ABSTRACTS

Editor: Samuel Bellet, M.D.

Abstracts

DAVID I. ABRAMSON, M.D., Chicago
ARTHUR BERNSTEIN, M.D., Newark
RUTH CORTELL, M.D., New York
A. D. DENTON, M.D., Indianapolis
CHARLES D. ENSELBERG, M.D., New York
ALFRED FROBSE, M.D., Philadelphia
BENJAMIN A. GOULEY, M.D., Philadelphia
RAYMOND HARRIS, M.D., Albany
JOHN C. HARVEY, M.D., Baltimore
J. RODERICK KITCHELL, M.D., Philadelphia
ALDO A. LUISADA, M.D., Chicago
MORTON H. MAXWELL, M.D., Los Angeles
VICTOR A. MCKUSICK, M.D., Baltimore

STANFORD WESSLER, M.D., Boston

MORTON J. OPPENHEIMER, M.D., Philadelphia
ALFRED PICK, M.D., Chicago
SEYMOUR H. RINZLER, M.D., New York
FRANCIS F. ROSENBAUM, M.D., Milwaukee
Elliott L. Sagall, M.D., Boston
DAVID SCHERF, M.D., New York
JOHN B. SCHWEDEL, M.D., New York
CHARLES R. SHUMAN, M.D., Philadelphia
FRANKLIN SIMON, M.D., Newark
LOUIS A. SOLOFF, M.D., Philadelphia
RALPH M. TANDOWSKY, M.D., Hollywood
S. O. WAIFE, M.D., Indianapolis
MARTIN WENDKOS, M.D., Philadelphia

AVITAMINOSIS


Purified rations, containing from 0.01 per cent to 9.8 per cent of sodium chloride, and water were fed at will to male albino rats from the age of 5 weeks. Diets both high and low in sodium chloride reduced the rate of growth. Water consumption was related directly to the amount of salt in the diet. A low-sodium diet depressed the appetite, but diets high in sodium chloride did not. Edema developed in 18 per cent of the rats eating the diets which contained from 7.0 per cent to 9.8 per cent of NaCl. Pathologic lesions were observed in the kidneys and to a lesser extent in various other tissues of rats consuming these high levels of salt. Concurrently, the animals developed anemia, lipemia, hypoproteinemia and azotemia. Sustained arterial hypertension was observed in the rats eating high levels of sodium chloride after nine months of the dietary regimen. A linear relationship was found to exist between the NaCl concentration in the diet and the systolic blood pressure.

WENDKOS

BACTERIAL ENDOCARDITIS


The writer records the results of his examinations of the coronary arteries and the myocardium in nine successive cases of bacterial endocarditis. All but one showed gross scars of varying size, and two of them showed fresh infarction. Microscopically, almost all showed infarcts, old or recent, embolism within small branches of the coronary arteries, and in two cases, there were calcific granulomas. None of the vessels showed significant atherosclerosis, and while five of the nine cases showed rheumatic valvular lesions, the author considered the larger scars to be of embolic origin. In one case, cortisone therapy was associated with striking septic emboli and infarction. There were no constant or diagnostic changes in the electrocardiograms. Sudden death occurred in five cases.

GOULEY


A 49 year old patient, sensitive to various penicillin preparations, was successfully treated, without reaction, for subacute bacterial endocarditis by a combination of one million units of penicillin and 10 mg. chlorprophenpyridamine (Chlor-Trimeton) maleate per injection. The result is significant since other antibiotics failed to achieve the desired clinical response and because of the severity of the previous penicillin reaction.

KITCHELL

BLOOD COAGULATION


The long-term treatment of 55 ambulatory patients with phenylindandione (Pid-Trombantin) is described. These patients were treated for six months or longer. In 37 patients, the dosage required was constant for two months or more and in six patients the dosage was constant for 12 months or more. The dosage was controlled by determination of the Proconvertin and prothrombin values. The necessary dose ranged between 50 and 225 mg.
daily. Fifteen patients showed an increasing tolerance of the drug, necessitating an increase in the dosage. This increasing tolerance appeared early in some patients and after several months in others. Three serious complications appeared in the first cases treated; these included severe intraperitoneal bleeding in one patient and gross hematuria in two others. Of 33 patients with angina pectoris, the pain was diminished in 26 and unchanged in the remaining seven. Of 22 patients with obliterated arterial disease, all but one showed symptomatic improvement and some became symptom-free. The dosages of dicyclomarin and phenylindanedione are not interchangeable.

**ROSENBAUM**

**CONGENITAL ANOMALIES**


The authors studied five cases of so-called Pentalogy of Fallot. The diagnosis was made on the basis of catheterization data and confirmed by angiocardiography, surgery or, in three cases, by autopsy.

Clinically, cyanosis is intense with abrupt appearance and, as a rule, associated with squatting. Roentgenologically, a concentric type of right ventricular hypertrophy is found with diminution of pulmonary vascularity. In two cases the aorta was dextroposed. The finding of concomitant left ventricular hypertrophy is important, but its proof is extremely difficult. The electrocardiogram shows marked right heart strain, sometimes incomplete right bundle-branch block and abnormal “congenital” P waves.

As in the ordinary tetralogy, right ventricular pressures approach the systemic pressure, depending on the degree of overriding of the aorta. Gastrographic analysis reveals that right-to-left shunts occur at two different levels. In one case with marked overriding of the aorta, desaturation was demonstrated to be present in the left atrium. In three other cases, the calculated magnitude of the ventricular shunt was negligible. Thus, of the two venoarterial shunts, the atrial shunt appears to be the more important one in the production of peripheral desaturation.

**PICK**


The purpose of this communication is to present case report of a 36 year old man in whom a large ductus with reversal of blood flow, was successfully closed. No previous successful surgical closure of this type of ductus has been reported in the literature.

The authors believe that it is unlikely that every patent ductus with reversal of flow is suitable for closure. The decision apparently rests on three factors: (1) the degree of pulmonary resistance, whether this resistance is fixed, and whether it is reversible; (2) the reserve of the right ventricle; and (3) the degree of polycythemia. It is postulated that the size of the ductus may be of crucial importance in determining whether the patients develop pulmonary hypertension and reversal of flow. Apparently, the only way one can tell with certainty whether closure is possible is to occlude the ductus temporarily and observe the action of the heart. Marked tachycardia may develop when the ductus is clamped. After being clamped and released several times, the ductus may be finally clamped without producing change in rate or rhythm of the heart. If the ductus will not tolerate complete occlusion, an alternative is to anastomose the left subclavian artery to the left pulmonary artery, thus creating a much smaller ductus than the congenital one. One might then be able to divide the ductus completely.

**DENNISON**


The object of this study was to explore various methods for surgical closure of apical septal defects and, if possible, to develop a method applicable to human patients. It was the authors' feeling that the ideal procedure for use in patients would be one which would be applicable to all types and sizes of atrial septal defects, would give fairly certain assurance of complete closure of the defect, preferably with autogenous tissue, and one which could be accomplished in the dry field without loss of blood, interference with cardiac function, without the necessity of using anticoagulants, and without the hazard of air embolism or intracardiac thrombosis.

Healthy, mongrel dogs were used. A large atrial septal defect, made through the open dry atrium during momentary occlusion of venous inflow, was created in each animal either immediately before the closure or at some time previous to it. Following induction of intravenously administered pentobarbital sodium, intratracheal ether-oxygen anesthesia was employed, using an intermittent positive pressure apparatus. The heart was exposed through a long right intercostal incision. Penicillin was given postoperatively for the first week. No anticoagulants were used.

The experiments with direct application of overlapped segments of atrial appendage or of pericardium demonstrated that such grafts are entirely suitable in the dog, unite firmly with the septum, and do not cause intracardiac thrombosis.
The experiences with the use of a rubber-capped glass chamber introduced into the base of the appendage showed this method to be safe and unattended by hazard of air embolism or intracardiac thrombosis. The position of the chamber somewhat distant from the defect resulted in some difficulty with accurate placement of sutures and suggested the likelihood that fixation of a larger chamber in the atrial wall near the defect might overcome this trouble.

The technic involving the use of an invaginated pericardial pocket gave satisfactory results and, after the most careful evaluation, seemed entirely suitable for use in human beings. It appeared to fulfill the following requirements of the ideal operation: it does not interfere with cardiac function; it is accomplished in a dry field without loss of blood; it uses autogenous tissue; it permits direct suture of graft to the rim of the defect; it entails no need for anticoagulants; and it seemingly is without danger of intracardiac thrombosis or air embolism.

Experience with one patient, however, has demonstrated that the pericardial pocket, when placed over a large defect, may be resorbed and literally melt away. Experiments are now under way in which the same technic is being employed using a pocket of inert plastic material instead of pericardium.

Dennison


The author reported a case of herniation of the left auricle through a defect in the pericardium. The original diagnosis, based on the x-ray finding of an abnormal shadow in the region of the conus arteriosus, was that of a mediastinal mass. At operation, the auricular appendage of the left atrium was found to be in the pleural cavity. Since it was decided that the defect in the pericardium was congenital and since the patient had been asymptomatic, no attempt was made to repair the defect.

Abramson


On the basis of 30 observations, the authors studied the incidence and course of pulmonary tuberculosis in congenital heart disease. In 24 cases having both diseases, the diagnosis of the malformation was established by cardiac catheterization or confirmed by surgery. Half of these cases were tetralogies, the others had atrial septal defects with or without pulmonary stenosis, and patent ductus; one had tricuspid atresia.

Open pulmonary tuberculosis is about 20 times as frequent in congenital heart disease as in the general population, and three to four times as frequent in patients with reduced pulmonary flow as in patients with normal pulmonary flow. In general, the prognosis is more serious in the former category. It would appear, therefore, that pulmonary hypovascularization constitutes a factor favorable for the development of pulmonary tuberculosis. A Blalock or Brock operation seems to arrest the pulmonary process in certain cases. On the other hand, closure of a patent ductus or an atrial septal defect may have an adverse effect and should be avoided under such circumstances.

Pick


The authors present case histories and laboratory data of four cases with anomalous drainage of the pulmonary veins. In each instance the anomaly was associated with other congenital lesions, such as an atrial septal defect, pulmonary stenosis, Fallot’s tetralogy or tricuspid atresia. In three cases at least one pulmonary vein drained into the right atrium, in the case with tricuspid atresia into the superior vena cava.

