did not decrease by more than 3 to 5 per cent when 100 per cent oxygen was administered by mask, there was thought to be no significant right to left shunt. Cyanosis was not found in any of the patients with isolated pulmonary stenosis.

Margolies
CORONARY ARTERY DISEASE, MYOCARDIAL INFARCTION


The present report describes the results of treatments of seven patients with angina pectoris, ranging in age from 49 to 58 years. They were given amounts of propylthiouracil sufficient to produce myxedema, the average dose being 800 mg. daily in three cases, and 1000 to 3000 mg. daily in the remainder. With these doses, no toxic reactions were observed but manifestations of myxedema characterized by edema of the eyelids, puffiness of the facial features and dryness of the skin developed in all the cases one to three months following the initial drop in the basal metabolism, the latter varying between −11 per cent and −35 per cent. Those patients whose anginal symptoms were improved preferred the discomfort resulting from the myxedematous state to the disability imposed by the angina. When propylthiouracil was discontinued in those cases who did not benefit from the treatment, evidences of myxedema disappeared within two to four weeks. Improvement, as judged by the subjective response to a two-step exercise tolerance test and the range of activity which the individual could perform without discomfort, was graded as excellent (prolonged benefit) in one case and good (temporary benefit) in three cases. The remainder were not benefited to any extent. Whatever improvement ensued as a result of such treatment is ascribed to a decrease in the amount of circulating thyroid hormone, independent of changes in the metabolic rate.

WENDKOS

ELECTROCARDIOGRAPHY


Ten cases are reported in which the electrocardiogram showed the main deflection of the QRS complex directed downward in the three standard leads. The authors agree with the view that this pattern is due to rotation of the heart about its three axes in association with right ventricular enlargement. There is clockwise rotation about the long axis of the heart, placing the right ventricle more anteriorly and the left more posteriorly; clockwise rotation on the vertical axis directing the apex back, and rotation on the coronal axis so that the apex is not only back, but also up. In every one of these 10 cases, there was cardiac disease causing right ventricular enlargement. This pattern was not found in those without heart disease and with only rotatory phenomena.

MARGOLIES


The authors studied the electric potentials of the heart of Bufo vulgaris during “cardiac tetanus,” obtained by electric stimulation in the presence of high concentration of calcium and minimal concentration of free acetylcholine. For the electrocardiogram, a bipolar lead (from two points of the undamaged ventricle) was used.

The normal ventricular complex of Bufo is composed of a rapid polyphasic oscillation (equivalent to the QRS complex), followed by a slow afterpotential (S-T) during mechanical contraction, while the wave of repolarization (T) coincides with the relaxation of the muscle.

In “cardiac tetanus” the initial complex becomes diphasic; the afterpotential can be related to the rate of depolarization to repolarization, which increases when the tetanus is complete, and decreases in incomplete tetanus.

LUSADA


Fifty-two patients with heart disease ranging in age from 3 to 15 years were studied. There were 25 patients with acute rheumatic carditis and two with clinical evidence of rheumatic fever without definite evidence of carditis. In the control series of 25 patients, there were 14 with inactive rheumatic carditis, seven with possible heart disease, and four with congenital heart disease. None of these patients was receiving digitalis, quinidine, salicylates, or the mercurials at the time of study. All cases with irregular rhythm, paroxysmal tachycardia, auricular fibrillation or clinical signs of electrolyte imbalance were excluded. All patients had electrocardiographic studies and those with acute rheumatic fever had repeated tracings. A Q-T value of 0.422 second was used as the upper limit of normal. All of the patients with carditis had a Q-T, interval above 0.405 second and 84 per cent had a value above 0.422 second. In the control series only 8 per cent had values above 0.422 second. In all except five cases the Q-T interval decreased toward normal as the carditis improved. The prolongation of the Q-T interval is, therefore, thought to be a significant electrocardiographic finding in the diagnosis of acute rheumatic carditis in children.

MARGOLIES


Retrograde auricular contractions are uncommon in complete AV block. Less than 30 such cases have
been reported so far. The author describes a case with complete AV block which presented electrocardiograms indicating retrograde conduction to the auricles. This abnormality was attributed to temporary depression of the SA node or increased excitability of the AV node.

Duclos does not accept the opinion of some authors who explain the auricular contractions as resulting from mechanical stimulation by the ventricle.

Luisada


In 100 normal subjects, ranging in age from 5 to 90 years, duration, amplitude, area, and axis of the P wave were studied. The contour of the P wave in standard, precordial and unipolar limb leads was also considered. The results obtained are the following: The duration of P ranged from 0.06 to 0.12 (mean 0.08). The maximal amplitude was 2.5 mm. in the standard leads and 2 mm. in the precordial leads. The axis of the P wave was directed between +30 and +75 degrees (mean amplitude +54 degrees). The area of the P wave presented values ranging from 1.2 to 12.1 microvolts per second. The P wave was constantly positive in leads I and II; isoelectric or diphasic in III; always negative in aVR and positive in aVF; positive or diphasic in aVL. In V1, it was found to be positive (40 per cent), negative (6 per cent), or diphasic. In V2, it was positive (75 per cent), isoelectric (5 per cent), negative (6 per cent) or diphasic (17 per cent). It was nearly always positive and seldom isoelectric in V3 and V5.

Electrophysiologic explanations concerning the morphology of the P wave are given. The electrical manifestations of the auricular activity can be represented by two vectors: the vector of depolarization of the right auricle and that of the left auricle. The former is directed downward to the left and from back to front; the latter, downward to the left and from front to back.

Luisada


A study was made of the precordial T wave in the V leads of 187 normal children and young adults, ranging from 2 weeks to 20 years of age. The findings of this study were compared with those from a group of 164 subjects of the same age range who either had cardiovascular disease or whose cardiovascular systems might have been affected by another disease or by medication. In the normal group of children between the ages of 2 weeks and 9 years an upright T wave never occurred in V5 or leads further to the right. In 16 of the 80 abnormal cases between 2 weeks and 9 years, an upright T wave was present in the right precordial leads.

From their study and its correlation with a survey of the literature, the authors conclude that in children between 2 weeks and 9 years an upright T wave in V5 or leads further to the right should be considered abnormal and proved otherwise. Unexpected T wave configuration in specific leads should indicate repetition of the electrocardiogram and re-examination of the child. The T wave from V4R to V5 gradually changes from negative to positive. A reversal of this picture is considered abnormal.

Margolies


The authors studied the unipolar chest leads of the posterior wall in 100 normal subjects and in 100 cardiac patients.

The exploring electrode was placed as follows: V7, posterior axillary line, fifth intercostal space; V8, inferior angle of the scapula; V9', left scapulovertebral space; V9, right scapulovertebral space.

In normal subjects, V7 had the same pattern as V9, but with a lower voltage (QR, positive T); V8, in 60 per cent of the cases, had a QR complex with positive T; in 40 per cent a QR complex with diphasic or isoelectric T wave (T positive in all cases in sitting position); V9', a QR complex and positive (36 per cent), negative (42 per cent), or isoelectric (22 per cent) T wave.

According to the position of the heart, the following changes of the T wave were noted: horizontal or semihorizontal heart, positive (11 per cent), isoelectric (6 per cent), or negative (15 per cent); intermediate position, positive (3 per cent), isoelectric (5 per cent), or negative (12 per cent); vertical and semivertical heart, positive (17 per cent), isoelectric (10 per cent), or negative (15 per cent).

Both in the supine and the sitting position, V9 showed a QR complex with negative T wave.

In cardiac patients, the findings were variable, and no correlation to clinical picture or the anatomic conditions was possible.

The failure of the method can be related to the fact that the exploring electrode is too far from the heart, so that both epicardial and cavity potentials are recorded; therefore, small lesions cannot be diagnosed.

Luisada


The authors studied the effect of large (0.4 mg. per Kg. of body weight) intravenous doses of hista-
mine acid phosphate on the cardiac mechanism and the myocardium of normal unanesthetized rabbits and guinea pigs. Respirations ceased within two to three minutes. Electrocardiographic changes included variations in heart rate and mechanism (sinus tachycardia, ventricular tachycardia, auricular fibrillation, atrioventricular block, and ventricular arrest), prolongation of intraventricular conduction and electrical systole, alteration of T wave and displacement of the S-T segment. Ventricular asystole occurred within 10 to 20 minutes. The protective action of Benadryl (3 mg. per Kg. of body weight) against histamine was demonstrated by the mildness of the histamine shock and by the occurrence of minimal transient S-T deviations when both drugs were administered simultaneously. The lesser protection of intraperitoneal Benadryl preceding histamine was thought to be due to slower absorption. Microscopic examination of the heart following histamine shock revealed no definite pathologic changes other than scattered areas of focal hemorrhage due to shock itself. Sections of the hearts of animals protected by antihistaminics showed no pathologic changes. The electrocardiographic changes in guinea pigs and rabbits appear to be similar in artificial asphyxia, anaphylaxis, and histamine shock.

