ABSTRACTS

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PHARMACOLOGY


Although vasopressin injection (Pitressin) has been generally accepted as a safe medicament and used for the elimination of confusing gas shadows during cholecystography, extensive experimental work in the past has demonstrated profound cardiovascular effects resulting from its use. The most important of these is a decrease in coronary blood flow. It has been shown that acute myocardial degeneration can be produced in cats by administration of large doses of vasopressin. This effect could be produced only in old animals. The authors report two cases who were given 1 cc. of vasopressin injection during the course of cholecystography. One man, age 63, developed a typical myocardial infarction from which he subsequently recovered. Another man, age 54, died four and one-half hours after the injection, and autopsy showed old posterior wall infarction plus rheumatic mitral disease. Death was attributed to acute coronary insufficiency induced by vasopressin. The authors advise that the drug should be used with caution (if at all) in elderly patients.

Kitchell


Twenty-two cases of peripheral vascular disease of various types were treated with Priscoline. The average daily oral dose was 200 to 250 mg. taken in divided doses. The highest oral daily dose was 500 mg. taken in divided doses. The average intravenous dose was 50 mg., given three to four times a day. The greatest intravenous dose was 240 mg., given in doses of 30 mg. every four hours. All patients exhibited increased collateral circulation as demonstrated by temperature studies. Intermittent claudication was abolished or improved in most patients. All patients claimed that their feet were warmer and that they felt much better than before treatment. In cases of thromboangiitis obliterans and frostbite all ulcerations healed. Contrary to expectations, fairly good results were obtained in the arteriosclerotic group. In the patients with thromboangiitis obliterans, good results were obtained with either large oral or relatively large intravenous doses. There were no alarming side reactions. Of two known cases of duodenal ulcer, one experienced epigastric pain controlled by antacids, while the other had no complaints. A third patient who gave no history suggestive of duodenal ulcer experienced anorexia, epigastric pain and nausea. A subsequent gastrointestinal series revealed an active duodenal ulcer. Symptoms were controlled by reducing the dosage of Priscoline and giving ulcer therapy.

Wendkos


Studies on dogs in whom auricular flutter was
produced by the method of Rosenblueth and Garcia are reported. The rate of flutter was increased by stimulation of either the vagus or the sympathetic nerves. Diethylaminoethanol and diethylaminoethyl 2,4-dichlorobenzoate exhibited the same effects in innervated or denervated hearts, namely, a reduction of both auricular and ventricular rates and frequently abolition of the flutter. A similar effect was observed with procaine in the decentralized heart. In the intact heart, however, procaine exhibited a more marked auricular slowing, an acceleration of the ventricular rate and a decrease in the incidence of reversion to sinus rhythm. Procaine thus apparently blocks the effects of vagal stimulation upon auricular and ventricular rates.

**Sagall**


In the perfused rabbit and dog heart the pressor hormone of pituitary extract results in an increased amplitude of cardiac contraction. This effect is due to constriction of coronary vessels rather than to a direct myocardial stimulation, for the same phenomenon may be produced by lowering the perfusion pressure, which decreases the coronary flow. The resulting augmentation of the amplitude of the heart beat in these experiments is not due to anoxia or the release of epinephrine or an epinephrine-like substance. The authors point out that the myocardial effects of many substances tested on the perfused heart may be due only to the constricting effect of the substance upon the coronary flow and not the result of any specific direct action upon the myocardium.

**Sagall**


Intravenous infusion of epinephrine in an amount of 10 μg. per kilogram per minute produces ventricular tachycardia of several minutes' duration in the anesthetized rabbit. This dose of epinephrine is necessary for the production of the arrhythmia. It remains unchanged in repeated experiments and may be considered as a threshold value. Premedication of rabbits with moderate doses of quinidine (2.5 mg. per kilogram daily for two weeks) increased this threshold to more than 31 μg. per kilogram per minute, while daily administration of toxic doses of quinidine (10 mg. per kilogram) increased the threshold only slightly. Premedication by Hyd ergin for two weeks prevented the appearance of epinephrine-produced ventricular tachycardia or increased the threshold to more than 24 μg. per kilogram per minute. The effect of the latter drug is ascribed by the author to a direct depressing action on ectopic impulse formation in the ventricles in addition to alterations of the sympathetic-parasympathetic balance controlling the heart action.