In all cases the complete diagnosis was established by cardiac catheterization, during which the sound was seen to enter the anomalous vessel directly from the right border of the heart. In this way the possibility of passage of the catheter through an atrial communication into a pulmonary vein was excluded. Pathophysiologic and clinical aspects of anomalous pulmonary veins are discussed on the basis of hemodynamic data obtained in these four cases. The importance of a correct diagnosis is emphasized with respect to possible surgical correction of the lesion.

Pick


Hypoplasia of the aorta is a condition in which the lumina of the arterial vessels of the systemic circulation remain abnormally small and the walls abnormally thin and delicate. The heart may be diminished in size or may undergo compensatory hypertrophy and dilatation, particularly involving the left ventricle. Even though occurring as an isolated disorder, it is apt to lead to cardiac failure and is said to have always a doubtful prognosis. The authors describe a man, aged 22 years, who died of cardiac failure which had developed gradually over a period of seven or eight years. The blood pressure was always normal. Autopsy disclosed enormous hypertrophy of the heart and universal narrowing of the aorta. The clinical picture was that of increasing cardiac failure, progressive cardiac enlargement, the appearance of systolic and diastolic apical murmurs and increasing cyanosis. The heart weighed 1000 Gm. There was hypertrophy of both the right
and left halves of the heart but particularly of the left ventricle. The valves were normal. The aorta was extremely narrow throughout its entire course but especially in the aortic arch as far as the isthmus; it would admit only the index finger. The pulmonary artery was normal. The structure of the aortic wall was normal although the intima was slightly thickened in some areas. The only other evidence of congenital anomalies in this patient was pronounced fetal lobulation of both kidneys. The authors express the opinion that the hypertrophy of the heart seen in these cases is due to the increase in frictional resistance when the blood passes through the narrow aorta. This disorder should be included in the differential diagnosis in obscure cases of cardiac enlargement in young persons who present none of the usual signs of other forms of heart disease.

Rosenbaum


Forty-two specimens of tetralogy of Fallot available to the authors were classified into groups with relatively similar infundibular anatomy, with a view to evaluating the relative applicability of intracardiac infundibular resection and the shunt operations of each of these groups. Eighty-two per cent of this series was comprised of hearts taken from children under three years of age. The hearts most amenable to surgery comprised 19 per cent of the series; the pathology consisted of a bandlike stenosis at the lowest portion of the infundibulum associated with a dilated infundibular chamber above the point of obstruction. In 17 per cent of the patients, surgery was possible, but certain anatomic features could complicate the procedure. These patients had a subvalvular or intermediate stenosis. Sixty-four per cent of the series comprised those least amenable to surgery. These hearts consisted of either (1) an atretic pulmonary artery with the infundibulum sealed off from the lungs by obliteration of the pulmonary artery at the base of the heart; (2) a tubular stenosis of such severe degree that the entire crista supraventricularis would have had to be removed, or (3) a heart in which it would have been necessary to increase the size of the defect in the split crista supraventricularis or to remove the lower portion of the infundibulum.

Rinzler

CONGESTIVE HEART FAILURE


A 43 year old woman, whose chief complaint was extreme nervousness, is described. There was a history of intense environmental stress with symptoms of fatigue, exhaustion with slight exertion, dyspnea frequently occurring at night, and frightening dreams. Careful questioning also elicited a history of angina pectoris and orthopnea. It was learned that the patient had consulted four physicians previously over a period of one and one-half years and had been told she had a murmur of no particular significance. On this occasion, the patient first consulted a psychiatrist but because of the symptoms she was referred to an internist. A diagnosis of aortic stenosis, angina pectoris and left ventricular failure was made. Appropriate treatment was followed by prompt relief of the symptoms of depression, anxiety and tension. The importance of careful review of all symptoms, a careful physical examination, and the proper integration of psychiatry in medicine is emphasized.

Rosenbaum


For 20 months the authors administered Aureomycin and placebo capsules alternately to 175 patients with chronic congestive failure. The purpose of the study was to determine the effect of antibiotic prophylaxis upon the course of chronic cardiac disease. During the course of observations the effect of treatment upon bacterial flora and their resistance was examined and studies were performed relevant to hepatic, renal, and cardiac function. During the study intervals there were 34 deaths, 15 in the Aureomycin group and 19 in the placebo group. A definite reduction in respiratory infections was noted in the antibiotic group. Bronchopneumonia was the cause of death in four persons from the control group and one in the Aureomycin series. The incidence of respiratory infections, considered a great hazard to congestive failure patients was markedly reduced in the Aureomycin series. Subjectively, 36 patients in the Aureomycin group felt better contrasted to 23 of the controls. An increased appetite in 14 of the Aureomycin group resulted in improved strength, energy and interest in life. The sedimentation rates were lowered and hematoctits increased in the treated group. During the first week, four patients developed nausea and vomiting; it was found that three of these were receiving the placebo rather than Aureomycin. Mild to moderate diarrhea occurred in six patients receiving Aureomycin, pruritis ani in four. Otherwise, the side effects noted in the two groups were of equal incidence and in no case was it necessary to discontinue treatment. Of the liver function tests, the Bromsulphalein retention and flocculation tests showed improvement during the treatment with Aureomycin but not with placebo. The microbiologic studies disclosed no significant differences in the stool flora of the two groups of patients. The use of Paraben in the Aureomycin capsules appeared to prevent the overgrowth of yeasts previously noted with Aureomycin therapy. The authors conclude that prolonged anti-
biotic therapy may be of value in chronic congestive failure. The dosage employed in their study was 250 mg. of Aureomycin before breakfast and supper.

SHUMAN


Amorphous Gitalin was used in the treatment of 68 patients with congestive heart failure of varying causes, degrees and duration. It was found to be effective in initial digitalization, redigitalization and maintenance digitalization of these patients. Case reports are presented to demonstrate the value of Gitalin in promptly and safely establishing digitalization and control of heart failure in eight patients in whom digitalis, digitoxin and Digoxin were ineffective, due to toxicity. No toxicity from Gitalin was encountered in any patient studied in this series. This can be attributed to the wide difference between the toxic and therapeutic dose of this particular cardiac glycoside. The average digitalizing dose was found to be 6.0 mg. and the daily maintenance dose to be 0.5 mg.

WENDKOS

CORONARY ARTERY DISEASE


The relation of physical activity or inactivity in work to coronary heart disease among middle-aged men was investigated by means of massive statistical data which was derived mainly from governmental and company medical records.

Transport workers, postal workers and civil service executive officers and clerks were observed over a one-year period. Bus conductors (on double-decker vehicles) were found to have less coronary heart disease than bus drivers; and postmen less than telephonists, executive officers and clerks. Moreover, what disease the conductors and postmen had was less severe.

On the basis of these observations, the hypothesis was advanced that men in physically active jobs have a lower incidence of coronary heart disease in middle age than men in physically inactive jobs. More important, the disease was not so severe in physically active workers, tending to be present first as angina pectoris and other relatively benign forms, and to have a smaller early case-fatality and a lower early mortality rate.

This hypothesis was tested by statistical sampling from other occupational groups and other years. The combined data supported this hypothesis. Other possible occupational and social class factors in coronary heart disease were considered, including psychologic and nutritional influences.

MAXWELL


The yearly mortality rate from acute myocardial infarction in four hospitals in a single community during the decade 1941–1950 was determined. A wide variation of rates from year to year in each hospital was noted, but the average rate for the decade appeared to be determined in large measure by the hospital's criteria and policy for admission and the type of patients treated. Conclusions concerning the effectiveness of a new drug or procedure drawn solely from finding a decreased mortality rate one year as compared with previous years, must be viewed with suspicion because of the wide "normal" fluctuation of rates from year to year due to the chance variation of small samples and the constantly changing proportion of seriously ill patients admitted. The hospital mortality rate cannot be used as a gauge of the professional abilities of the attending staff, nor can the rates of different hospitals be used to compare competence in the treatment of this disease because of the difference in severity of illness of patients admitted to various hospitals.

WENDKOS


This study is concerned with the radiographic and electrocardiographic changes recorded in cardiac patients who were euthyroid prior to the induction of persistent hypothyroidism by one or more doses of I\textsuperscript{131}. The duration of the hypometabolism ranged from 2 to 53 months and averaged 27 months. Changes in size and configuration of the heart were studied in 27 patients and variations in the electrocardiograms were studied in 28 patients. Ten of 13 patients who showed good or striking improvement in angina pectoris from I\textsuperscript{131} treatment, showed no increase in the cardiac size. Two others had no increase during periods of 26 and 28 months of relief but later showed cardiac enlargement during exacerbations of angina pectoris and congestive heart failure. Five of 6 patients with angina pectoris unimproved by I\textsuperscript{131} treatment showed progressive increase in the size of the heart. Six patients with chronic congestive heart failure showed no cardiac enlargement during most of the 19 to 53 months of hypometabolism. Two patients with both angina pectoris and congestive heart failure showed marked
benefit from I\textsuperscript{131} therapy even though there was marked, progressive increase in the size of the heart. The development of myxedema was associated with electrocardiographic changes which included decrease in voltage, flattening or inversion of the T waves and slight decrease in the Q-T interval. Treatment with thyroid produced reversion of these changes, and there was no further progression despite continued hypometabolism. These studies are felt to suggest that "myxedema heart," in the sense of a condition characterized by angina pectoris or congestive failure and marked electrocardiographic and radiographic changes, does not occur in patients with prolonged, controlled I\textsuperscript{131}-induced hypothyroidism.

Rosenbaum


This study is concerned with observations of the relation between cholesterol and proteins as determined by the distribution of serum cholesterol in the serum protein fractions obtained by sodium sulfate precipitation. Globulin fractions of the serum were precipitated by sodium sulfate at final concentrations of 15 per cent, 19 per cent, and 26 per cent. Patients with coronary atherosclerosis were found to differ from normal individuals in that the amount of protein in the albumin fraction was significantly lower, and there was a significant increase in the total globulin fraction and the 26 per cent globulin fraction. The albumin-linked cholesterol appeared lower in patients with coronary atherosclerosis, but there was no significant change in the cholesterol bound to other serum protein fractions. Furthermore, the cholesterol bound to the albumin fraction was influenced by the presence of coronary atherosclerosis, independent of the levels of albumin and cholesterol in the serum. The total serum cholesterol appeared to have a significant influence on the cholesterol of the albumin, total globulin and 15 per cent globulin fractions. The higher the serum total cholesterol, the higher is the cholesterol bound to the total globulin fraction. The cholesterol of the 15 per cent globulin fraction is higher in hypercholesteremic individuals.