Hellerstein


The authors have employed the geometric arrangement of the cube for electrode placement to obtain vectorcardiograms in three planes. It is assumed that the central origin of all electromotive forces generated by the heart is located in the center of a sagittal plane passing just to the left of the sternum at the level of the fourth intercostal space. Four electrodes are placed on four of the corners of a cube having this point at its center and being equidistant from the theoretic center as much as the anatomy of the thorax allows. The electrodes are located as follows: (1) near the right posterior axillary line at the level of the first and second lumbar vertebrae, (2) in the left posterior axillary line, (3) vertically over the right scapula and (4) sagitally, anteriorly in the right anterior axillary line. Frontal, horizontal and sagittal projection are recorded simultaneously on a special triple cathode ray oscilloscope. Application of the electrodes and recording of the vector projection in three planes required no more than five minutes. The reasons for preferring the cube arrangement to the equilateral tetrahedron are discussed. In the tetrahedral system analysis of the size and direction of the forces acting in the horizontal plane requires construction of wire models or use of stereoprojection because of tilting of the horizontal projection. In the cube arrangement, there was close correlation of the horizontal projection of the vector loop with the unipolar chest leads recorded at similar levels. The configuration of all chest leads could be predicted from the horizontal loop. In similar analyses of cases where the tetrahedral or sagittal triangle was used and where lead I and the sagittal component gave the projection a tilted horizontal plane, there was poor correlation. The authors present other reasons for considering the cube arrangement of the electrodes superior to the tetrahedral arrangement of Wilson, the sagittal triangle of Arrighi, and the double cube arrangement of Duchosal and Sulzer.


The authors have studied simultaneously recorded frontal, sagittal, and horizontal plane vectorcardiograms of 20 patients with left ventricular hypertrophy, 14 patients with left bundle branch block, and two patients with intermittent left bundle branch block. A cube arrangement of electrodes was employed. The vectorcardiograms of the patients with left ventricular hypertrophy were characterized by the inscription of the QRS sE loop in the frontal plane in the I or VI sextant of Bayley, recorded in a counterclockwise direction in 17; in three, the loops were narrow and “figure 8” in configuration with the distal portion inscribed in a clockwise direction. The sagittal plane QRS sE loop was inscribed in a clockwise direction and was downward and posterior in 12, upward and posterior in six, and upward and slightly anterior in two. The horizontal QRS sE loop in each case was inscribed in a counterclockwise direction posteriorly and to the left. The time markings in all planes were regularly spaced along the loop, unlike that in left bundle branch block where there was definite delay in the inscription of the QRS sE loop. In left bundle branch block, the QRS sE loops in the frontal plane were also in the I or VI sextant and were also inscribed in a counterclockwise direction. The sagittal plane QRS sE loops, as in left ventricular hypertrophy, were inscribed in a clockwise direction but were consistently upward and posterior. In the horizontal plane, the QRS sE loops were inscribed posteriorly and to the left. However, in the horizontal plane, the direction of the inscription was clockwise in every patient with left bundle branch block as distinguished from left ventricular hypertrophy. This difference in direction of the inscription of the horizontal plane QRS sE loop is explained by the earlier activation of the posterior basal aspect of the left ventricle in left bundle branch block, since a shorter time is required for the excitation process.
to spread from the right side of the septum to the posterobasal aspect of the left ventricle than to the anterolateral aspect of the left ventricle. Normally, the last part of the heart activated is the posterobasal aspect of the left ventricle. In two patients with intermittent left bundle branch block, the direction of rotation of the QRS loop in the horizontal plane changed from counterclockwise to clockwise and delay appeared in the inscription of the loop. The vectocardiographic patterns are considered sufficiently pathognomonic to distinguish between left ventricular hypertrophy, incomplete and complete bundle branch block.

Hellerstein


One thousand patients had electrocardiograms taken before shock therapy and many showed deviations from the norm suggestive of "myocardial damage." Fifty such cases were studied after shock therapy. Low voltage T waves in lead I returned to normal in 12 of 16 cases and in all four cases of low voltage T of the two in five cases with inverted T and T did reversion to normal occur. Depressed S-T and S-T returned to the isoelectric line in seven of nine cases. Diphasic T waves in the precordial leads became normal in 8 of 13 patients whereas 11 of 14 with low voltage became normal. Inverted T waves in the precordial leads became normal in three of five cases.

The authors believe that the T wave and S-T segment changes noted in many mentally disturbed patients result from autonomic nervous system imbalance.

Bernstein


Changes in Vv may be the sole electrocardiographic abnormalities in posterior myocardial infarction. Relative negativity of the left leg in relation to the left arm may explain the presence of a Q wave in standard limb lead III in the absence of disease. In anterior myocardial infarction, the earliest signs may appear in the left arm lead. Abnormalities in Vt in horizontal hearts and in Vv in vertical hearts may be earliest or most prominent findings in left ventricular hypertrophy. Myocarditis may be revealed solely by changes in the unipolar extremity leads and particularly in the unipolar lead of the left leg. Since the P wave is often most clearly seen in Vv, this lead is frequently employed to determine the site of origin of the auricular pacemaker. Inspection of the unipolar extremity leads will permit precise evaluation of the degree of cardiac rotation. At times, study of the unipolar extremity leads will permit the conclusion that the changes in Vv do not reflect left ventricular potentials, thereby establishing the need for additional circumferential leads.

Wendkos


The electrocardiographic findings in 10 patients in whom the presence of a ventricular aneurysm had been established by fluoroscopic study or necropsy revealed that persistent RS-T segment displacement in association with normal intraventricular conduction occurred in eight of this group. The same change constituted the most common significant finding in 55 substantiated cases of ventricular aneurysm reported by other authors. Although the existence of a persistent RS-T displacement may strongly suggest the development of a ventricular aneurysm, it must not be concluded that the diagnosis will be confirmed in every case in which a persistent RS-T pattern is noted. There are various theoretic explanations for the persistent RS-T segment displacement with ventricular aneurysm but the responsible mechanisms are still obscure.

Wendkos


The author expresses the opinion that cardiac aneurysms occur in about 5 per cent of the cases of coronary thrombosis which require hospitalization. The records from a medical clinic with an annual turnover of approximately 2000 patients were reviewed over a six year period. Nine patients were encountered whose electrocardiograms showed changes which were believed by this writer to suggest ventricular aneurysm. These abnormalities were remnants of previous infarction in lead I (deep Q, or somewhat elevated S-T segment with or without negative T waves), deep S, and S deflections not exceeding 0.12 second in width with positive T waves, and deep Q or S deflections with distinctly elevated S-T segments in lead IV. Cardiac aneurysms disclosed by autopsy or reoxygen examination were said to be present in seven of the nine patients. One patient had a fresh myocardial infarct and the opportunity did not arise to verify the electrocardiographic diagnosis in the other case.

Rosenbaum


The authors studied the electrocardiograms of 125 cases of bundle branch block in whom the diagnosis of ventricular hypertrophy was based on clinical and roentgenologic or anatomic findings.
In the presence of left bundle branch block, left ventricular hypertrophy is suggested if the sum of R, and S, is more than 25 mm., the R wave in V, 11 mm. or more, the R wave in V, or V, measures 26 mm. or more and the sum of S in V, and R in V, or V, equals or exceeds 35 mm. Right ventricular hypertrophy can be suspected with a normal electrical axis in the standard leads or with a vertical electrical position of the heart. Absence of these signs, however, does not exclude ventricular hypertrophy, especially in cases with chronic coronary insufficiency.

In right bundle branch block, right ventricular hypertrophy must be suspected if R' in V, or V, exceeds 10 mm. and (in adults), if S in V, and V, is deeper than 10.5 mm. Left ventricular hypertrophy is suggested by large voltages of R, and S, (sum >25 mm.) in tall R in V, (> 11 mm.) and in V, or V, (> 25 mm.), the latter sometimes associated with inverted and asymmetric T waves; a delay of the intrinsicioid deflection (> 0.05 second) in the left preordial leads. The diagnosis of ventricular hypertrophy in right bundle branch block is certain only in the presence of clinical and radiologic signs of heart strain. Chronic coronary insufficiency may produce similar patterns.


In 37 cases with various types of intraventricular conduction defect, electrokymograms of the pulsation of the aorta and pulmonary artery were recorded simultaneously with the electrocardiogram. The material was divided according to the side of the lesion and subdivided into cases of "major blocks" (QRS duration of 0.12 second or more) and "minor blocks" (QRS duration of 0.10 to 0.11 second). The duration of QRS and the delay of the intrinsicioid deflection in the preordial leads were correlated with the degree of delay of ejection of the left and right ventricle, determined as distance between the onset of QRS and onset of the pulsation of the aorta and pulmonary artery respectively.

A delayed ventricular ejection was usually but not invariably present at the side of the block. Asynchonism of ejection was found more often in left- than in right-sided intraventricular blocks and more often in "major" than in "minor" blocks. The degree of delay bore no relation to the duration of QRS. In cases with intermittent intraventricular block, the ventricular ejection time may or may not change with variations of the electrocardiographic contour. The delay of ejection was seen to dissipate transiently in the beat terminating the compensatory pause of a premature contraction.

The authors conclude that these facts cannot be explained by the classic theory of a block in a bundle branch, and are in better accordance with their previously developed concept of localization of intraventricular conduction defects in the free walls of the ventricles.

Seventy-five cases with right ventricular preponderance were divided into five groups: infants and children between 3 weeks and 3½ years; congenital heart disease; acquired valvar disease; chronic cor pulmonale; acute cor pulmonale. This classification was based on clinical and partly on autopsy findings and correlated with electrocardiographic findings. The authors arrived at the following conclusions:

The electrocardiographic pattern of uncomplicated right ventricular hypertrophy is a tall, narrow R wave over the right precordium, and an rs or RS complex over the left precordium. Higher degree of hypertrophy produces notching of R in V_{4R} and V_{6}; if associated with dilatation of the right ventricle, they find a W-shaped complex with a late R wave and QRS prolongation to 0.10 second or the pattern of complete right bundle branch block. The distinction of the latter from incomplete right bundle branch block can be made by its typical QRS and ST-T contour rather than on the base of QRS duration. Small notching of QRS in V_{1}, if not associated with alteration of QRS in the left-sided chest leads and with a late R wave in a V_{6}, has no significance. Inverted T waves over the right precordium are normal in children up to an age of 6 years. Transient deep T inversion of symmetric contour, found in adults, indicates acute right heart dilatation (acute cor pulmonale).