Pick


The authors discuss the significant pharmacology of Neosynephrin and describe a technic for the administration of dilute Neosynephrin solution by continuous intravenous infusion in patients subjected to spinal anesthesia. By varying the rate of flow of the infusion the patient's blood pressure may easily be maintained within his usual range and the hypotensive states of spinal analgesia may be quickly treated. The possible complications of this method are enumerated and discussed.

**Sagall**


Tetraethylammonium is a weak inhibitor of human serum cholinesterase. When low concentrations of acetylcholine are employed it is a weak inhibitor of rat brain cholinesterase, whereas with high substrate concentrations it increases rat brain cholinesterase activity. The authors suggest that this latter effect is due to the prevention of inhibition caused by excess substrate.

**Sagall**


In experimental intracardiac surgery, general hypothermia has been induced as a means of lowering the oxygen requirements of the animal and thus lessening the demand on the circulation. At these low body temperatures cardiac standstill occurs rather frequently. An electrical apparatus was designed and constructed which could deliver stimuli that were similar to pulse pattern, pulse duration, pulse delay and frequency. These impulses were delivered to the area of the sinoauricular node either by an electrode applied externally to the area or by an electrode passed down the jugular and superior vena cava to the region of the sinoauricular node.

Dogs were cooled until their rectal temperatures fell below 21.9 C. At these temperatures cardiac standstill or marked slowing of the heart occurred. Then cardiac contractions were maintained by the artificial electrical pacemaker. The maximum rate that could be obtained in a heart that had completely stopped was similar to that of the slow rate of the hypothermia. Artificial heart action was maintained for as long as 70 minutes. Then the animal was
warmed to normal body temperature and spontaneous heart action resumed.

In animals at normal body temperature arrest of the heart was produced by right vagus nerve stimulation. During the period of standstill, artificial beats could be produced with the electrical pacemaker. When right vagal stimulation and the electrical pacemaker were used simultaneously, cardiac standstill did not occur. Furthermore, in animals at normal body temperature it was possible to vary the pulse rate from 60 to 200 per minute by stimuli from the artificial pacemaker.

It is felt that experimentally the heart action can be controlled satisfactorily by an electrical artificial pacemaker. This may be of value in intracardiac surgery, sudden cardiac arrest or resuscitation of persons suffering from exposure to extreme cold.

FROBESE


The writers report on two patients with periarteritis nodosa treated with cortisone. Following dramatic relief of fever and symptoms, both patients gradually developed cardiac and renal failure accompanied by electrolyte deficit. Death was caused by uremia in one case, by hypertension and myocardial infarction in the other. The histologic examination showed a remarkable healing of all arterial lesions in the first case, with the paradoxical end result of complete obliteration by intimal fibrosis of the small arteries in the heart, kidneys, liver and mesentery. Other organs were involved to a lesser degree. In the second case, a similar widespread arterial damage was noted accompanied, however, by small aneurysm and thrombus formations. In both cases, the acute arteritis demonstrated by biopsy had disappeared. Case 1 was complicated by the development of caseous pulmonary tuberculosis, and in both cases a previous surgical history of duodenal ulcer was recalled in the postmortem finding of multiple ulceration of the small intestine.

The writers are cognizant of previously reported spontaneous healing of the lesions of periarteritis nodosa but they comment on the speed with which healing occurred in their cases treated with cortisone.