These workers mention, that in the pathogenesis of atherosclerosis, the relations between proteins and cholesterol may be of greater importance from the point of view of the solution instability of the serum cholesterol, than of the absolute cholesterol.

Rosenbaum


Two groups of patients with myocardial infarction were compared for survival rates over periods of one or two years. The first group consisted of control patients receiving no anticoagulant therapy; the second group received treatment with Dicumarol on a long-term outpatient basis. Of the control group, 24.5 per cent of 106 cases with a single infarct died compared with 4.8 per cent of 21 treated cases in the first year. The data for those with recurrent infarcts were equally impressive; 31.7 per cent of the control group died compared with 13.0 per cent of the treated group. Five patients receiving long-term Dicumarol therapy developed new myocardial infarcts; four of these had been given transfusions because of hemorrhagic complications and died following recurrent infarction. The authors conclude that long-term anticoagulant therapy improves the prognosis of patients with either single or recurrent myocardial infarctions over a two-year period. Such therapy is hazardous in some instances and should not be attempted unless the risks are carefully weighed against the possible benefits.

Shuman


A case is presented of aneurysm of the left circumflex coronary artery with an accompanying aortic aneurysm, bringing the total to 49 cases of true coronary aneurysms reported up to this date. This case is being classified under the category of the arteriosclerotic type, but it is likely that injury to the adventitia by hemorrhage or some form of arteritis was also responsible. Antemortem diagnosis is practically impossible. Coronary thrombosis, as in the case described in this report, is the frequent cause of death in patients with aneurysm of the coronary artery.

Wendkos


Angina, infarction, abnormality of electrical activity and congestive failure are clinical manifestations of coronary atherosclerosis. There are a number of laboratory procedures which have been reported to be of help in the diagnosis of coronary atherosclerosis. Two procedures which are of great value when they give positive results are the electrocardiogram and the x-ray examination. The electrocardiogram may be diagnostic of coronary insufficiency when the record is taken during a spontaneous episode of angina pectoris, or when myocardial anoxia is brought about by one of the several types of stress tests. These tests may fail to give positive results in 50 per cent of patients with known coronary atherosclerosis and may give
false positive results in 22 per cent of perfectly healthy normal controls. If the criteria for positive findings are made more stringent so as to eliminate positive results in the normal controls, many diagnoses of coronary disease are likewise eliminated. Such stress tests, therefore, give far from the clear-cut results claimed by some authors though they may be diagnostic in some cases when strictly evaluated. X-ray examination gives evidence of coronary atherosclerosis in some patients. The coronary arteries may rarely be seen to contain calcium. More commonly, fluoroscopy or roentgen-kymography may demonstrate a ventricular aneurysm following myocardial infarction. Ballistocardiography has yet to be established as a valuable clinical tool.

There is a group of laboratory tests which may be classified as having little or no value, per se, as applied to an individual patient for the purpose under discussion. This group includes detection of the various lipoprotein fractions of the serum by ultracentrifugation or by electrophoresis determination of the serum cholesterol level, the cholesterol-phospholipid ratio, the cholesterol-uric acid phospholipid index, somatotyping, and the flicker fusion test. By combining these procedures, it is possible to reduce partially the degree of error. These tests have been devised for the purpose of detecting atherosclerosis in general and are not only far from reliable in this respect, but give no information in regard to the state of the coronary arteries.

The authors concluded that thus far, no test has been developed which is diagnostic of coronary atherosclerosis in the majority of cases. It is only by the combined process of taking a detailed history without asking leading questions, performing an adequate physical examination and then applying certain of the tests which have been discussed, that even reasonable accuracy of diagnosis can be attained.

**BERNSTEIN**

**ELECTROCARDIOGRAPHY**


A case of a hypertensive patient is reported in whom, in the course of a bronchopneumonic infection, a pre-existent left bundle-branch block pattern transiently changed to a right bundle-branch block pattern. This is explained on the assumption that the intraventricular block was not in the bundle branches but in the free ventricular walls and caused by ventricular strain. The pulmonary infection caused a transient drop of blood pressure and relieved the left ventricular strain, and at the same time caused an increased load on the myocardium of the right ventricle.

Pick


In the years 1942-1946 a major epidemic had occurred with a total of 1,477 cases of diphtheria treated at the Kristiansund Hospital. Of these, 263 had clinical or electrocardiographic evidence of heart disease, and 26 of this group had died. This report is concerned with a follow-up study made in 1950-51 of the remaining 237 patients. Of this total 162 were re-examined by these observers, 48 answered questionnaires and 27 were lost. Of the 162 patients who were re-examined there was no instance of congestive heart failure, one patient had varying degrees of heart block with some episodes suggesting Stokes-Adams attacks, six patients had prolongation of the P-R interval, four showed bundle-branch block and six had depression of the S-T segments or changes in the T waves in leads I and II. Two patients showed cardiac enlargement, possibly of diphtheritic origin. Of the female patients, 25 bore children after the diphtheria with no cardiac complications even though three of them had some persistent electrocardiographic abnormalities.

Rosenbaum


In 156 three-lead electrocardiograms on 75 patients with myocardial infarction, the frontal vectors of QRS and T areas and the ventricular gradient were determined and tabulated. In anterior wall infarction, the direction of AQRS is very variable and maximal deviations to the right or to the left are found in the presence of a ventricular aneurysm. The magnitude of AQRS decreases in the course of myocardial infarction and more so in anterior than in posterior infarction. It increases again in most cases during the period of restitution but never reaches pre-infarction values. AT rotates to the right in anterior, and to the left in posterior wall infarction, increases in magnitude at the height of infarction and usually does not return to its original position and magnitude. The direction and magnitude of the ventricular gradient are altered more by anterior than by posterior infarction. In the former it is displaced to the right, in the latter somewhat to the left. It may retain its normal position but is invariably reduced in magnitude. In all stages of myocardial infarction, cases may be encountered with 90 normal angle of AQRS and AT, or AQRS and G. In the stage of maximal T alteration, AT is 10 degrees to the right of AQRS in most instances of anterior wall infarcts, and more than 60 degrees to the left of AQRS in about half of the cases with posterior wall infarct.

The direction of inhomogeneous repolarization and the construction of the anomalous component
ABSTRACTS

according to Cabrera and Sodi Pallelos is exemplified in several diagrams for anterior as well as for posterior wall infarcts.


The authors report electrocardiographic studies during and following mitral surgery in 24 patients. Premedication, anesthesia and opening of the chest and the pleura did not produce significant alterations of rhythm or contour. Instillation of Novocaïn into the pericardium was in the majority of cases followed by S-T deviations and increase in the amplitude of the P waves. Opening of the pericardium and manipulation of the left auricular appendage almost invariably produced numerous supraventricular premature beats. Introduction of the finger into the atrium was followed by runs of supraventricular tachycardia, and temporary occlusion of the mitral orifice during the procedure of fracturing by periods of ventricular tachycardia or of idioventricular rhythm. In addition, the following observations were made (these are independent of the stage of the operation): frequently complete or incomplete A-V dissociation, and occasionally transient ventricular flutter; or a monophasic deformation of the ventricular complex. The commonest finding following surgery is the development of electrocardiographic patterns characteristic of successive stages of pericarditis. In occasional instances auricular fibrillation or flutter occurred subsequent to surgery.

The practical importance of continuous recordings during mitral surgery lies in the possibility of recognizing in time serious disturbances of rhythm and contour, particularly during the time of intracardiac manipulations. In the evaluation of a postoperative electrocardiogram the common occurrence of a benign pericarditis must be taken into account.


The author presents examples of intermittent complete and incomplete intraventricular blocks recorded simultaneously in the three aV limb leads and in V6. With disappearance of beats of prolonged QRS duration, the direction of QRS changed independently in aV1 or in V6. Thus, a pattern originally corresponding to an electrically horizontal position suddenly was converted to one indicating a vertical position, and vice versa. Since it is impossible that the electrical position of the same heart could vary from beat to beat, the author suggests that Wilson's concepts of "electrical position" and his terminology be abandoned. Einthoven's original terminology is to be preferred for analysis and description of the QRS direction in various leads of the frontal plane.


Abnormal displacement of the S-T segment encountered in myocardial injury consists of an elevation and upward bowing of the S-T segment and a symmetric T-wave inversion in leads facing the affected area. The authors describe such a pattern occurring in a patient without clinical evidence of any acute myocardial process. In the electrocardiograms obtained, the QRS interval is slightly prolonged with a configuration of right bundle-branch block, the R' deflections merge with the S-T-T complex in a smooth, coved line, and the T waves are inverted over the right precordium. This pattern, occurring in normals, may represent an overlapping of ventricular depolarization and initial repolarizing potentials with fusion of the terminal portion of the QRS complex with the initial portion of the S-T-T complex. No changes in the serum potassium were found to account for this alteration.


Case histories of three cases of acute cor pulmonale with unusual clinical manifestations and electrocardiograms are presented. In the first case, an instance of recurrent thrombophlebitis of leg veins, the clinical picture was dominated by typical anginal pain on effort, and the electrocardiogram showed two episodes of isolated T inversion in the precordial leads which could be mistaken for an atypical anterior wall infarct. The second case, in whom a pulmonary embolus occurred after surgery, likewise showed only T-wave inversion in the right precordial leads, accentuated and broadened by superposition of a large inverted U wave. In the third case the electrocardiogram showed classic features of recent posterior wall infarction with A-V block, except for negative T-waves in the right precordial leads. At autopsy massive pulmonary embolization was found but there was no trace of coronary disease.

These three selected cases demonstrate that exceptions may occur in the typical electrocardiographic pattern of acute cor pulmonale as established by MacGinn and White. It would appear that inversion of the T wave over the right precordium is the most consistent alteration suggesting the presence of acute cor pulmonale.