**PHARMACOLOGY**


The effect of various ions on the contractile force and electrical potentials of the papillary muscle from the cat’s right ventricle was determined by suitable recordings after electrical stimulation of the muscle. The method employed allows the study of uninjured, well oxygenated mammalian heart muscle uncomplicated by variations in rate, rhythm, blood supply, circulating epinephrine and other factors occurring in similar experiments in isolated perfused hearts or in intact animals. An increased potassium ion concentration resulted in inversion of the T deflection, widening of the R deflection, and diminution of the contractile force. Potassium lack resulted in a repetitive response to each electrical stimulation. The ammonium ion produced a widening of the R deflection and the R-T interval and an increase in contractile force. Increasing the concentration of calcium content was accompanied by a diminution of systolic force without producing a change in the electrocardiogram until the calcium level was so low that no contractile force could be recorded. At those levels the R-T interval decreased and the R-T segment became elevated. The addition of strontium to a solution containing the usual amount of calcium produced the same effect as the addition of equimolar calcium. The addition of strontium to a solution low in calcium resulted in widening of the R-T interval and prolongation of systole. These effects could be abolished by adding calcium. The magnesium ion had no effect on the electrocardiogram or the myogram.

**SAGALL**


The observations in this paper deal with the serum potassium level, urinary electrolyte excretions following the injection of 8 Gm. of potassium salts in normal subjects, and in patients with compensated heart disease and those with severe cardiac failure.

Although potassium is readily absorbed from the gastrointestinal tract, as evidenced by the rise in serum potassium level, patients with congestive heart failure cannot excrete the excess potassium as rapidly as normal individuals. The renal clearance of potassium in the congestive failure group was much lower than in the normal group. The renal mechanism for potassium conservation is probably tubular in origin and is under endocrine control. In many of the subjects, the administration of potassium seemed to bring about a sodium diuresis.

In the normal group and in most with compensated heart disease the electrocardiographic changes produced by potassium involved the process of recovery only with changes in the shape of the T wave. In subjects with advanced heart failure, potassium produced severe changes in both the QRS complex and the T wave. These electrocardiograms were similar to those which are characteristic of potassium intoxication in uremia. The depressing effect of potassium on impulse conduction and presumably on the refractory period of auricular and ventricular muscle was characteristic of changes similar to those obtained by quinidine therapy. Prolongation of the auriculoventricular conduction and complete auriculoventricular heart block were observed.

The implication of this work is that the injection of potassium salts may produce toxic effects in subjects with severe heart disease even though there is an adequate urinary output.

**MINTZ**


There is evidence that the colloidal state of serum lipids are an important factor in the genesis of
atherosclerosis. The author injected stable lecithin sols to rabbits, with resulting damage particularly to the mediums of the large arteries. Other rabbits received various intravascular mixtures of cholesterol and lecithin. The small arteries and arterioles were predominately harmed by cholesterol. As visualized by tissue sections 30 minutes after injection of the cholesterol-lecithin mixture, the cholesterol effect alone persisted. Regardless of the proportion of the two substances, lecithin does not prevent intimal damage caused by cholesterol under the conditions of this experiment.

**Waife**


In order to determine the relationship of adrenal cortical stimulation to the administration of salicylate and gentisate, the authors studied their effect on the eosinophil count of four subjects. Plasma-salicylate, and gentisate concentrations were used to guide these determinations and the studies were preceded by eosinophil counts after testing each subject with grain 1 of ephedrine. It was found that no significant depression of eosinophils occurred in the circulating peripheral blood with the plasma-salicylate concentrations up to 38 mg., and with gentisate concentrations up to 35 mg. per 100 ml. in normal subjects, while a decrease of about 50 per cent in the number of circulating eosinophils occurred four hours after grain 1 of ephedrine was given.

Inasmuch as adrenocorticotropic hormone causes a pronounced eosinopenia these results suggest that the normal adrenal cortex is not stimulated by either salicylates or gentisate as administered in this study.

**Tandowsky**


Observations were made of the local reactions to 1132 subdermal Meralluride injections in 200 cardiac patients with congestive failure. The doses varied from 0.5 cc. to 2.5 cc. Four hundred eighty-four of these injections were obtained from the 2 cc. ampules and in 648 injections were made from the 10 cc. vials. No appreciable difference between the two materials was evident. Three out of four patients tolerated subdermal Meralluride injections without reaction of any consequence. In the fourth patient reactions occurred in the form of pain, ecchymosis, fibrous nodules or a combination of these, with intensity sufficient to threaten the continuation of the treatment. In those patients found susceptible to a "troublesome" reaction the treatment did not occur with each administration but were noted in one out of every three injections. "Troublesome" reactions varied with the size of the dose and were noted more often when the injection was given in the arm than in the buttock. Diuretic efficacy did not vary between subdermal and intramuscular types of injection. Mercurophyline, merusalyl and theophylline were found to be much more active than Meralluride in the production of "troublesome" reactions. The authors feel subdermal use of Meralluride may well afford a satisfactory method of self administration of mercurial diuretics.

**Kitchell**


A patient with diffuse scleroderma, involving the skin, the lungs and the esophagus, was treated with cortisone. Decided improvement of the esophageal peristalsis was observed under the influence of the hormone. The skin became more pliable and softened, but there was no restitution to normal. No change in the pulmonary involvement was observed roentgenologically, although the cough stopped. Serial skin biopsy specimens taken before and during treatment revealed a loosening and thinning of the initially thickened and swollen collagen bundles under the influence of cortisone. The significance of these changes is discussed.

**Bernstein**


Gangrene occurring in five diabetics was treated with a liquid containing about 100,000 to 400,000 units of streptokinase and 40,000 to 150,000 units of streptodornase dissolved in sterile isotonic saline, to which Aureomycin powder was added to form a liquid which was applied locally every 24 hours to the gangrenous lesions. Excellent results were obtained in three cases, and definite improvement was noted in the remaining two. There has been no evidence of recurrence of gangrene. In one case of radiation necrosis following roentgen therapy for local transitional cell carcinoma, there was excellent response. It appears that "medical debridement" using streptokinase and streptodornase is of value in the conservative treatment of diabetic gangrene.

**Bernstein**


The serum hexosamine levels of 11 patients with acute disseminated lupus erythematosus were fol-
lowed during cortisone and ACTH therapy. Ten of these patients showed abnormally high levels before therapy, which invariably fell during treatment with either drug. When the dosages of these hormones were reduced to clinically ineffective levels, the serum hexosamine level invariably increased, to fall again when the dosages were increased. The initial fall was effected between three days and a week from the beginning of treatment. In six of the cases, in whom more frequent determinations were made, there was an initial rise in serum hexosamine level within three days after therapy was started, lasting one to five days, and followed by the usual fall. The hexosamine levels during the periods of most effective therapy fell with the normal range in only one instance. The possible relation of serum hexosamine levels in acute disseminated lupus erythematosus to the increase in certain mucopolysaccharides seen pathologically in the connective tissue was discussed.

CORTELL

PHYSICAL SIGNS


The authors recorded intrathoracic phonocardiograms on three patients undergoing pneumolysis. The maximal frequency for heart sounds and murmurs by this method was found to be 50 cycles per second. Extrathoracic phonocardiograms recorded faint murmurs with frequencies up to 125 cycles per second. The authors feel that the higher frequencies recorded on the chest wall are due to additional frequencies which originate in the tissues (or the air space) placed in the path of the acoustic waves.

GELFAND


Significant aortic stenosis, almost always calcareous, is a common clinical and pathologic entity. In this study, it occurred in 1.8 per cent of routine necropsies.

In 25 proved cases of isolated calcareous aortic stenosis heart failure and infective endocarditis were the commonest causes of death. In only three cases was aortic stenosis an incidental postmortem finding.

A correct clinical diagnosis was made in just over half of the cases. On the basis of the classic signs of a slowly rising pulse, an aortic systolic murmur and thrill, and an absent second sound, less than on-sixth of the cases would have been recognized clinically.

Reasons are given to show that considerably more than half the reported cases might have been correctly diagnosed in life. A more careful evaluation of harsh aortic systolic murmurs and demonstration by fluoroscopy of grossly calcified aortic valves could have settled the diagnosis in some cases; a closer study of the natural history of the disease at the onset of symptoms should have directed attention to the valvular lesion in others.

BERNSTEIN


The authors call attention to a squeaking or whistling systolic murmur which is usually loudest in the apical region, left sternal border or lower precordium. This murmur is said to be associated always with a rough or rasping systolic murmur, with or without a high pitched quality, and sometimes quite faint in intensity, located in the right second intercostal space. These murmurs are said to be very suggestive of aortic stenosis or calcification of the aortic valve. The authors observe that the earliest finding in aortic stenosis is a relatively faint systolic murmur with a definitely harsh quality, with or without a terminal high-pitched component localized in the second right intercostal space. Aortic stenosis may be present even though the other clinical studies disclose a normal or even accentuated aortic second sound, a wide pulse pressure, a normal electrocardiogram, a normal heart size and even normal cardiac configuration on x-ray examination. It is emphasized that the murmur of aortic stenosis may be most prominent at or near the apex rather than in the aortic area. Six illustrative cases are described.