GOULEY


The authors report on the use of 2 to 4 cc. of 10 per cent calcium chloride in the treatment of impending ventricular standstill or of actual standstill occurring spontaneously or following the successful electrical defibrillation of a heart in ventricular fibrillation. The drug was injected into the left ventricular cavity in the case of four patients who were being operated upon for the correction of a congenital anomaly of the heart. In three of the patients the previous administration of 0.5 cc. of 1:1000 epinephrine hydrochloride had failed to restore a normal heart beat.

It was the opinion of the authors that calcium chloride is not necessarily superior to epinephrine hydrochloride, but that it should be considered an effective cardiac stimulant. Regardless of the drug used, vigorous cardiac massage should always be carried out until an effective beat is restored.

ABRAMSON


Six children with the nephrotic syndrome, when treated with a cation-exchange resin, showed reductions in body-weight and edema. The dangers of acidosis, a low serum potassium level, and a raised blood urea level are noted. Decreased or negative balances for sodium and potassium with increased fecal and decreased urinary output are shown.

BERNSTEIN


Intravascular injection of colloidal desoxycholic acid in rabbits results in intimal-subintimal damage to blood vessels which is comparable to the effect of similarly introduced hydrophobic colloids. Simultaneous intravenous injection of desoxycholic acid and cholesterol results in more severe vascular alterations than injection of either of the two substances alone.

Desoxycholic acid injection in rabbits results in dilatation of the portal vein and in periportal edema. Large doses of albumin injected intravascularly, together with desoxycholic acid, prevents the action of the bile acid on the portal system but fails to neutralize the effect of the bile acid on the blood vessels.

BERNSTEIN

PHYSIOLOGY


The hyperpnea of muscular exercise is arranged so that the increased oxygen requirement is met while arterial pCO₂ and pH are almost unchanged from control values. The authors point out that this hyperpnea is probably due to excitatory nervous influences impinging on the respiratory center. As a
result the center becomes as maximally active as is consistent with normal carbon dioxide tension and acidity. No such excitatory nervous influences of appropriate strength have been demonstrated during exercise. Previously demonstrated afferents from joints (active or passive movement) are active during exercise but are not intense enough to account for the whole hyperpnea. It is suggested that summation of a great number of discrete and diverse impulses, collectively large but individually small, may account for the hyperpnea. The present study deals with reflexes from lungs, heart, and intrathoracic blood vessels. Reflexes from lungs (von Bezold), expressed as respiratory depression or apnea followed by tachypnea, in response to veratrum alkaloids, were used to demonstrate reflex activity of an animal preparation. The only stimulating effects found were an increased rate of respiration when pulmonary venous pressure was elevated and after the apnea induced by veratridine. In these experiments rises in great vein and right atrial pressure did not stimulate respiration. Chemoreceptor effects upon respiration and circulation (except those due to veratridine) were absent from heart, lungs, and pulmonary vessels.

Circulatory reflexes arising in the right atrium (but not great veins) and proximal pulmonary artery produce bradycardia and vasodilation on raising pressure in these two areas. This is different from the results of Bainbridge and MacDowall, who used cats. Pulmonary receptors sensitive to veratrine and the pulmonary presensory receptors appear to be in the pulmonary veins.

Oppenheimer


The author presents a comprehensive physiologic review of neuromuscular transmission and block in which evidence of the dependency of muscular contraction on acetylcholine is discussed. There is always some leakage of acetylcholine during the resting state of muscle, and this produces a miniature end plate potential which is subthreshold for excitation. He believes that the idea of a resting state at the nerve endings must be relinquished. When depression occurs in muscle, it is due either to the injection of large amounts of acetylcholine or to the frequent stimulation of eserizined muscle. In summary, he states that depolarization of the end plate by acetylcholine leads to propagated excitation followed by contraction. If the depolarization of the end plate spreads to the muscle fiber, depression or contracture results. Inasmuch as contracture is physiologic, the depression results in neuromuscular block such as is produced by Decamethonium. Normally excessive depression is prevented by a ferment in the nerve endings (cholinesterase). Three possible conditions leading to neuromuscular block are mentioned: (1) desensitivity of the end plate to the depolarizing effect of acetylcholine; (2) release of too much acetylcholine; (3) insufficient release of acetylcholine by the nerve impulse. Tubocurarine reduces the depolarizing influence of acetylcholine, decamethonium produces too much depolarization, and botulinus toxin is responsible for the inability of nerve endings to release acetylcholine.