The end of the T wave and the end of ejection were apparently unrelated in these experiments. It was possible for the ejection period to change with fluctuating circulatory conditions without influencing electrocardiographic timing. The ascending aorta was occluded in order to prevent most of the ejection. Under these circumstances, the period of tension rise remained constant although conditions were varied and there was some change with cycle length. Peak tensions and the height of the T wave were almost simultaneous. Although the obstruction was released late in a cycle, ejection could start and last during most of the period of declining tension.

Oppenheimer

Van Dooren, F., and Boyadjian, N.: Prolonged QRS Complexes in Auriculo-Ventricular Dissociation. Acta cardiol. 8: 608 (Fasc. 6), 1953.

The authors studied the contour of ventricular complexes in 43 cases with A-V dissociation caused by advanced A-V block. In 78 per cent the QRS was abnormally widened, and in 22 per cent it had normal contour. The predominant etiologic factor in the former group was arteriosclerotic heart disease.

In the interpretation of prolonged QRS complexes occurring in A-V dissociation, two possibilities must be considered, namely origin of the impulse activating the ventricles below the bifurcation of the common A-V bundle, or a supraventricular pacemaker associated with a ventricular conduction defect. The authors favor the latter explanation on the basis of the frequent finding of patterns of bilateral bundle-branch block, variations in the duration and shape of the QRS, persistence of QRS prolongation after restitution of A-V conduction, and on the basis of clinical facts.

Pick


The author presents further examples of clinical electrocardiograms in support of his previously published concept implying a common genesis of preponderance curves and patterns of incomplete and complete bundle-branch block. In cases of intermittent bundle-branch block and instances of aberrant ventricular conduction of auricular premature systoles, gradual transitions were observed of patterns of ventricular preponderance into frank bundle-branch block patterns. In simultaneously recorded multiple leads, the bundle-branch block can be seen over the precordium, while corresponding beats in the limb leads show little or no abnormality. Such a combination is considered by the author as a particular type of "incomplete intraventricular block."

Pick


In a young woman without clinical evidence of heart disease but with a Wolff-Parkinson-White syndrome of type B (pre-excitation of the right ventricle) electrokymograms were recorded simultaneously with electrocardiograms during periods of alternation of normal and anomalous ventricular activation. While there was no difference in the two types of beats in the aortic electrokymogram, curves obtained from the pulmonary artery showed distinct alternation with a 25 to 30 per cent reduction in the amplitude of the anomalous beats. The beginning of ventricular ejection measured as distance from the beginning of the P wave to the beginning of the electrokymographic deflections was the same in both types of beats. It is concluded that anomalous ventricular activation by pre-excitation changes the mechanical effects of ventricular contraction without affecting the duration of contraction.

Pick


Nine cases of auricular flutter are presented. In all of them the electrocardiogram in the limb leads, unipolar limb leads, and precordial leads was recorded, as well as the phonocardiogram. The jugular tracing was also recorded in five cases; the electrokymograms of the atria were recorded in four.

The atrial waves were particularly apparent in leads III and aVR in some cases, in V1 and V2 in others. The phonocardiogram gave a good registration of atrial tones in some of the cases. In two cases out of five, the jugular tracing showed high atrial waves in diastole. The electrokymogram demonstrated rapid and regular atrial waves of the atrial borders in the four cases where it was recorded. The author advocates the use of mechanical or roentgenologic graphic tracings in doubtful cases.

Luisada


Ode and co-workers described a unipolar lead based on the recording of left supraventricular potentials by means of an exploring electrode. This lead should record left ventricular cavity potentials. This lead was studied by the authors in 121 subjects together with the convention leads. No special superiority of this lead over aVR was found and no diagnostic advantage was recognized by the authors.

Luisada

Simultaneous calibrated recordings of displacement, velocity, and acceleration components of body motion were taken on 50 normal adults and 20 cases of proved coronary heart disease between the ages of 30 and 40 years. Displacement and velocity standards are based on absolute measurements of the I-J segment. Also, the rates of H-I, I-J, and J-K segments are expressed as a percentage relationship to each other. Acceleration standards are based on measurement of the aJK segment and from the base line to the aK peak. The demonstration of abnormality of form and amplitude in coronary type heart disease is more pronounced and more definitive in pattern on the acceleration curves than in either the displacement or velocity.

Rinzler


This report deals with the technical aspects of a ballistocardiograph which is designed to eliminate the influence of the vibration properties of the body. The importance of this system is discussed, pertinent mathematical formulas are given, and typical records taken with this new instrument are illustrated.

Rinzler

ENDOCRINE EFFECTS ON CIRCULATION


Sodium retention may be produced by the administration of large doses of corticotropin or adrenal steroids. With this adrenal therapy, there is an increased excretion of potassium and it is common practice to supplement the diets of patients receiving these hormones with potassium salts. Administration of potassium has been found to be effective in overcoming sodium retention. Therefore, a study was carried out on 14 subjects with miscellaneous diseases who received corticotropin or cortisone.

It was found that potassium salts tended to reverse many of the effects of adrenal steroids on electrolyte metabolism. Large doses of potassium chloride or potassium acetate resulted in a diuresis of sodium, particularly in those receiving corticotropin or cortisone. Proportionately, more sodium was excreted than chloride. A decrease in urinary phosphate, ammonia, and titratable acid, and an increase in urinary bicarbonate and chloride, were also noted.

The authors conclude that sodium retention due to cortisone or corticotropin therapy can be prevented by the daily administration of 200 mEq. or more of potassium.

Waife

HYPERTENSION


A case of pheochromocytoma, studied before and after surgery, is reported. Special attention is given to the laboratory findings, pharmacologic tests, and roentgenographic diagnostic procedures. The literature on pheochromocytomas is reviewed regarding the effect of epinephrine on the adrenal-pituitary axis. This review and the findings in this case lead the author to conclude that chronic epinephrenia does not produce adrenal cortex changes. The metabolic effects of epinephrine are discussed. The clinical pictures of thyrotoxicosis and diabetes in cases of pheochromocytoma are noted. The relationship of these symptoms and findings to pheochromocytoma are analyzed.

Bernstein


In a study of 60 patients over the age of 40 with emphysema and bronchial asthma of two or more years' duration, all had some degree of arterial hypertension. Using similar standards for the upper limits of normal blood pressure (160/90 mm. Hg), the corresponding percentage of persons with hypertension in the general population is between 20 and 25 per cent. In a series of 15 patients with extrinsic emphysema not complicated by asthma but resulting from such factors as fixation of the chest wall from spondylitis, senility, and osteoarthritis, hypertension also occurred, particularly in cases complicated by pulmonary fibrosis or by lordosis in association with abdominal obesity.

It is concluded that long-standing emphysema with loss of negative intrathoracic pressure in patients over 40 can lead to hypertension, particularly when the emphysema is complicated by bronchial asthma or pulmonary fibrosis, or when it exists in combination with postural lordosis accompanied by obesity. Phrenic hypertension appears to be the result of loss of intrapleural negative pressure, with increased venous pressure associated with renal congestion and compensatory arteriolar spasm.

Twenty-one of 60 patients with asthma and emphysema showed some degree of myocardial damage in the electrocardiogram. Fourteen of 25 patients with myocardial damage had both emphysema and hypertension. Seven out of 35 patients without hypertension, but with emphysema, had myocardial damage. The authors believe that the mechanism of hypertension in these cases is im-
paired venous coronary return to the right auricle in the presence of increased intrapleural pressure.

by guest on October 4, 2017 http://circ.ahajournals.org/ Downloaded from

Bernstein


The author describes a pressor test for hypertension which is said to give results similar to those of the cold-pressor test of Hines and Brown. This new pressor test consists of the intravenous injection of 10 cc. of 30 per cent hypertonic saline solution and the rise in pressure is observed in three to five minutes. A depressor test consisting of the intravenous injection of 10 cc. of 10 per cent solution of sodium bromide is also described. The blood pressure is said to fall after two to five minutes and reaches its lowest level after 15 to 30 minutes, remaining depressed for 1 to 24 hours. This depressor test is said to be more effective than any other available. These tests are positive if the hypertension is neurogenic; they are said to be positive in early essential hypertension and in acute nephritic hypertension, which, in the author’s opinion, has a neurogenic origin. The tests are negative in chronic nephritis and in the advanced stages of all forms of hypertension.

The "crossed test" consists of the initial injection of 10 cc. of 10 per cent solution of sodium bromide followed in two minutes by the cold-pressor test or the hypertonic saline pressor test. The response to the pressor test is said to be negative if essential hypertension is present because the sympathetic pathways have been blocked by the sodium bromide.

The author reports briefly upon the treatment of essential hypertension with daily intravenous injections of 10 cc. of 10 per cent solution of sodium bromide for a period of 10 days. The treatment may be repeated after an interval of 10 days. Both objective and subjective benefit is said to result in cases of essential hypertension, with less satisfactory results in malignant hypertension.

Rosenbaum


The "double-blind" procedure was employed to compare the effects of quinine and quinidine with those of a placebo upon hypertension in 44 patients. Quinidine produced rather striking effects on the blood pressure and symptomatology of hypertensive disease. However, these effects were duplicated in the group receiving the lactose placebo. The statistical analysis of the data reveals that the results are not significantly different from chance distribution. Similarly, quinine was shown to be without specific effects. It is of interest to note that in this study it was possible to improve the symptoms in patients with "fixed" hypertension; that the subjective opinions of patients and doctors are valueless in evaluation of therapy; and that statistical analysis alone is not an adequate control of the experiment. It is considered that the "double-blind" method should be an integral part of any study on hypertension.

Shuman


The effect of Apresoline in the treatment of hypertension was evaluated by administering the drug to 37 patients in appropriate dosage from 100 to 800 mg. daily. A control group of 28 patients was given a placebo, identical in appearance to the drug for comparable periods. Of the treated group, 12 had a drop of 20 per cent or more either while supine or sitting. One of the control subjects had a similar decline of blood pressure. Severe side effects necessitated discontinuance of Apresoline in 11 instances; these consisted of headache, vomiting, fever or tachycardia. Headache occurred to some extent in nearly every patient receiving the drug. Two patients discontinued the placebo because of headache and nausea. Three hospitalized patients with uremia were adversely affected by the drug so that its use in uremia is contraindicated. It is concluded that Apresoline may be of value in the treatment of hypertension but that its effects are not predictable in individual cases.