ROSENBRAUM

PHYSIOLOGY


After rapid, massive transfusion in normal dogs, arterial and venous pressures rise and then return to control levels within a few minutes. During the readjustment of pressures, 65 per cent of the fluid given leaves the vessels in the first two minutes. Neither pressoreceptor denervation nor spinal anesthesia changes this result. The level to which blood pressure returns after transfusion is largely determined by sympathetic activity and not much by the transfusion. After massive hemorrhage the return of pressure is only partial because interstitial fluid enters the circulation very slowly.

OPPENHEIMER

Excitation and recovery records were obtained using microelectrodes having tips of less than 1 micron in diameter. Frog heart muscle fibers have average resting potentials of 64.5 mv. and average action potentials of 77.2 mv. At depolarization (single fibers) the resting potential falls rapidly until the interior of the cell becomes positive by an average of 12.7 mv. at the height of excitation. Onset of depolarization coincides with beginning of QRS and the end of repolarization with T wave when simultaneous surface records are obtained. Closely adjacent cells show different voltages and durations. The duration of membrane action potential decreases as heart rate increases.

OPPENHEIMER


The authors demonstrated an association between the vulnerability to fibrillation and asymmetries in the progression of normal atrial recovery after a previous response. This vulnerability coincides with the major dip area of the excitability-recovery curve of the dog's atrium. The interval during which stimulus strengths well above the threshold produce no response at all ("disappearance phenomenon"), although somewhat weaker supraliminal stimuli cause fibrillation, tends to precede and overlap the period of vulnerability.

OPPENHEIMER

Daley, R., Wade, J. D., Maraist, F., and Bing, R. J.: Pulmonary Hypertension in Dogs Induced by Injection of Lycopodium Spores into the Pulmonary Artery, with Special Reference to the Absence of Vasomotor Reflexes. Am. J. Physiol. 161: 380 (Feb.), 1951.

The authors concluded, on the basis of injection of lycopodium spores into the pulmonary artery, that local embolism does not cause generalized vascular constriction. Injections into the main pulmonary artery caused a considerable rise in pulmonary blood pressure but injections confined to a lobe did not do so. In the main, pulmonary end artery pressure and pulmonary arteriolar resistance rose as the pulmonary arterial pressure rose. Rises in pulmonary pressure due to lycopodium spores was not prevented by bilateral cervical section of the vagus nerves or by bilateral section of the thoracic anterior roots. In one dog an extensive bilateral upper thoracic sympathectomy did not prevent the rise. These spores produce hypertension by occluding pulmonary arterioles. They do not reach the systemic circulation. Repeated injections can produce a persistent pulmonary hypertension of several weeks duration.

OPPENHEIMER


By direct observation, with microphotography in frog mesenteric, and by measuring resistance to flow in isolated frog hind limb and isolated rabbit ear, critical closing pressures were studied. Critical closing pressures were considered to have been demonstrated if flow becomes zero while there is still a positive head of perfusion pressure. The critical closing pressure is the pressure head measured at this point. Small vessels of frog mesenteric act very much like rigid tubes when perfusion pressure is high but are very unstable when pressure is below 10 cm. saline. Flow ceases in perfused frog hind limb at 3 to 6 cm. saline. This residual critical closing pressure is due to interfacial tension between perfusate and vessel which it does not completely wet. In rabbit's ear or hind limb the presence of vasomotor tone raises critical closing pressures above these residual values, at times even to values above existing arterial blood pressure. Resistance is well correlated with critical closing pressures at high pressures. The authors point out that vascular spasm may be considered as indicating that critical closing pressure has risen above arterial blood pressure. Under these circumstances raising the intrarterial pressure (by arterial transfusion) would forcibly open vessels and give an appreciable flow.

OPPENHEIMER


The sodium "space" as determined by the use of radioactive sodium was determined in 37 infants and children ranging in age from 16 hours to 14 years, and in 19 men from 22 to 34 years of age. The volume of sodium distribution at any given time was computed by dividing the quantity of sodium injected by the quantity in 1 cc. of serum. One hour and forty-five minutes to four hours and thirty minutes was permitted for the distribution of sodium in the infants and children, and in the adults, two hours and forty-five minutes to three hours and forty-five minutes was allowed for equilibration. The volume of fluid through which radioactive sodium was rapidly distributed (sodium "space") was computed as percentage of body weight, and varied from 23.2 to 51.7 per cent in the infants and children, and from 19.7 to 35.8 per cent in the adults. The sodium "space" was in general considerably higher in young infants than in older children, and somewhat lower in the adults than the older children.

The authors state that the data indicates that the
volume of fluid occupied by sodium in relation to body weight declines as growth proceeds.

Margolies

Croatto, H., Rojas, G., and Barnaši, L.: An Anti-
diuretic Substance Obtained by Digestion of Glob-
ulin with Pepsin. Science 113: 494 (April 27),
1951.

When the globulin fraction of the plasma contain-
ing hypertensinogen is treated with pepsin a hyper-
tensive principle (pepsitensin) is obtained. Another
substance with marked oxytocic effect is also pro-
duced. The authors describe a third substance which is
obtained if extracts containing pepsitensin are
digested again with pepsin at a pH of 2.5 to 3.5
for twenty-four hours. This substance produces an
intense antidiuretic action. The results suggested a
close relationship among pepsitensin, hypertensin,
vasopressin, and oxytocin.

Waife

RHEUMATIC FEVER

Ibrahim, M., Sorour, A., and Elsherif, A.: Splenic
Enlargement in Congestive Heart Failure and
Active Rheumatic Infection. Brit. Heart J. 13:
212 (April), 1951.

The authors analyzed the incidence of splenic
enlargement in 206 individuals with congestive fail-
ure and in 67 with active rheumatic carditis
without failure.

There were seven instances of splenic enlargement,
three with failure and active rheumatic carditis,
two with failure due to chronic rheumatic heart
disease and two with rheumatic infection without
failure. No splenic enlargement was present in the
absence of a rheumatic etiology.

Predominant hepatic congestion or active rheu-
matic infection appears to predispose to splenic
enlargement.

Soloff

Rantz, L., Maroney, M., Di Caprio, J.: Antistrept-
tolysin O Response following Hemolytic Strept-
tococcus Infection in Early Childhood. Arch. Int.
Med. 87: 360 (March), 1951.

Respiratory infection with group A hemolytic streptococcus and the associated antistreptolysin
response were studied in infants and children. Three
distinct antistreptolysin response patterns were dis-
covered. Antibody production was feeble in infants
and a few older children. The response was vigorous,
but levels of antibody were poorly maintained in a
group with an older average, but with wide ex-
tremes of age. The response was vigorous and titers
were well maintained in a still older group of chil-
dren.

Evidence is presented which indicates that these
varying patterns of antibody response with ad-
vancing age are the result of conditioning of the
antibody-forming organs by repeated infection with
hemolytic streptococci although it is reasonable to
suggest that the increased peak levels attained and
the better maintenance of titers are simply the
results of maturation of the antibody-forming ap-
paratus.

The possible relationship of the immunologic phe-
nomena in the elucidation of the pathogenesis of
rheumatic fever is discussed.

Bernstein

Browning, J. S., Rice, B., and Ulrich, C.: Alterna-
tions in Blood Proteins in Rheumatoid Patients.
Am. J. M. Sc. 221: 183 (Feb.), 1951.

The method of Jager and Nickerson was employed
to determine the concentration of gamma globulin
in the blood of patients with rheumatoid arthritis,
rheumatic fever, infectious arthritis, and degenera-
tive joint disease. In addition, antistreptolysin titers
were obtained on the sera of these patients. The
results demonstrated that the gamma globulins are
elevated in rheumatoid arthritis and rheumatic fever
as shown in previous studies using electrophoresis.
However, it was felt that the complexity of the
procedures did not warrant their use as a part of
the study of patients with these diseases. Only 13
of the 52 rheumatoid arthritis patients sustained an
elevated antistreptolysin titer, while all the rheu-
matic fever sera manifested elevated titers for this
antibody. There was no definite parallel between
gamma globulin concentrations and antistreptolysin
titers.

Shuman

Bunim, J. J.: The Clinical Effects of Cortisone
Acad. Med. 27: 75 (Feb.), 1951.

The effects of cortisone and ACTH on rheumatic
fever, rheumatoid arthritis, lupus erythematosus,
dermatomyositis, and scleroderma are presented on
the basis of 44 patients treated by the author.
Marked clinical improvement was found frequently
in patients with rheumatoid arthritis and acute
rheumatic fever, less frequently in lupus erythema-
atosus, and least in scleroderma and dermato-
myositis. The therapeutic results were determined
to a large extent by the severity and duration of the
disease and the ratio of reversible to irreversible
changes present prior to the institution of treatment.
Although in many cases a striking clinical and labora-
tory remission or even a life-saving action was ap-
parent, there was no conclusive evidence that the
disease was cured or even that its ultimate course
was significantly altered. After discontinuation of
hormonal therapy relapses or recurrences generally
occurred. Reversible side effects resulting from ex-
cessive adrenal cortex stimulation by ACTH or
from increased amounts of exogenous cortisone were
observed in a number of patients, but did not seem to interfere with the therapeutic effects.