The contracture function of small nerve fibers in the motor roots differs in the lower forms and in mammals, but it has been shown that mammalian function can ingeniously adapt the function of these lower forms in the development of postural reflexes.

Tandowsky

RHEUMATIC FEVER

Bustamante Riofrio, R., Kohout, F., and Schlesinger.

Among 923 patients with heart disease studied at the Moncorvo Filho Hospital in Rio de Janeiro, rheumatic fever was the third ranking etiologic factor, following hypertension and arteriosclerosis. Mitral stenosis, either as an isolated or associated valvular lesion, occurred in 110 cases, or 57.6 per cent of the total group with rheumatic cardiac disease. A rheumatic history was elicited in 81.9 per cent of this series, with a definite predominance of joint manifestations. There were 30 patients over 40 years of age, and it was noted that the clinical course of the disease seemed to be more benign in these cases, with a longer asymptomatic period following the diagnosis of the valvular lesion. The course of the disease was more severe in women than in the men, who, as a rule, had a more favorable outlook. Associated mitral and aortic disease which occurred in 18 patients seemed to be better tolerated and for a greater length of time than pure mitral stenosis, although they had a more rapid course after the onset of heart failure.

Schlesinger


The author presents clinical case reports of two living patients with chronic rheumatic mitral stenosis, and large venous pulsations limited to the base of the neck. In the lower part of the neck only, these pulsations consisted of large "a" waves in the phlebogram. The author believes that the big "a" waves are due to forceful systole of the right auricle against a stenotic tricuspid valve. In the presence of venous engorgement, a systolic pulsation is presumptive evidence of tricuspid involvement with incompetence, and a presystolic pulsation without venous engorgement is a presumptive sign of
dynamically pure tricuspid stenosis. The author is puzzled by the absence of hepatic pulsations in the patients studied. In an addendum, the author summarizes a recent report of Grishman and associates who studied 14 patients with presystolic liver pulsation in the absence of tricuspid stenosis. Some also showed a prominent "a" wave in the jugular tracing. These authors explain the strong presystolic pulsation as being due to resistance to right atrial outflow with reflux to the liver, caused by right heart failure, right ventricular hypertension, pericardial effusion, pulmonary hypertension and interatrial or aortic-atrial shunts.

Hellerstein


The authors present the hypothesis that pleuro-pneumonia or L organisms may behave as antigenic agents in the pathogenesis of rheumatic diseases. This is based upon the finding of L organisms of the joints of man and animals, and upon the possibility that these forms may persist intracellularly. Inhibition of the L organism in vitro was demonstrated using various antibiotics of which Terramyacin was the most effective; penicillin was relatively inactive. Clinical studies were conducted to evaluate the effects of antibiotic therapy on patients with rheumatic diseases. The results showed two types of responses: one group tolerated the drug well and was improved; the others experienced exacerbations of the disease which were attributed to the increased release of antigen by the antibiotics. Smaller doses were employed effectively in the latter group. Cortisone was described as able to block the exacerbation induced by antibiotics by inhibiting antigen-antibody reactions. Human serum albumin administered to eight patients with active rheumatoid arthritis produced clinical improvement for six to eight hours. The combination of albumin and antibiotic was used in several arthritides with good results. It is suggested that the L organisms are antigenic and may produce tissue hypersensitivity; this is increased by antibiotics which cause release of antigen and is blocked by Cortisone or human serum albumin.