Shuman


The hypotensive effect of intravenous Apresoline is either unchanged or diminished by prior treatment with hexamethonium; this effect was increased by prior treatment by Priscoline in normal and renal hypertensive dogs. The combined effect of Apresoline and Priscoline appears to represent a synergistic action in lowering the blood pressure. The sensitivity of dogs with renal hypertension to Apresoline was not increased while that of neurogenic hypertensive dogs was increased. Section of the carotid sinus nerves did not produce hypertension or tachycardia but did enhance the hypotensive action of Apresoline. The results suggest that combined therapy with Priscoline and Apresoline would be more effective in the treatment of
hypertension than either drug alone or with hexamethonium.

SHUMAN


Renal clearance tests were performed on a group of normotensive subjects and on hypertensive patients receiving hexamethonium before and after the infusion of norepinephrine and epinephrine. Norepinephrine produced a depression of renal plasma flow but had little effect on glomerular filtration rates. Renal vascular resistance and the filtration fraction were elevated by the drugs. The tubular transport of para-aminohippurate was not affected by either agent. The hemodynamic changes were attributed to an increase in both afferent and efferent arteriolar resistance. There is no evidence of a decrease in the number of functioning nephrons as has been observed previously in dogs. In patients whose renal function was depressed by hexamethonium, there was a return of glomerular filtration rate toward control values. This observation suggests that in the treatment of hypotensive states, the elevation of blood pressure may overbalance the renal vasoconstrictor effect so that renal function will be improved.

SHUMAN


The treatment of hypertension should be undertaken only when that disease, under observation, represents a hazard to a patient’s life or health. Drug therapy is usually directed at the neurogenic factor. A variety of drugs is available for blocking the motor synapses and nerve endings concerned in the excessive sympathetic nerve discharge believed to be a factor in hypertension. For the best results, this should be defined by testing procedures in advance of and during treatment. The limiting factors are usually tolerance and side actions. At the cortical level, barbiturates are the most useful drugs, although these may be replaced eventually by Rauwolfia serpentina. At the hypothalamic level, 1-hydradinothallazine and proterovatrine are the most effective, whereas at the ganglionic level, hexamethonium bromide or chloride is the drug of choice. Parenteral administration of this drug is preferred to oral administration because of the inherent serious dangers of the latter. A block of sympathetic nerve endings, smooth muscle or of capillaries is, at present, of minimal practical value in the treatment of hypertension. Salt depletion by diet and dietary adjuvants appears to affect the non-neurogenic or intrinsic factors in hypertension. Sympathectomy should be reserved for patients with a large neurogenic element who fail to respond to adequate medical therapy. In many cases, judiciously com-

bined treatment provides the most satisfactory results.

WENDKOS


Observations were made of the blood pressure responses during and following muscular work in a series of patients with malignant and severe benign essential hypertension before and during treatment with hexamethonium chloride (C6). It was found that the blood pressure did not reach as high a level during bicycling when the patient was receiving hexamethonium in the usual clinical dosage. Furthermore, under the influence of the drug there was a considerable, prolonged fall in the blood pressure when the patient was in the sitting position after work. These responses to hexamethonium were just as marked in patients who had received the drug for three months as in patients started on it more recently. Under the influence of hexamethonium the pulse rate rise in response to exercise was lower, there was no tendency to progressive increase during the work period, and the return to normal was more prompt. After passive standing, patients receiving hexamethonium over long periods were found to show a definite “overshoot” in the blood pressure upon resuming the horizontal position.

ROSENBAUM


Urethral bleeding was found to be an initial symptom in four patients with malignant hypertension. In two instances the site of bleeding was localized in the anterior urethra. Hemorrhage was observed in association with renal insufficiency as manifested by nitrogen retention in each instance. Thus, renal insufficiency was thought to be a factor in urethral bleeding seen in these hypertensive subjects.

SHUMAN

PATHOLOGIC PHYSIOLOGY


The author recorded in four cases of pulsus alternans the electrocardiogram, the phonocardiogram, and the carotid pulse curve and determined the following values: the time of isometric contraction, the ventricular ejection time, the duration of the anacrotis of the pulse curve, and the interval between the Q wave of the electrocardiogram and the beginning of the pulse curve (“transformation time”).
In pulsus alternans the smaller systoles have a longer time of isometric contraction, an anacrotic elevation of longer duration, and a shorter ejection time when compared with the larger systoles. Both types of contractions, however, differ from those seen in normal cardiodynamics in that the mechanical systole starts with a certain delay (prolonged time of ventricular transformation).

These findings were compared with those present in other conditions in which differences of systolic strength are associated with irregular heart action e.g. premature beats (pseudoalternans) or in auricular fibrillation. Under such circumstances the duration of the anacrotis depends on the presystolic pressure gradient between the ventricles and the aorta, while the onset of the isometric phase is related primarily to ventricular filling. Thus, true alternans and pseudoalternans differ not only in their genesis but also in their dynamics.

None of the studied cases had an electrical alternans but all had an abnormally large heart and contour alterations of the electrocardiogram indicating myocardial pathology of some degree.

The author concludes that the cause of pulsus alternans is severe damage of the ventricular myocardium with impairment of its contractility. Partial asystole, as postulated by Gaskell and Wiggers appears unlikely in human pathology and "has at the present no more significance than that of a working hypothesis."

**PICK**


This report describes the case of a 70 year old patient who had massive pericardial effusion for at least 15 months preceding his hospital admission. Apart from increasing dyspnea and edema during this period, his deterioration was remarkably slow. This chronicity of symptoms suggested a benign process and accords with the failure to demonstrate a definite etiologic factor which included intensive search for evidence of tuberculous infection in the pericardial effusion removed by aspiration on several occasions, and in the pericardial exudate removed during a subsequent pericardectomy. This operation was followed by remarkable clinical improvement. During the first pericardial aspiration, after removal of 150 cc. of pericardial fluid, although the gradient between the mean right atrial and intrapericardial pressures was 12 mm. Hg, the pressure gradient at the point of the expiratory pause was only 1 mm. Hg. These gradients increased to 16 and 5 mm. Hg, respectively, after 1,400 cc. of pericardial fluid were withdrawn. Before the second pericardial aspiration the low cardiac output (4.32 liters per minute) was manifested by the wide A-V oxygen difference, indicating increased extraction of oxygen by the tissues. In addition, with a relatively rapid heart rate, the stroke volume was low. There was a distinct elevation in the right atrial, superior vena caval and peripheral venous pressures. Immediately after the removal of 1,400 cc. of pericardial fluid, a definite decrease in the mean right atrial and superior vena caval pressures was observed, although both the cardiac output and stroke volume failed to show a significant change. These findings suggest that, in this case, aspiration of a considerable amount of pericardial fluid caused prompt reduction of the venous and right atrial pressures, whereas improvement in cardiac index was insignificant and increase in stroke index was delayed. Six months following pericardectomy the patient's striking improvement was associated with little venous distention and almost normal mean right atrial pressure. However, the cardiac output at rest was unchanged. The stroke volume was definitely increased because of the slower heart rate. Thus, the patient was able to maintain the same cardiac output with a slightly elevated venous pressure and essentially normal heart rate, in contrast to the markedly increased venous and right atrial pressures and a relatively rapid heart rate before operation. The elevated pulmonary artery and "capillary" pressures observed during the post-operative cardiac catheterization reflect some impairment of the blood flow through the left side of the heart. There was no clinical evidence of mitral valvular disease, frank left ventricular failure or chronic pulmonary disease to account for this. It is quite likely that some interference with diastolic filling of the left ventricle existed, perhaps due to residual pericardial and/or myocardial scarring.

**WENDKOS**


The author reviews his beliefs regarding the pathogenesis of paroxysmal nocturnal dyspnea. It is his opinion that there is an increased venous return in the recumbent position associated with a certain hydremia resulting from resorption of latent or manifest edema, which increases the underlying pulmonary congestion. This gives rise to reflex changes in the respiration, such as polypnea and bronchoaspasam, and in the circulation, such as a rise in the blood pressure and pulse rate. The increased blood pressure places an increased stress upon the left ventricle. Because a rise in blood pressure appears to be an important factor in cardiac asthma and acute pulmonary edema, the effect of Etylon (tetroethylammonium bromide) in these conditions was studied.

Etylon, a 10 per cent solution of tetroethylammonium bromide, was given slowly intravenously in doses of from 0.8 to 5.0 ml. to two patients with
cardiac asthma and five patients with acute pulmonary edema with hypertension. Two patients were benefited within two to three minutes, and three others were much improved within 5 to 10 minutes. Transitory collapse occurred in one patient, and another, who was severely ill, died soon after admission. The improvement resulting from the drug is attributed to acute relief of the left ventricle due to reduction in the systemic blood pressure. Reduction of a pathologically elevated venous pressure may be an additional factor. This drug is not without considerable risk, however, especially if the effect upon the blood pressure becomes very pronounced with resultant deficient coronary circulation. It is recommended that tetraethylammonium bromide be used in cardiac asthma and acute pulmonary edema only when the usual therapy fails and careful controlling observations of the blood pressure must be made.

Rosenbaum


The dependence of pulmonary wedge pressure curves on the pressure in the atria was analyzed. In a number of patients left atrial pressure curves were obtained by passing the catheter through an inter-atrial communication, or by introducing it into the chamber during mitral surgery.

A remarkable resemblance was found between the pressure curve of either atrium and the "pulmonary capillary pressure" curve in various congenital lesions as well as in acquired mitral disease. On the basis of their observations, the authors came to the conclusion that pulmonary capillary pressure curves represent a "transmitted image" of pressure variations in the left atrium, and abnormalities of the atrial pressure are reproduced in the pulmonary wedge pressure curve. Systolic and diastolic distortions of such curves are described and illustrated, and their mode of origin and clinical significance are discussed. It is pointed out that such tracings make it possible to recognize mitral regurgitation even of mild degree, or if it is associated with mitral stenosis. Finally a method is described to determine the time of diastolic filling from capillary pressure curves, which gives more accurate results than measurements based on carotid pulse tracings.