SAGALL

The author shows that the total annual death toll from rheumatic fever and rheumatic heart disease has decreased to less than 3000 in 1946 and a little above 2500 in 1948. Mortality from rheumatic fever plus diseases of the heart holds an increasingly high place among fatal diseases in white children 5 to 19 years of age. The reason for this is the decline in other childhood diseases rather than in increase in rheumatic fever. Mortality from rheumatic diseases among white children has distinctly decreased over the past decade. The downward trend among nonwhite children is not consistent. There seems to be a distinct rise with age in mortality in each succeeding age group from 5 to 19 years for both races and sexes. Death rates are consistently higher for nonwhite children than for white, suggesting that unfavorable environment increases the risk of dying from rheumatic heart diseases. Death rates were somewhat higher among girls than among boys, an exception being the lower rate for white girls 15 to 19. Geographical variations showed that the death rates (adjusted for race composition) were below average in the three southern divisions, while in the Northeast, especially the Middle Atlantic division, they were significantly above average. In the Pacific division the death rates were low and significantly below the country's average, while in the Mountain division they were exceptionally high for white children.

KITCHELL

Results of large scale, controlled observations on the prevention of acute rheumatic fever in acute streptococcal respiratory infections by the prophylactic use of depot penicillin indicate that the incidence of acute rheumatic fever is sharply reduced by adequate and prompt penicillin prophylaxis, that streptococci usually disappear from the oropharynx, and that there is marked inhibition of antibody (antistreptolysin) formation. The most marked antibody inhibition was obtained by three injections of penicillin totaling 1,200,000 units over a 96 hour period. In 1178 patients receiving penicillin only a total of 10 developed rheumatic fever while in 1162 patients with exudative tonsillitis or pharyngitis who did not receive penicillin 42 cases of rheumatic fever occurred. Reinfection with a new type of streptococcus frequently occurred when the interval between the onset of the observed attack of tonsillitis or pharyngitis and the onset of rheumatic fever was prolonged.

HARRIS

The author reports on the effect of 500 mg. of progesterone and 33.3 mg. of estradiol benzoate given together intramuscularly on 64 patients with rheumatic fever, ranging in age from 3 to 39 years. Twenty patients had typical polyarthritis, 10 had rheumatic carditis, and 34 had both features. The doses of progesterone and estradiol compare in magnitude with the amounts of these hormones excreted during the late stages of pregnancy. During the period of hormone injection, all other therapy was withheld. The injections were given at four to eight day intervals, with two to nine injections being necessary during any one attack. Satisfactory responses, that is, disappearance of all signs of rheumatic activity, were recorded for 49 patients; slight responses, in which pain and temperature were reduced but not abolished, and other signs remained, in five patients; and no benefit at all in 10 patients. Side actions reported were euphoria, drowsiness, mammary enlargement, and uterine withdrawal bleeding. In some older males there was a slight diminution of libido.

COTTLE

ROENTGENOLOGY

A rapid method of angiocardiography capable of taking up to 16 pictures per second is described. Two magazines of cassettes are used, one in the horizontal plane and the other in the vertical, the maximum in each plane being 70 cassettes. By means of strong spiral springs in the bottom of the magazines, the packs of cassettes are pressed against a rotating disk in which there is a radial slit. With each revolution the disk catches the upper cassette from the magazine and brings it in position to be exposed. During the exposure all the other cassettes are protected from radiation by the disk. The exposed cassette is ejected by a spring wheel into a collecting bag just before the disk engages the next one.

From this method, conclusions can be drawn regarding the extreme and intermediate changes in size and shape of the heart cavities during the cardiac cycle and also the hydrodynamics of the fluid flow.
ing through the different chambers. In addition, with frequent sequence of exposures, it is possible to show such only momentarily visualized events as the transient filling of a patent ductus and even small shunts inside the heart.

**ABRAMSON**


Fundamentally, the arteries supplying the cerebrum are surface vessels; therefore, the most obvious changes seen in cerebral angiograms are those associated with lesions situated on or near the surface of the brain. The frequent variations in the course, the site of origin and, occasionally, in the size of normal cerebral vessels, present a problem in the interpretation of angiographic findings that is confounding even to the most experienced examiner. The angiographic signs of intracranial disease may be classified as direct or indirect. The direct signs, which consist of nonfilling, intrinsic alterations in the shape or caliber of the lumen, and abnormal combinations of vessels, occur in the presence of lesions primary within a vessel itself, such as coarctation, thrombosis, aneurysm or arteriovenous fistula.

The indirect angiographic signs are those changes in the vascular pattern which result from a lesion extrinsic to the blood vessels. These signs consist essentially of lack of filling or displacement of vessels, or both. The value of cerebral angiography as related to pneumoencephalography and ventriculography must be established by a review of experiences with both procedures in similar cases. At the present time, with the exception of primary vascular lesions, other lesions that are central, intraventricular, parassagittal, or in the posterior fossa are usually localized more satisfactorily by pneumography. As a matter of fact, in many cases in which an actual tumor pattern is not disclosed by angiography, pneumography may be indicated because the interpretation of the actual size and position of a mass as revealed by indirect angiographic signs alone is often difficult even for an experienced observer. Two other factors, namely, (1) the protection of personnel and the patient, and (2) the cost of the examination, require consideration in any discussion of this diagnostic procedure.

**SIMON**

**SURGERY IN HEART AND VASCULAR SYSTEM**


A case is reported of congenital deficiency of the pericardium. The diagnosis was made on postmortem examination. Except for fixation by the inferior vena cava, the distal part of the heart was perfectly free and unattached to the diaphragm. The heart was covered by epicardium but was completely devoid of pericardium except for a rudimentary fold which extended around the right border.

**ABRAMSON**


Anomalies of the adult cerebral vascular tree have been explained as defects in the resolution of the embryonal vascular spaces. A second view is that congenital aneurysms arise from persistent pressure against a weak spot; this is usually located at a bifurcation where one of the arterial coats may be inadequate.

The author presents angiograms showing vascular anomalies and points out that the defects are embryonic. He feels they are the residua of vessels which normally disappear; or they arise from persisting defects of the media not necessarily at a point of bifurcation.

Aneurysms, telangiectases, arteriovenous communications, and hemangioblastomas are all based on embryologic vascular malformations. Cerebral angiograms are of value in detecting and outlining the anatomy of these lesions.

**PROBES**


Studies of cardiovascular dynamics were performed on 31 patients with coarctation of the aorta before and after resection and end-to-end anastomosis of the vessel at the site of the stricture. Blood pressure readings were obtained from the radial and femoral arteries and recorded graphically, using strain gage manometers and indwelling arterial needles.

It was found that, whereas the pressures in the femoral and radial arteries of normal subjects lying supine were equal, in the case of patients with coarctation of the aorta, the average pressure in the radial was 195/85 as compared with 111/81 for the femoral artery. Following operation, there was a tendency for the figures to approach each other. The results obtained with end-to-end anastomosis of the aorta showed a closer approximation to normal than were obtained in those cases in which an end-to-end anastomosis was carried out between the left subclavian and the aorta distal to the stricture. It was the opinion of the authors that the former procedure also gives better results on the basis of clinical evaluation.

The authors performed a stripping operation on 90 patients with varicose veins using a flexible stripper consisting of a cable of several wires with a cove-shaped flange on either end. First a high saphenous ligation was done at the saphenofemoral junction, and the stripper was introduced to the proximal end of the vein. The vessel was then picked up on the medial side of the knee or ankle through a small transverse incision. The vein was stripped by traction in a jerking manner, and bleeding from torn tributaries was controlled by immediate firm manual pressure by the operator. After suturing the wound, a firm elastic dressing was applied from the toes to the groin. The patients were discharged either on the day of operation or one or two days later. No complications occurred. It is felt that the flexible stripper has certain advantages over the older rigid instruments.

Abramson


A case is reported of an aortic aneurysm with sternal perforation which was treated by wrapping the neck of the sac with strips of polythene. Approximately two-thirds of the aneurysm was covered in this manner. Subsequently the mass began to decrease in size, and within four months after the operation it was no longer apparent.

The authors find that polythene strips are superior to whole sheets of this material, since using strips allows for closer approximation of the film to all parts of the vessel wall.

Abramson


A patient with hyperhidrosis of both hands underwent a preganglionic sympathectomy on one side and a postganglionic sympathectomy on the other. Excessive sweating was abolished bilaterally during a two month period of observation. In response to adrenaline, skin temperature fell more promptly or to a greater degree on the side of the postganglionic section. In response to pilocarpine, sweating appeared only on the side of the postganglionic section.

Wessler


A progress report on the problem of revascularization of the heart is presented. Arterial blood has been directed into the coronary sinus by inserting a free vein graft between the aorta and the coronary sinus. Arterial inflow must be restricted by an aortic stoma no larger than 3.5 to 4.0 mm. diameter. The coronary sinus should not be completely ligated either as a preliminary, simultaneous, or subsequent secondary procedure. If it is, too much blood is introduced into the venous tree, so that the pressure approaches aortic and blood flow becomes greatly reduced. The excessive pressure causes cardiac failure or myocardial hemorrhage and scarring, and the reduced blood flow results in thrombosis of the grafts. If a vein graft is inserted between the aorta and the coronary sinus and if the sinus is left open so as to create an aortic-right auricular fistula, the operation is exceedingly well tolerated. Forty-seven consecutive cases have been done without mortality and the grafts have remained open in 65 per cent of the cases. This procedure, of itself, furnishes some protection to the heart against occlusion of a major coronary artery. If, at a second stage, the coronary sinus is partially occluded to 3 mm. diameter, there is no further mortality nor does it cause the grafts to become thrombosed. On the other hand, this two stage procedure has protected 12 out of 13 dog hearts against occlusion at its origin of the anterior descending branch of the left coronary artery.

Beck


If certain precautions are taken to avoid anoxia, the compensated cardiac patient usually withstands surgery almost as well as the one without heart disease. Operation should be postponed, if possible, in the presence of recent infarction, status anoxicus, or congestive failure, but these conditions should not be considered contraindications to imperative operation. In less urgent conditions or operations of choice, whether operation should be performed depends upon the surgical indication rather than the cardiac disease. In general, patients with hypertension or chronic rheumatic cardiovascular disease, particularly aortic insufficiency, tolerate operation best among cardiaics, but aortic stenosis is more uncertain. In complete A-V block, the risk is greatly increased.

In the cardiac patient special attention must be paid to the choice of anesthesia, the prevention of blood loss by transfusion, the prevention of infec-
tion by antibiotics, and the prompt treatment of paroxysmal arrhythmias which may develop.

Cortell

THROMBOEMBOLIC PHENOMENA


A case is reported of a patient with auricular fibrillation in whom four separate episodes of peripheral embolization occurred. The first involved the right femoral artery, the second, the aorta at the bifurcation, the third, the left femoral artery and the fourth, the superior mesenteric artery. The first three occurred within a matter of several days and in each instance was treated by embolectomy. However, the left lower extremity could not be saved and was amputated. The abdominal involvement took place 30 days after the last peripheral embolus and was treated by exploration 18 hours after the onset. The small bowel was found infarcted and the entire involved area was resected and an end to side jejunalostomy was done. However, the patient suddenly died on the eighth postoperative day. At autopsy, mural thrombosis was present only in the left auricular appendage, and this showed early organization.

It was of interest that the aortic embolus occurred while the patient was on dicumarol and with prothrombin levels in the neighborhood of 10 per cent of normal for five days immediately prior to the episode.

Abramson


The authors believe that the application of an extensive prophylactic program can diminish the incidence of thromboembolic disease. Weight reduction, correction of anemia, medical supervision of cardiac abnormalities, correction of varicos veins, good diet, early ambulation postoperatively, and leg exercises, pressure dressings, and avoidance of calf compression following surgery are all part of an adequate prophylactic regime. The value of anticoagulant therapy is accepted. The drug of choice at present is considered to be a long acting repository heparin compound because of the simplicity of administration, rapid and prolonged effect, wide margin of safety, and minimal laboratory control.

Details are given for prophylaxis following general and orthopedic surgery, delivery, and acute myocardial infarction. The prophylactic management of patients with auricular thrombus and embolization, recurrent coronary occlusion, or recurrent idiopathic thromboembolism is outlined. The authors cite their objections to prophylactic vein ligation.

Wessler

VAScular Disease


Arteriovenous communications involving almost every vessel in the body have been reported, including two reports of successful treatment of arterial venous fistula of the abdominal aorta. The present is the first report of an arteriovenous fistula due to trauma involving the thoracic aorta. In November 1946, the patient was in an accident in which he received a small laceration at the base of the neck thought to be due to flying glass from a shattered windshield. One year later the patient began to complain of shortness of breath on exertion, palpitation, and swelling of the feet, legs and abdomen. He was treated as a case of congestive heart failure. In May 1948 he first began to notice buzzing at the base of his neck just beneath the scar of the wound. This buzzing increased in intensity and became audible when the patient lay on the left side. Symptoms increased in severity until January 1949 when he was admitted to the hospital. The patient was studied extensively and treated for his heart failure. On March 11, 1949, operation was performed and a fistulous connection between the aorta and the left innominate vein was found. After repair there were no more signs of cardiac failure. In December 1949 the patient had no symptoms except for slight residual pain in the left shoulder.

Kitchell


The reaction of the cerebral circulation to traumatic shock produced experimentally in dogs was followed by direct inspection of the surface of the brain in situ. The reaction of cerebral arteries of 30 to 50 microns in diameter was studied in enlarged microphotograms.

The authors found that the caliber of the vessels remained unchanged or showed only insignificant variations throughout all phases of shock and appeared independent from variations of blood pressure. In contrast to other vascular systems of the organism, the cerebral circulation seems to react to a drop in the intravascular pressure by active vasodilatation instead of constriction. From the pathophysiological point of view, this represents an attempt of the organism to maintain during shock the circulation in vital areas like in the brain.

Pick


An average of about 13 years duration of diabetes has been noted as the time of first appearance of...
secondary degenerative changes in both juvenile and adult diabetes.

Dolger has noted diabetic retinopathy in every instance of juvenile diabetes within a 25 year duration of the disease. The course of degeneration in juvenile diabetes varied widely, with no apparent relation to the amount of insulin required or to the ability to control glycosuria.

Vascular complications include: premature arteriosclerosis as measured by retinopathy, hypertension and albuminuria; and increased incidence of coronary artery disease and peripheral vascular disease, leading on occasion to gangrene.

Nerve tissue, including the retina, represents the most sensitive indicator of vascular damage. Thus diabetes may lead to peripheral neuropathy, occlusion of the posterior inferior cerebellar artery, intramedullary hemorrhage with transient external ocular muscle paralysis, and papillary abnormalities including Argyll Robertson pupils.

The vascular lesions in both nerve and retinal tissue, being irreversible, do not respond to the administration of vitamin or protein supplements, or to treatment of the underlying diabetic state itself.

WHITE


Blood flow and blood pressure were measured in the forearm and hand, with the main artery open and occluded in a resting state and during reactive hyperemia. The data allowed the calculation of the resistance of the collateral vessels with the artery occluded. An example is given of a patient with osteitis deformans of one humerus in whom collateral resistance was found to be five times greater on the normal than on the affected side. This method can be used for the study of limbs with occlusive arterial disease, provided local arterial pressure can be measured.

BERNSTEIN


The authors state that biopsy of the gastrocnemius muscle in cases of rheumatoid arthritis yields a positive finding in 8.8 per cent, namely, arteritis involving small vessels. It consists of a localized infiltration, mostly monocytic, occasionally polymorphonuclear, in the adventitia. In some cases it has penetrated into the intima but it does not cause necrosis, thrombosis or aneurysm. It appears to heal by resolution without permanent injury. These lesions are sufficiently distant from the diseased joints to permit their classification as an independent development. A control study of 111 patients showed that this type of arteritis does not occur in other disease states and that it is characteristic of rheumatoid arthritis. It is not related to any particular phase of the disease and the authors are convinced that antiarthritic therapy is not a factor in the pathogenesis. To a certain degree it resembles the arteritis of rheumatic fever and to this extent a further connection is noted between the two diseases.

Gouley


Forty-seven patients with arteriovenous fistulas were studied before and after surgical operation. The cardiac output was determined by the low frequency, critically damped ballistocardiograph, which was checked against comparative studies by the direct Fick technic. The blood volume was measured by Evans blue dye.

Based on the postoperative value, the preoperative cardiac outputs range from 127 per cent above to 21 per cent below the normal resting cardiac output. In the authors’ experience, a variation of as much as 25 per cent above or below a selected cardiac output may be expected on repeated measurements on different days in normal subjects. The arterial blood pressure showed little variation pre- and postoperatively. The alteration in cardiac output was predominantly the result of a change in stroke volume rather than pulse rate.

In general the 25 patients (53 per cent) with an elevated cardiac output were the ones with clinical evidences of large fistulas. In this group, however, there was no striking correlation with the change in cardiac size, blood volume, pulse rate, nor with duration of the fistula.

Waipe


This is a report on “Branham’s sign” and related phenomena in 25 patients with traumatic arteriovenous fistulas. In 17 patients (68 per cent) the heart rate decreased more than 4 beats per minute and in one case as much as 32 beats per minute when the arteriovenous fistula was occluded. In the remaining 8 cases the rate changed only 4 or fewer beats per minute. In 19 patients (76 per cent) the stroke volume decreased 10 cc. or more per stroke. Changes in arterial pressure were not significant, but uniformly consisted of an increase in diastolic pressure and frequently an increased systolic pressure upon occlusion of the fistula.

“Branham’s sign” was blocked by the use of atropine, but this compound had no effect on the decrease in stroke volume in cardiac output which
occurred rapidly and simultaneously with the significant drop in heart rate.

The authors feel that the change in heart rate results from the nervous reflex mediated by the vagus and most probably arises from alterations in arterial pressure. This change in stroke volume is due to variations in diastolic relaxation of the ventricle or variation in the completeness of systolic emptying.

Waipe


Studies similar to the above were made before and after operative removal of a traumatic arteriovenous fistula in 41 patients. In 56 per cent of the cases blood volume changes of less than 200 cc. per square meter of body surface were noted. This was not considered significant.

In 44 per cent of the patients the decrease in blood volume postoperatively ranged from 200 cc. to 1000 cc. per square meter. It appears that the size of the fistula is a major factor in determining the increase in blood volume, although the actual size of a fistula is hard to determine.

Waipe


A case of chronic dissecting aneurysm of the aorta is described, with dissection of the renal artery and renal infarction. The presenting symptom was renal colic, and the main clinical finding was uremia.

In the case here described there is no evidence to prove that unilateral infarction of the kidney was the cause of hypertension. It is certain, however, that renal infarction was present at a time when the hypertensive process (whatever its cause) was progressing with great rapidity, and there is little doubt that the infarcted kidney exerted an important adverse influence on this process.

Bernstein


A constricting tie or clip was applied to the left renal artery in 16 rabbits. The right kidney was either removed or not touched. Investigation of the renal circulation angiographically or by surgical exploration revealed that dilatation of part or all of the poststenotic portion of the artery occurred in 12 and failed to develop in 4 animals. A positive correlation was noted (1) between poststenotic dilatation and hypertension and (2) between poststenotic dilatation and collateral blood flow. The possible mechanisms involved are discussed.