Pick


The authors present hemodynamic studies in a typical case of constrictive pericarditis. Pulmonary arterial and capillary pressures were elevated, the cardiac output was low and failed to respond adequately to the increased metabolic demands during exercise. Thus, in every aspect, the findings corresponded to those found ordinarily in chronic left heart failure. In order to evaluate the role of the condition of the left ventricular myocardium in the production of the abnormal hemodynamics, cardiac output determinations were repeated 45 minutes after intravenous injection of 1 mg. digoxin. However, the resting and exercise data remained practically unchanged. The absence of any response to digitalis suggests that, at least in this case, the constrictive pericarditis, and not heart failure, was the cause of the abnormal hemodynamic behavior.

Pick


An evaluation of the treatment of hyponatremia and edema in congestive failure with hypertonic saline was made in seven cases. It was observed that this method of treatment is ineffective and may prove harmful. The period of fluid restriction during the course of the infusion of the hypertonic saline is unbearable for most patients, and the syndrome is invariably fatal.

Wendkos


A patient with essential hyperlipemia was studied during two separate 24-hour periods. The lipid content of the venous serum always exceeded that of the arterial serum and the mean differences for the two periods were 97 mg. per cent and 145 mg. per cent. The lipid content of the venous and arterial serum was also studied in 35 obese patients and 9 healthy students. The lipid content of the venous serum was almost always higher than that of the arterial serum. When the lipid content of the venous serum was high, the venoarterial lipid difference was usually large. The same was true, to a lesser degree, when the lipid content of the arterial serum was high.

From these observations it is concluded that, during the passage of blood through one or more of the central body organs, there is a reverse change in the lipid difference in the blood. The author mentions the earlier work of Roger and Binet which demonstrated a higher lipid content of the blood in the right than in the left heart, and suggested that this reverse change might occur in the lungs.

Rosenbaum


A study was made in dogs of rhythmic intralymphatic pressure changes in the thoracic duct.
Occlusion of the aorta demonstrated that the lymphatic pulse is transmitted from the arteries ("from contiguous large arteries," according to the suggestion of the authors). These transmitted pressure changes apparently keep the lymph in continual pulsatile motion which, because of the high degree of valve competence, is of necessity oriented toward the venous drainage sites.

McKusick


The author described a method for determining the relative blood flow through each lung in man during intrathoracic operations. Applied to patients with total atelectasis or a destroyed lung, he noted that the oxygen saturation of blood in the aorta was the same before and after occlusion of the pulmonary veins from a diseased lung. The amount of circulation through such a structure during the operation was found to be, on an average, 98 ml. per minute. In cases of total atelectasis, only a negligible amount of blood passed through the pulmonary artery.

It was concluded that the local pulmonary circulation in the presence of chronic atelectasis or destroyed lung is markedly reduced.

Abbamon


The content of digitoxin in the peritoneal, pleural, and subcutaneous edema fluids of patients with edema of cardiac and hepatic origin was determined by using the embryo duck heart microassay technic. No digitoxin was detected in specimens removed from four of eight digitalized patients; minute amounts were found in the other four specimens. The maximal content of digitoxin was 20 μg. per liter in the ascitic fluid of a patient with hepatic cirrhosis.

It is believed that the rapid diuresis of even large quantities of edema fluid would not lead to the hypothetic "redigitalization following rapid diuresis."

Waife

PATHOLOGY


This case presented unquestionable miliary tuberculosis of the heart and, in addition, there was the unusual formation of thrombi in the small coronary arteries with necrosis of the surrounding myocardial fibers and inflammatory cellular reactions. The possibility of emboli coming from the thrombi of the uterine plexus can be excluded by the closed foramen ovale and the absence of emboli in the pulmonary vessels.

With the aid of special stains for elastic fibers and fibrin, the present writers found fibrinoid swelling of the media, disintegration of the intima with partial disappearance of the internal elastic membrane, and some proliferation of the endothelium. It is believed that there are pathologic changes in the vessels as described above, followed by formation of thrombi by the deposit of platelets, blood corpuscles, and tubulele bacilli in the same way that thrombi are formed in inflamed or injured vessels in other parts of the body. The thrombi gradually became larger and finally, complete occlusion of the lumen occurred, resulting in focal necrosis of myocardial fibers and inflammatory cellular reactions.

Bernstein

PHARMACOLOGY


According to the author, apparent immobility of the heart can be produced in animal experiments by several drugs acting on the heart muscle through different mechanisms.

1) Dinitro glycosides or calcium chloride (passive retraction). Toxic doses produce an increasing shortening of the muscle fibers with decreased power of relaxation; the amplitude of the systolic contractions as well as that of the diastolic relaxations decreases to the point at which the heart ceases to beat. It is said that the heart is arrested in systole, but actually there is a lack of diastole. At this time, no changes of electric potential can be detected. The author's explanation concerning the effect of these drugs is that they damage the "contractile substance" within the "elastic membranes." The muscle is biologically dead. If the drugs are applied in less toxic doses, the effect is reversible.

2) Acetylcholine and calcium chloride simultaneously or successively applied (active retraction). The heart is arrested in systole, but changes of electric potential can be registered. The electrocardiogram shows ventricular fibrillation, extrasystoles, or "incomplete systoles" starting from the base and moving toward the apex. In these cases, the activity of the contractile substance persists but is masked by a "rigidity of the elastic membrane" caused by the action of the two drugs.

3) Cobalt. The heart is arrested in diastole. Changes of electric potential can be detected only after mechanical irritation of the heart. Cobalt affects the elastic membranes by "paralyzing" them and inhibits the automaticity, while the biologic activity of the contractile substance is preserved.

4) Formal. The effect is similar to that caused
by acetylcholine and calcium chloride, with the difference that the arrest may occur either in systole or in diastole.

The author makes no attempt to investigate the chemical nature of the contractile substance or of the membrane in order to explain the action of these drugs.

**Luisada**


The cases of two brothers (age 42 and 48 years) with mild hyperthyroidism and auricular fibrillation are described. Both developed drug fever (temperature of 104 to 105 F.) in association with quinidine therapy. Mild diarrhea was the only other toxic manifestation. Both had had quinidine for some time prior to the first evidence of toxicity or fever. Although fever is a rare manifestation of quinidine sensitivity, the development of fever in a patient receiving this medication should not be mistaken for cardiovascular or other complications.

**Sagall**


DMPP (1,1 dimethyl-4-phenylpiperazinium iodide), a potent sympathetic ganglion stimulating agent, proved useful in the diagnosis of pheochromocytoma in one patient because of its strong and specific action on ganglia and adrenal medullary tissue. It ensures a high secretory activity of the tumor, the effect of which is specifically inhibited by adrenergic blocking agents.

Extensive pharmacologic tests indicated that DMPP stimulated sympathetic ganglia more powerfully than nicotine and tetramethylammonium iodide and had less ganglion paralyzing action than nicotine in dogs, cats, rabbits and man. It differed from nicotine in that its vasopressor action was largely independent of carotid and aortic chemoreceptor function. Respiratory stimulation depended in part upon stimulation of these chemoreceptors. The pressor effect of DMPP depended upon release of epinephrine and/or norepinephrine from the adrenal glands and liver and stimulation of sympathetic ganglia with resultant vasoconstriction and cardioacceleration. Stimulation of parasympathetic ganglia caused initial transient bradycardia and fall in blood pressure that tended to inhibit the pressor action of DMPP. Tetraethylammonium chloride, nicotine and hexamethonium inhibited the ganglion-stimulating action of DMPP. The adrenergic blocking agents, Priscoline, Regitine, and RO 2-3248 inhibited the pressor action of DMPP to a degree directly dependent upon the inhibition of pressor response to norepinephrine. Response to DMPP was unaltered by production of chronic neurogenic hypertension in dogs by section of the carotid sinus and aortic depressor nerves.

**Harris**


The author reports upon the effect of the administration of Veratrum viride and Apresoline on the circulatory and metabolic functions of the brain in 24 patients with toxemia of pregnancy and 18 normal pregnant women. Quantitative measurements were obtained of cerebral blood flow, cerebral oxygen utilization, cerebral vascular resistance, arteriovenous oxygen difference and blood gases before and after administration of the drugs. Veratrum was found to significantly lower the increased cerebral vascular resistance and mean arterial blood pressure present in toxemia of pregnancy; the other measurements were not affected. Apresoline, in addition to lowering cerebral vascular resistance and arterial pressure, increased the cerebral blood flow and oxygen utilization by the brain.

**Shuman**


Cerebral vascular resistance is increased in toxemia of pregnancy as demonstrated in studies employing the nitrous oxide method of Kety and Schmidt for determining cerebral blood flow. The effect of Hydrgine, a combination of three new ergot alkaloids, upon the circulation and metabolism of the brain in toxemia of pregnancy was studied by this procedure. Quantitative studies of cerebral blood flow, cerebral oxygen metabolism, cerebral vascular resistance, mean arterial pressure, respiratory quotient and blood gases were made in both normal and toxemic pregnant women before and after Hydrgine administration in doses of 0.6 mg. intramuscularly. Cerebral vascular resistance and mean blood pressures were significantly depressed in both groups. However, the other factors studied revealed no change after the administration of Hydrgine. Thus hemostasis is maintained within the brain despite circulatory alterations elsewhere induced by the drug.

**Shuman**

The naturally occurring anticoagulant, heparin, has certain disadvantages, notably the necessity for frequent parenteral administration, its expense, occasional sensitization reactions and variation in chemical composition of different batches. Accordingly, the synthetic heparin analogue, dextran sulfate, was tried clinically in 24 patients with embolic or thrombotic phenomena.

Dextran sulfate resembled heparin in being comparably safe and nontoxic, in being quick-acting, in losing its effect rapidly on withdrawal, and in its capacity for neutralization in emergency. It must also be administered parenterally, but its somewhat greater duration of anticoagulant effect allows its administration at longer intervals. The control of therapy requires no more elaborate investigation than estimation of the clotting-time before each injection. The relative ease of its manufacture should allow cheaper production. Since it is synthesized from purified protein-free material (dextran), it seems unlikely to give rise to protein-sensitization reactions, and it can be produced to specified chemical and physical characteristics.