Wessler


The acute effects of venous occlusion on the rate of arterial inflow to the hind limbs of cats have been studied directly by perfusion and by serial radiography. During venous occlusion the arterial inflow to the extremity decreases. After release of the occlusion, there is commonly a transient increase in arterial flow above the preocclusion level, but this reactive hyperemia does not compensate for the decreased flow during occlusion. The rate of flow following release is equal to, or less than, the rate preceding occlusion—never higher.

Serial radiography showed a delay in the filling of the vessels on the occluded side, and a considerable reduction in the number of visible small arterial vessels under the inflated cuff.

There is no direct experimental evidence in man or in animals to substantiate the view that venous occlusion increases the arterial blood flow to an extremity.

Bernstein


The case reported herein is one of acquired pulmonary venous obstruction in which the pulmonary veins were constricted unequally by a posterior mediastinal mass considered to be of inflammatory origin. Venous stenosis was discovered in all except one pulmonary lobe.

Cardiac catheterization demonstrated central pulmonary hypertension and a normal volume of pulmonary blood flow. The lobe without significant venous stenosis had essentially normal arterioles and small arteries; in the remaining lobes there were severe obstructive vascular changes similar to those seen in some cases of mitral stenosis. Severe pulmonary congestion was present in the lobe without venous obstruction, but congestion was not present in the other lobes. It is postulated that the occlusive arterial and arteriolar lesions in the lobes with severe venous obstruction protected the pulmonary capillaries from excessive passive congestion and from elevations of pressure.

Since most of the pulmonary blood flowed through the one essentially normal lobe, the existing central pulmonary hypertension is explained as follows: The capacity of the blood vessels in one normal pulmonary lobe is inadequate to carry the entire, although normal, volume of pulmonary blood flow without elevation of pressure.

Bernstein

In the presence of varicose veins an increased venous pressure occurs throughout the body when the patient assumes the horizontal position. This is due to the fact that the large quantity of blood filling the dilated veins of the legs in the upright position now is displaced into the general circulation. This type of response, continued over a period of years, may be responsible for cardiac damage. This is especially true when the deep and the communicating veins are incompetent.

Associated with such changes there is also an increased filtration pressure in the capillaries of the lower extremity, and as a result there is a greater filtration of fluid into the muscle tissues. This reaction is responsible for the disability and serious complications found in patients with varicose veins.

For the determination of the sites of incompetent valves, the author uses the multiple tourniquet test which is a modification of the Trendelenburg test. With the leg elevated, one tourniquet is applied just below and another just above the knee, while the third is placed as high as possible on the thigh. The patient then stands. If abnormally rapid filling of superficial veins occurs, it can only take place through incompetent communicating veins in the leg. When superficial veins fill rapidly on release of the distal tourniquet, then the short saphenous vein is incompetent. A rapid filling of superficial veins on removal of the tourniquet above the knee indicates incompetence of a vein other than the long saphenous. A similar response on removal of the last tourniquet implies incompetence of the greater saphenous vein, which is an almost constant finding in patients with varicose veins of any significance.

Stripping of veins has reduced the number of recurrences following surgical treatment of varicose veins.

**ABSTRACTS**

**OTHER SUBJECTS**


The salient diagnostic features found in 4 asthmatic patients with chronic cor pulmonale are presented. Chronic cor pulmonale may develop in patients with bronchial asthma of five years' or more duration and is associated with emphysema. It should be diagnosed clinically on the basis of the following criteria: (1) the presence of long-standing bronchial asthma and emphysema without any other associated cardiac disease; (2) the development of an increase in the dyspnea and cyanosis already present; (3) the appearance of orthopnea with or without signs of right-sided failure; (4) the presence of increased pressure in the pulmonary circuit either implied or directly measured by intracardiac catheterization; (5) radiographic demonstration of cardiac enlargement of the right side of the heart and an electrocardiographic pattern of right ventricular hypertrophy. Proper treatment and prolongation of life in chronic cor pulmonale demands early recognition.

**HARRIS**


Before the late war, mortality from diseases of the circulatory system was rising each year in Norway. This rise ceased during the war, and from 1941 to 1943-45 there was a well-marked fall in mortality from these diseases. Since the war there has been a rapid rise in mortality towards the pre-war level. The wartime decline in mortality was equally evident for both sexes and all ages; and it involved all the most important causes of death from circulatory diseases. This also applies to the postwar rise.

The wartime decline coincided with severe dietary
restrictions. The supply of calories was reduced, and this reduction was principally of foods containing fat, including those rich in cholesterol.

BERNSTEIN


The authors injected Neoprene into 36 normal human kidneys with the object of further verification of Bowman's original concept of the renal circulation, namely, that the blood supply to the cortex first passed through the glomeruli and that the medulla was supplied by small blood vessels that were efferent from those glomeruli nearest the medulla. Ludwig's arterioles, that supposedly extend through the cortex directly to the medulla without intervening glomerular passage, were not seen and in the authors' opinion are nonexistent. Similarly, arteriovenous anastomoses could not be seen in the renal parenchyma. More and Duff show, however, with their Neoprene injections and by measurement of the efferent glomerular vessels, that the juxta- and the medullary glomeruli can accommodate a large diversion of flow and "by-pass" it into the medulla. They thus provide an anatomic basis for Trueta's physiologic demonstration that blood may be shunted away from the outer cortex into the inner cortex and medulla. A very few direct vessels branch off the arcuate arteries at the corticomedullary junction and extend directly into the medulla. Their size and number in normal kidneys preclude any useful addition in the medullary by-pass. The authors mention, on the other hand, a marked increase in such vessels in contracted hypertensive kidneys.

GOULEY


Between 1940 and 1947 the death rate from all forms of heart disease (adjusted for age) varied from 7 to 15 per cent higher for Negroes than for whites.

The mortality rate among Negroes was higher in the North than in the southern sections of eastern United States, higher in urban than in rural areas, and higher in males than in females. In syphilitic heart disease the male rate was over three times the female rate (about the same as among whites), but the death rate from coronary artery disease was only 42 per cent higher in males than females.

WAIFE

Schneider, C. L.: "Fibrin Embolism" (Disseminated Intravascular Coagulation) with Defibrination as One of the End Results during Placenta Abrupto. Surg., Gynec. & Obst. 92: 27 (Jan.), 1951.

The author discusses the entity of fibrin embolism, which is a condition in which there is a selective deposition of elements of fibrin, mainly in the pulmonary arterial circulation, culminating in massive accumulations of this material intravascularly. In those few pregnant women with placenta abruptio in whom this disorder occurs and who survive or escape serious consequences of the fibrin deposition, the resultant fibrinopenia may cause hemorrhage at the time of parturition, since fibrin is necessary in the formation of the clot.

According to the author, placenta abruptio provides a mechanism for the entry of thromboplastin into the maternal circulation from the decidua, one of the richest sources of this substance. As a result, the process of clotting is initiated, with the ultimate production of fibrin. The extensive intravascular coagulation which follows may be the explanation for the early deaths which may occur in cases of placenta abruptio or of eclampsia.

Therapy consists of the use of anticoagulants during the coagulative phase and rapid blood transfusion after this stage had gone to completion, since it is then necessary to restore the depleted coagulation system in order to prevent hemorrhage.

ABRAMSON


The author reports a family in which xanthelasmas appeared in two generations; in the third, tuberosous xanthomatosis led to the death of the eldest child at the age of 12 from severe coronary artery disease; another child developed Stokes Adams syndrome at age 12. He also showed a prolonged Q-T interval in the electrocardiogram and arterial claudication which was proved by biopsy to be due to severe tuberous xanthomatosis. Both these children and another boy showed hypercholesteremia. The mother and maternal grandmother had xanthelasma. The father died suddenly at age 42. It was suggested that he may have been heterozygous for the gene and the children homozygous.

The author believes that a high blood cholesterol, unexplained sudden death in later childhood, sudden death suggestive of cardiac disease below the age of 40 and possibly unexplained prolongation of the Q-T intervals should arouse suspicion of this disease and lead to a study of siblings and of their offspring.

SOLOFF


Five cases of disseminated lupus erythematosus in male patients are reported. The clinical features were quite characteristic in all cases and the diagnosis was confirmed by postmortem studies in 4 cases and by biopsy examination in the fifth patient.
It is mentioned that in a period of 13 years there were 36 cases of disseminated lupus erythematosus at the Philadelphia General Hospital and 10 of these were male patients, an incidence of nearly 28 per cent. This is said to be at variance with the general belief that this disease occurs primarily in young adult women.

Rosenbaum


A new pickup for ballistocardiography using a piezoelectric element is described. The device measures displacement, and by using the proper electric circuits, velocity or acceleration can be obtained. Since the electric output obtained from this new pickup element is 20 times that of the output obtained from a magnetic device, ample voltage is available to operate any cardiograph or recorder without additional amplification. The excess voltage makes it possible to use electric integrating or differentiating circuits to reveal hidden characteristics not easily recognizable in the original record. The records derived from this pickup are consistently reproducible, and obviate the need of frequent standardizations.

Schwartz


The author reviews the experimental and clinical observations since 1930 which indicate that the pulmonary lobule is not an end structure to which access of air is only by the direct bronchial route. Indirect and peripheral routes for air exchange exist by way of adjacent directly ventilated segments. This phenomenon is called collateral respiration, and comes into play when a bronchus beyond the second order is obstructed. Collateral respiration does not depend upon the integrity of the pulmonary circulation. It is thought to be mediated through anatomic defects in the alveolar walls, such as the pores of Kohn.

The mechanism of collateral respiration is a conservative one, comparable to the phenomenon of collateral circulation. Collateral respiration lessens the incidence of obstructive atelectasis, promotes more uniform oxygenation of the venous blood, and provides air for effective cough in areas of lobular obstruction. It is a delicate mechanism with low pressure differentials, and is therefore easily disturbed by hyperventilation, edema, inflammation and bronchospastic agents.

Enselberg


Syncope occurred in 16 of 63 patients with aortic stenosis. Syncope was commonly precipitated by effort and appeared to be related to the occurrence of angina. Observations on one patient during syncope are reported. Syncope occurred before a cardiac arrhythmia was established, and ventricular activity continued throughout the attack. A review of similar observations on three patients recorded in the literature suggests that the mechanism for syncope in aortic stenosis may be cerebral hypoxia due to reduced cardiac output. The possibility that this reduced output is related to myocardial ischemia rather than to cardiac arrhythmia is suggested.

Bernstein


This study is concerned with the results of a conservative policy pursued in the management of 98 pregnancies seen in 88 cardiac patients over a five year period from 1942 through 1946. Classification of the heart disease revealed 48 patients in Class I, 25 in Class II, 12 in Class III and 13 in Class IV. Pregnancy was interrupted only once in this period for heart disease, an incidence of 4.7 per cent of all therapeutic abortions performed during this period. Abdominal section was necessary in seven of the deliveries, but heart disease was not an indication in any instance. Sterilization was generally carried out within two weeks following delivery if the patient remained compensated. This was performed at the time of abdominal section in four patients. In those with Class IV heart disease, sterilization was deferred until three to six months postpartum. The maternal mortality was four deaths among the 88 patients or 4.42 per cent. The total fetal mortality was four with 93 viable babies born in the series. Among the difficulties in the management of pregnant cardiac patients are (1) mistakes in diagnosis and evaluation of the cardiac status, (2) lack of satisfactory cooperation on the part of the patient, (3) failure to hospitalize early and to continue treatment adequately in the postpartum period, (4) failure to admit cardiac patients to the hospital routinely, two to three weeks before term, and (5) the use of inhalation rather than regional and local anesthesia.

Shiuman


In a study of the trend of mortality from the major cardiovascular-renal diseases in the United States from 1920 to 1947 death rates specific for age, race, and sex were statistically analyzed. The most striking finding was the increase in cardiovascular-renal mortality among white males in the age group...
of 35 to 64 years. This was in contrast to the reductions in the same age groups occurring among white females and, to a lesser extent, among nonwhite males and females. Since the death rate for white males in this "working age" is not increasing for all other causes of death combined, this indicates an increasing risk of death from the major cardiovascular-renal diseases during this age group for white males.

The contrast between the trend for white males and females is most marked for diseases of the heart, somewhat less for chronic nephritis, and inconsequential for vascular intracranial lesions.

Waife


A case report of a successfully treated self-inflicted stab wound of the right ventricle is presented. In this case the classic symptoms of tamponade were all present—namely, increased venous pressure giving rise to visibly distended veins and cyanosis, a fall in arterial pressure, and heart sounds which were faint and difficult to hear. To control the bleeding during repair, plugging the hole with the finger proved of considerable value. An important point in suturing is to realize the friability of cardiac muscle. Failure to do so in this case nearly caused a disaster. The pericardium was left partially unsutured in order to allow drainage into the pleural cavity of any further bleeding and prevent the recurrence of tamponade. An electrocardiogram done five days after surgical repair revealed no abnormality and recovery was considered complete after a few weeks.

Bernstein


Under ether anesthesia 60 male albino rats were given an intracorneal injection of sterile horse serum in the right eye, and intracorneal injection of killed tubercle bacilli in the left eye. Two days after the intracorneal injections, 40 of these animals were given a single intravenous injection of 10 cc. of sterile horse serum per Kg. of body weight. Beginning on the same day, 20 of the intravenously injected animals received 2.5 mg. of ACTH in 1 cc. of normal saline every six hours for 14 days. The animals were killed 14 days after the intravenous injection of horse serum, and autopsies were performed. Two days prior to death, all of the animals were tested for hypersensitivity to horse serum by the intradermal injection of 0.1 cc. of undiluted horse serum. ACTH did not suppress the cutaneous test. However, the average size of the reaction was slightly smaller in the treated animals. Tests for the presence of antigen and residual antigen on blood drawn by cardiac puncture just prior to death were also done. All of the titers were lower in the ACTH treated group.

Eighty-four per cent of the animals which were intravenously sensitized, but not treated with ACTH, developed cardiovascular lesions of hypersensitivity (periarteritis nodosa, endocarditis). Only 20 per cent of the animals treated with ACTH developed similar lesions. No lesions were found in the group only sensitized by the intracorneal injection. Acute glomerulonephritis was found in nine intravenously sensitized animals and in only four of those treated with ACTH. There was marked loss of cortical lipid in the adrenals of all but two of the ACTH-treated animals.

There was no correlation between the development of cardiovascular lesions and the titers of circulating antibody or antigen.

The authors state that in the experimental animal, as in the human being, factors that are not yet understood play an important role in determining whether the presence of antibody and antigen will incite the development of visceral lesions.

The authors conclude that this study plus their previous observations provides good evidence that both ACTH and cortisone exert an inhibitory effect upon the development of cardiovascular lesions of hypersensitivity.

Margolies


In the field of cardiovascular diseases, studies using the epidemiologic method have led to findings of importance for prevention and treatment. The authors describe the setting up of an epidemiologic study in Framingham, Mass., focused on arteriosclerotic and hypertensive cardiovascular disease. A group of randomly selected persons were selected for study. Out of this initial group, "normal" persons who were free of definite signs of arteriosclerosis and hypertension were selected, based on as complete a clinical examination as feasible. These persons will be observed over a period of years until a sizable number will be found to have acquired the diseases. At that time a search will be made for the factors which have influenced the development of disease in one group and not in the other.

Schwartz

OTHER SUBJECTS


There were no significant differences in blood volume in the distal segments of 14 normal fingers or 10 clubbed fingers associated with bronchopulmonary disease. The blood volumes of the distal
segments of eight clubbed fingers associated with cyanotic congenital heart disease were increased relative to the normal.

Anatomic studies utilizing two methods of intravascular injection, fixation, and staining were carried out in 6 normal and 8 clubbed fingers. These studies showed that the shape of the clubbed finger was dependent upon an increase in connective tissue in the region of the nail bed. In clubbing due to cyanotic congenital heart disease there was, in addition, an increase in the caliber of vessels forming the venous plexuses in the nail bed. The author believes that the connective tissue increase is due to increased blood flow in excess of local physiologic needs and attributes its location in the distal finger segment to the predominance there of arteriovenous anastomoses.

Wessler


The authors report the results of clinical, metabolic and necropsy studies in a postmenopausal female with disseminated lupus erythematosus treated with ACTH. The clinical response of this patient was most dramatic, with a fall in temperature to normal, a sense of well being, the subsidence of muscular and joint pains, a return of the appetite with a demand for food, and the reversal of a steadily downhill course. This improvement was maintained throughout the period of ACTH therapy, but within 24 hours after cessation of ACTH, there was beginning evidence of clinical relapse as seen by an elevation of temperature to pretreatment levels. Relapse was not complete until about one month after the cessation of ACTH.

The most striking effects noted in the laboratory were the hematologic changes. The reticulocyte count rose from 2.7 per cent during the control period to 16.8 per cent on the ninth day of treatment, and remained at 6 per cent or above 11 days after the cessation of ACTH. There was a rise in hemoglobin concentration of about 2 Gm. per cent and this was well maintained. The total white blood count, which rose to 16,000 per cu. mm. before ACTH, remained at this level during the therapy, but with the cessation of treatment returned to and remained about 7,000 per cu. mm. The total eosinophil count was lower during the pretreatment period than during the post-treatment period.

Repeated muscle and skin biopsies after ACTH administration confirmed the diagnosis of disseminated lupus erythematosus. In spite of clinical improvement, the muscle biopsies showed no change in the morphologic picture before or after treatment with ACTH. The administration of ACTH certainly prolonged the life of this postmenopausal patient, but in no way altered the pathologic and ultimate course of this disease.

The changes found in the adrenal glands at autopsy cannot be directly related to ACTH therapy, since there was a period of more than three months intervening between the cessation of treatment and death.

Mintz


The authors discuss the theory, design construction, and characteristics of a ballistocardiograph table mounted on rods, so that motion could be studied from side to side as well as from head to foot.

WaiFe


The authors report 2 cases of glycogen storage disease of the heart occurring in siblings. Although cardiac enlargement was the most striking clinical and pathologic finding, glycogen accumulation was not limited to the heart, but was found in many other organs and tissues of the body. In one of these patients, detailed chemical determinations were performed both before and after death. It was found that the tissues could break down glycogen for their own use and that the liver could deliver it to blood as glucose. It was hypothesized, therefore, that the metabolic error was due to an excessive rate of accumulation of glycogen in the tissues. Two possible explanations are offered: that the polysaccharide may be slightly different but closely allied to glycogen in its chemical structure, or that these patients are unable to convert the excess carbohydrate absorbed to fat. There is little evidence to support either theory; the latter, however, is partially substantiated by the fact that these patients are usually thin and poorly nourished.

Margolies