MAXWELL


Regitine is a synthetic preparation which is a derivative of imidazoline and which has a marked adrenolytic and sympatholytic effect, exerting its action peripherally. The drug was used orally in 25 patients, 10 of whom had manifestations of Raynaud's syndrome. Five patients in this latter category were benefited. Patients with obliterative vascular disease and others with hypertensive encephalopathy were not greatly benefited by this drug. Side effects noted by these patients included a sensation of heat, oppression in the head, dizziness and palpitations. These symptoms, especially the last, were often severe enough to require omitting the drug. The drug resulted in immediate relief in symptoms and cure after four or five days of treatment when given intramuscularly to two patients with periarteritis nodose.

When injected intra-arterially in normal persons, Regitine produced dilatation of the vessels of the extremity treated and this dilatation was found to last for several hours in some instances. Hyperemia was produced by administration of the drug by this route in a small series of patients with peripheral vascular disorders, and when the obliterative element of the vascular disease was not too far advanced, this was associated with a rise of skin temperature. Hypotension commonly occurs after intra-arterial administration of the drug, and it is advised that patients undergoing such treatment be allowed to lie down for 15 to 30 minutes after the injection. Regitine is said to produce the same effects as Benzaolin (Priscol group) in patients and normal subjects.

ROSENBAUM


The blood concentrations of theophylline, achieved by different routes of administration of theophylline, were determined by the method of Schack and Waxler. After the intravenous injection of 0.3 Gm. of the drug, a high concentration of 7 µg. per milliliter was found in 15 minutes, with a rapid fall during the next hour. Only negligible amounts of the drug were present in the blood after seven hours. After the oral administration of 0.3 Gm. of theophylline, the blood concentration in one hour was approximately 4 µg. per milliliter. This value remained quite constant for four to five hours but became negligible after 10 hours. The drug was given rectally in suppositories containing 0.5 Gm. Absorption was found to be slow with a maximal concentration appearing after four hours and moderate amounts still remaining after 10 hours. When 0.3 Gm. of theophylline was given intramuscularly, absorption was fairly rapid but the concentration of theophylline in the blood remained low.

The author concludes that peroral administration should be preferred where treatment is required over a long time, and the intravenous route should be used in acute cases. Rectal or intramuscular administration appears to have no advantage over the oral route.

ROSENBAUM


Extensive studies of the concentration of quinidine in the blood after various modes of administration are reported. The highest and earliest peaks of concentration of quinidine in the blood were recorded after oral administration on an empty stomach. Although there were individual variations, the peak level after a single oral dose of 0.6 Gm. was 1.0 mg. per liter lower and occurred about one hour later when given after breakfast. A preparation of quinidine hydrochloride dissolved in urea and antipyrene was used intramuscularly in three persons. The peak level was not as high as that after oral administration, but the eight-hour residual level was higher by this method. Though
the series studied was small, rectal administration seemed an unsatisfactory method. A technic used in treatment of five patients with auricular fibrillation is described. This consisted of giving 0.3 Gm. quinidine sulfate every four hours for 24 hours, the same dose at three hour intervals for a second 24-hour period, and, finally, the same dose at two-hour intervals for the third 24-hour period. Conversion to normal rhythm was achieved in three of the five patients although the full course was not required in two of them. The highest level achieved by this dosage schedule was 12 mg. per liter. A patient is described who was given 0.2 Gm. of quinidine sulfate at intervals of 10 minutes until a total dose of 1.4 Gm. was given. A maximum blood level of 11.03 mg. per liter was reached in two and one-half hours. A second patient was given 0.1 Gm. of quinidine sulfate at 10-minute intervals for a total dose of 0.8 Gm. The blood level rose to 10.41 mg. in one and one-half hours. It is suggested that this method may be especially useful when rapid effect is desired. So far as prophylactic quinidine treatment is concerned, the fewest fluctuations were observed when the drug was given at evenly spaced intervals throughout the day.

Electrocardiographic changes resulting from quinidine consisted of prolongation of the Q-T interval and flattening of the T waves, which in some cases also became diphasic. The maximum prolongation of the Q-T interval appeared to coincide with the maximum blood quinidine level.

ROSENBRAUM


Khelltron, (a combination of 20 mg. crystalline khellin, 40 mg. Sestron mononitrate, and 3 mg. thiamine hydrochloride) was administered to 41 ambulatory patients with angina pectoris. The therapeutic effects were analyzed and compared with symptoms during a preliminary control period, placebo therapy, and, in some instances, treatment with khellin and Peritrate. Khelltron produced definite improvement in 27 of the patients. However, it had to be discontinued in eight of these because of toxic effects. Thus, 19 experienced definite improvement without toxicity. Incidence of side effect appeared about one-half as frequently as with khellin, being noted in less than one-third of the entire series.

BERNSTEIN


The positive inotropic effect of epinephrine upon papillary muscle is potentiated by cystine, cystine, tyrosine, ascorbic acid and plasma. However, the positive inotropic action of barium chloride is not influenced by cysteine. Benadryl and indol-acetic acid, which are amine-oxidase inhibitors, do not increase the epinephrine response. The suggestion is made by the authors that the potentiating agents in these experiments act by removing trace amounts of heavy metals which catalyze the autoxidation of epinephrine. They neutralize the blocking action of copper on epinephrine.

OPPENHEIMER


In 30 subjects with normal hearts and varying degrees of orthostatic alterations of the electrocardiogram, the pulse rate, blood pressure, and electrocardiograms were recorded in recumbent and erect positions before and after intramuscular injection of 0.3 mg. of Hydergine. Comparison with similar experiments with 0.5 mg. of Ergotamin injected intravenously showed that normalization of an anomalous orthostatic electrocardiogram was less complete following Hydergine. This is probably due to the fact that Hydergine reduces the heart rate to a much lesser degree than Ergotamin. Higher doses of Hydergine cannot be used because of its tendency to produce orthostatic collapse.

PICK


The authors studied the effect of levoarterenol and levoepinephrine on arterial, portal venous, and right auricular pressures and on cardiac rate in a series of 24 dogs. Arterial pressure was consistently elevated by arterenol but depressed by epinephrine. The cardiac rate was slowed by arterenol, while epinephrine caused a transient tachycardia.

To account for such differences, the thesis was proposed that Arterenol is a vasoejector substance, while epinephrine is a vasoinhibitor substance. Demethylation, at some site in the body, possibly the liver, effects a transformation of epinephrine into Arterenol in response to the need for the maintenance of normal tonus.

ABRAMSON


Repeated intramuscular injections of Veriloid were employed in hypertensive patients with a satisfactory reduction of blood pressure to approximately 150/100 in all instances. There were no evidences of arterial insufficiency related to cerebral, coronary or renal circulations associated with the lowering of blood pressure. The average duration of the effect which began within 30 minutes was three
and one-fourth hours. The initial recommended dose was 0.6 mg., increasing in 0.2 mg. increments until a satisfactory blood pressure response was observed. Reproducibility of the hypotensive effect on a given dose was found to be adequate. Side reactions of hicoughs, salivation, nausea and vomiting occurred in about half the patients. The established intramuscular dose may be administered at approximately six-hour intervals depending on individual requirements. The use of a continuous intravenous dosage to establish the intramuscular dosage requirements was unsatisfactory. The intramuscular administration of Veriloid was considered a practical therapeutic procedure for hypertensive emergencies and for bedfast patients, since it reduces the supine as well as the erect blood pressures.

SHUMAN


A case of a 47 year old woman is described in whom an intermittent Wolff-Parkinson-White syndrome and ventricular premature systoles appeared in the course of acute rheumatic carditis. Following intravenous injection of 300 or 500 mg. of procaine amide, the ectopic beats transiently disappeared, while at the same time, the Wolff-Parkinson-White beats became persistent. It would, therefore, appear that ectopic impulse formation and the phenomenon of ventricular pre-excitation represent two different mechanisms, and that the Wolff-Parkinson-White syndrome cannot be explained on the basis of ventricular hyperexcitability.

PICK


A case is described of a young woman with persistent Wolff-Parkinson-White syndrome and attacks of supraventricular paroxysmal tachycardia. When such an attack was stopped by intravenous injection of procaine amide, the pre-excitation syndrome transiently disappeared. This observation can be explained by either of the two principal theories advanced for the interpretation of the Wolff-Parkinson-White syndrome. Procaine amide could have temporarily interrupted conduction through an anomalous A-V conduction pathway, or suppressed a hyperexcitable ventricular focus.

Moyer, J. H., Handley, C. A., Seibert, R. A., and Snyder, H. B.: Electrolyte, Water, and Mercury Excretion after Oral Administration of Neoehyrin. Arch. Int. Med. 92: 747 (Dec.), 1953. Electrolyte, water, and mercury excretion studies have been done after the oral administration of two thiol mercurial and one chloromercurial (Neoehyrin) experimental diuretics. The chloromercurial, Neoehyrin, appears to be the most effective diuretic as estimated by the increased excretion of sodium and water. The increased effectiveness is probably due to greater absorption from the intestinal tract and consequentially greater excretion in the urine. In addition, Neoehyrin has more potent diuretic properties.

Approximately 5 to 10 per cent of the amount of diuretic ingested is absorbed and excreted in the urine, as estimated by mercury excretion determinations. The renal threshold for the production of diuresis appears to be 5 to 8 mg. Hg. Therefore, the diuretic must be ingested in amounts containing 60 to 80 mg. Hg if adequate amounts are to be absorbed and consistently delivered to the renal tubules. Increased sodium excretion has been observed on smaller amounts (40 mg. Hg four tablets), which was not associated with increased water excretion. This phenomenon may deplete stored sodium if the drug is given daily and thus prevent cardiac failure for prolonged periods of time, despite the fact that acute diuresis cannot be demonstrated after this dose of Neoehyrin.

BERNSTEIN


Seven cases of pericarditis with effusion are studied. Repeated pneumopericardectomy and causal treatment were done in all cases until clinical and roentgenologic data showed a complete recovery. Streptomycin or penicillin were injected into the pericardium in some cases. Four cases were followed for several years. The introduction of air was found to prevent the formation of adhesions. Thereby, prognosis was greatly improved.

Luisada

Paredrine decreases adrenal ascorbic acid in normal rats. However, removal of the hypothesis prevents this effect. Prior administration of Dibenzyline blocks the effects of both epinephrine and Paredrine. It is pointed out that Dibenzyline does not deplete adrenal ascorbic acid when used alone; this differs from Dibenamine. Since ephedrine has no effect on adrenal ascorbic acid, the authors point out that pressor activity and the ability to stimulate the pituitary-adrenal system are probably not related.

Oppenheimer

PHYSICAL SIGNS


A large family has been observed which is com-
ABSTRACTS

Bernstein

RHEUMATIC FEVER


The author reports upon the response of 60 patients to treatment with mg. desoxycorticosterone acetate intramuscularly and 10 ml. of 10 per cent ascorbic acid solution intravenously, twice daily for 10 days. Some patients received two or three such courses of treatment. The series consisted of 45 patients with rheumatoid arthritis, four cases of rheumatic fever, seven cases of spondylitis ankylopoietica, one case of Reiter's syndrome and three cases of disseminated lupus erythematosus. Of the patients with rheumatoid arthritis, slightly more than two-thirds were favorably influenced, and the majority of them showed distinct objective improvement.

It was concluded that in some cases of rheumatoid disease there was definitive subjective and objective improvement, whereas in others, no such effect could be demonstrated, and in some there was actual deterioration. The cause of these variations in response is not clear. It is assumed that in certain cases desoxycorticosterone acetate and ascorbic acid produce a cortisone-like effect by adjusting the hormonal balance.

Rosenbaum

ROENTGENOLOGY


Based on an angiocardiographic study of 150 patients with mitral disease, a characteristic angiocardiographic pattern could be demonstrated in those patients who were found at operation to have significant mitral stenosis with little or no regurgitant jet. The value of the study is somewhat limited by the fact that it provides very little additional information in patients with typical clinical findings of "pure" mitral stenosis. The procedure's greatest value is due to its dependability in establishing the diagnosis of mitral valvular obstruction, when the clinical findings make such a diagnosis difficult or uncertain; for example, in five patients, mitral stenosis was shown to be present when a diastolic murmur could not be heard and in 72 others the angiocardiogram was considered characteristic of mitral stenosis even though the predominant murmur at the apex was systolic in time.

Wendkos


Two cases of mitral valvular disease are presented with recording of the electrocardiogram, the roentgenkymogram, and the jugular and esophageal tracings. While the various tracings showed good contractions of both atria (sinus rhythm in one case, atrial flutter in the other), the roentgenkymogram showed immobility of that segment on the left border which is between pulmonary arch and left ventricle. This finding was interpreted as suggestive of thrombosis of the left auricular appendage. The diagnosis was confirmed in one case by autopsy. The importance of the diagnosis during life is apparent because resection of the appendage, or treatment with anticoagulants, may prevent future embolisms.

Luisada


After studying the C-reactive protein changes in 62 patients with rheumatic fever, the authors conclude that the presence of C-reactive protein in the blood of a rheumatic patient is a sensitive and reliable indicator of rheumatic activity if other unrelated pathologic processes can be excluded. This protein, not normally present in the blood of humans, appears in response to a variety of inflammatory stimuli and may be identified by its capacity to form a precipitate with the somatic C-polysaccharide of the pneumococcus.

Certain isolated rheumatic manifestations, such as chorea, erythema marginatum, subcutaneous nodules and Aschoff bodies in the auricular myocardium, may be present without causing the appearance of C-reactive protein in the patient's blood. The disappearance of C-reactive protein from the blood is a good prognostic sign for the termination of a rheumatic attack but does not preclude the possibility of a future polycyclic recurrence. Persistence of C-reactive protein in the blood during treatment with antirheumatic agents indicates inadequate suppression of the inflammatory process.

Harris


After injecting hydrocortisone into inflamed
joints or other noninfectious locally diseased tissues of 547 patients with various types of rheumatic disease over an 18-month period, the authors found improvement in 85 per cent of the patients treated and no appreciable therapeutic benefit in 9 per cent. Intra-articular hydrocortisone is a useful adjunct to the usual methods of treatment for rheumatoid arthritis, osteoarthritis, gout, bursitis, and other localized rheumatic disorders. Adverse reactions to this local therapy are few and transient. Contra-indications to the use of hydrocortisone locally are: (1) the presence of proven or suspected infection in or near the joint (local instillation of hydrocortisone into or through such diseased tissues may spread the infection), and (2) proven or suspected hypersensitivity to either hydrocortisone or the constituents of the suspending vehicle.

HARRIS


Clinical laboratory findings in 47 patients with systemic lupus erythematosus are reported and discussed. The expected leukopenia and hyperglobulinemia were not observed in a large proportion of these cases. Anemia, increased sedimentation rate, and abnormal urinalysis were among the most consistent findings recorded. No test presently available has specific diagnostic value except the demonstration of L.E. cells in bone marrow or peripheral blood, or the L.E. factor in the patient’s serum. The L.E. phenomenon may be absent during chronic phases of systemic lupus erythematosus and during spontaneous or induced remission of the disease.

BERNSTEIN

SURGERY


The preoperative and postoperative observations of 75 patients, ranging in age from 20 to 49 years and including 17 men and 58 women, are reported. All survivors have been followed at least six months after operation. Surgical relief of mitral obstruction, now an established procedure, brought considerable and sometimes dramatic improvement to nearly three-fourths of this group of 75 patients, selected because of genuine and progressive circulatory disability. Improvement has persisted in most of the patients followed three years or more. There were two failures in this group and nine deaths. Four patients died of embolism, four of progressive cardiac failure, and one of staphylococcal pericarditis.

The two most devastating complications are embolism at operation and reactivation of rheumatic carditis. The former is a surgical problem. The latter calls for the most thorough application of the only known methods of preventing rheumatic fever; prophylaxis against streptococcus infections of the respiratory tract with sulfadiazine or penicillin or, failing this, the prompt initiation of antibiotic therapy at the onset of the respiratory infection.

DENNISON


Two sisters are presented who had pulmonary arteriovenous fistulas of the lungs and were successfully operated on. Diagnosis was established from angiograms. The authors point out that the classic triad of cyanosis, pulmonary osteoarthropathy, and polycythemia may not be present. In addition, the classic bruit and the systolic murmur or a machinery-like murmur may only be present in large lesions. Close relationship between pulmonary arteriovenous fistula and the Rendu-Osler-Weber type of congenital telangiectasis is discussed.

The authors strongly believe that the treatment of choice is excision as these lesions tend to progress, often with alarming rapidity. In addition, cases of brain abscess which developed in association with pulmonary arteriovenous aneurysms have been reported. Finally, fatal hemoptyasis has also been described. Because of these serious complications, prophylactic surgery to eradicate these lesions seems wise.

DENNISON


It is felt that the rather unusual complication which developed after induced hypothermia in its initial clinical use in the authors’ hands is of sufficient importance to warrant reporting. This is also the first instance of subcutaneous fat necrosis which has resulted from the clinical application of general hypothermia. The infant developed this complication following an end-to-side anastomosis between the left subclavian and left pulmonary arteries for relief of the tetralogy of Fallot.

The authors point out other instances of subcutaneous fat necrosis in children following exposure to cold and indicate that it is not a rare occurrence. The susceptibility to this phenomenon in infants may be related to the difference in the composition of fat of the infant and the adult. Oleic acid is an unsaturated fatty acid and has a much lower melting point than either palmitic or stearic acids. Apparently a very small change in the relative proportions of these acids results in a rather marked alteration of the melting point of the neutral fat. It is thus postulated that a very slight diminution in
temperature can cause solidification of the infant's fat, with subsequent necrosis and inflammatory changes. The authors are anxious that their report not be construed as a condemnation of controlled hypothermia for cardiovascular surgery.

Dennison


The authors point out that congenital pulmonary stenosis means the stenosis of the pulmonary valve or infundibulum without overriding of the aorta. The majority of patients with obstruction to the outflow of the right ventricle have defects in either the interatrial or interventricular septum, although there are some patients without other defects aside from the stenosis itself.

The authors point out that when the valve is cut with the valvulotome, through the lined transventricular technic, there is no assurance that the incision may not heal, producing the original obstruction. Therefore, with this thought in mind, the mechanical heart has been applied to a patient with congenital pulmonary stenosis. The right heart was completely by-passed. The main pulmonary artery was clamped off for 25 minutes while the left heart and lungs continued to perform their function. The pulmonary valve was exposed and enlarged under direct vision. The lung flaps of valve tissue protruding into the pulmonary artery were excised. The blood flow through the mechanical heart was 4.5 liters per minute.

The procedure was successful and the patient has been vastly improved. This is, to the authors' knowledge, the first instance of a complete by-pass of the right heart in a patient. Obviously, there must not be a defect of the cardiac septa with such a procedure.

Dennison


The author reported the results in 17 patients of excision of aneurysms in various regions of the aorta. In some instances homografts were utilized. The operation was successful in 12 cases.

It was the author's belief that such a procedure, by preserving the continuity of the aorta, has much to recommend it. When feasible, it allows the removal of the lesion and the restoration of the vessel to as nearly a normal size as possible.

Abramson

VASCULAR DISEASE


The authors evaluated the peripheral circulation of 47 diabetic patients below the age of 45 years with a microplethysmographic method. Although standard diagnostic techniques failed to demonstrate impairment of the peripheral circulation in each subject, with this new technic 22 of the 47 patients, following the administration of nitroglycerine, did show significant differences in blood flow and volume pulse amplitude in one great toe as compared with the contralateral toe. After ganglionic blockade by tetraethylammonium, 15 of these 22 patients continued to manifest significant reductions in flow and volume in one of the two hallucles. The authors consider these findings to imply the presence of occlusive peripheral vascular disease localized to the digital bed in view of the normal oscillometric index. It is suggested that the lesions in the digital bed are analogous to the vascular lesions of diabetic retinitis and intercapillary glomerulosclerosis, and constitute an integral manifestation, not a secondary complication of diabetes mellitus. The increased proximal resistance which will follow upon the development of a more occlusive angiopathy is considered to account, at least in part, for the increased incidence and accelerated development of clinical arteriosclerosis in diabetics. These alterations in the minute digital blood vessels appear to represent a vascular change distinct from the usual type of peripheral arteriosclerosis.

Harris


The authors studied the vasodilating effect of exercise in normal subjects and in patients with arterial vascular disorders by using the measurement of the clearance of radiosodium (Na32) from tissues. They found that passive postural exercises did not increase muscle blood flow significantly, while active exercise was quite effective in this regard.