Shuman


Streptococcal bacteriologic and immunologic studies in a rheumatic colony of children aged 6 to 16 years are presented. The immunologic responses of the rheumatic patient to the nonspecific extracellular antigens of the hemolytic streptococcus such as the antistreptolysin O titer, the antistreptokinase titer and the antihyaluronidase titer do not present a pattern significant of rheumatic activity. Rheumatic fever patients do show a high degree of cutaneous sensitivity to the type-specific antigen M of the hemolytic streptococcus. Desensitization to the M fraction of all known types of hemolytic streptococci may be accomplished in a significant number of rheumatic patients by a slow process of "immunization." This type of "immunization" seems to have affected the general incidence of recurrences and reactivations in the rheumatic colony of children under observation though not enough studies have as yet been done to make them statistically significant.

Bernstein


Rheumatic fever is a disease presenting an etiologic problem which demands the attention of pediatrician, cardiologist, bacteriologist, immunologist and, of late, psychiatrist. It has been stressed that there is an intimate association of the psyche and the soma in rheumatic fever. The psyche is involved in the cardiac, vascular and choreiform expression of rheumatic disease. The psyche is also said to be associated with the allergic mechanism of etiologic significance in its pathogenesis.

Since rheumatic fever strikes at a time of delicate
emotional metamorphosis, it is particularly relevant that recognition and satisfaction of the basic emotional drives succeed. It is considered that rheumatic disease attacks an emotionally sick individual in whom psychologic tension has lowered the resistance of the host to the invading factor. Security and happiness in a child is essential for the prevention of rheumatic fever and its psychologic and cardiac complications. Psychotherapy in the treatment of active rheumatics is widely accepted. Whenever practicable, prophylactic psychotherapy against the onset or recrudescence of rheumatic fever is also recommended. The question is raised whether the severe personality difficulties of some rheumatic fever children really are an early choreiform expression of rheumatic disease or whether they exist in a nonrheumatic given the same emotional background. It is thought that perhaps all rheumatic children would have clinical chorea if their threshold to its clinical expression were lowered by psychologic tension.

BERNSTEIN


Cortisone and ACTH administered to a refractory case of acute rheumatic carditis produced little clinical significant response except a drop in the temperature and pulse rate during administration of cortisone. Necropsy also showed morphology no different from that of similar cases not receiving these drugs.

HARRIS

ROENTGENOLOGY


The author describes a mediastinal tumor simulating massive left ventricular enlargement in a young boy. Angiocardiography was performed and indicated that the heart chambers were normal in size. At operation a flat multicystic mass was found to surround the left side of the pericardium. The microscopic diagnosis was cystic lymphangiomat.

SCHWEDEL


The author applied the method of differing angioarchitectural appearances of tumor tissue whose arterial supply has been injected with radiopaque dye, to a case of metastatic melanoma, and to a malignant neurinoma lying above the right kidney. Their appearance was rather similar, and was characterized by the presence of numerous small blood vessels with an irregular course, some corkscrew like, evidently newly formed and abnormal. These findings were more prominent in the case of malignant melanoma.

SCHWEDEL


The authors describe the technic of direct ventricular puncture in dogs and man. A 5½ inch trocar was inserted between the xiphoid process and the seventh left costal cartilage, and directed cephalad. Penetration into the ventricular cavities is usually preceded by extrasystoles as the trocar touches the ventricular wall. When the trocar was allowed to follow freely the movements of the heart, alterations of rhythm occurred. These disappeared when the trocar was put under control. Visualization of the ventricular cavities, of the aorta, and of the pulmonary arteries, as well as the coronary arteries, were obtained by the injection of Diodrast. This method is called "cardioangiography" since the films are taken from the heart toward the vessels. Direct ventricular pressure curves were obtained in 1 case. This technic was applied 45 times on 30 patients without mortality or untoward results.

HELLERSTEIN


The authors describe the clinical, roentgenographic and postmortem findings in five cases of thrombosis involving the main pulmonary artery or its major branches. The points emphasized in the roentgen diagnosis were: alteration in hilar contours, changes in the vascular pattern in the lung fields, and right heart enlargement in long-standing cases. The authors also describe a single case of multiple thrombosis of the tertiary pulmonary arteries, with roentgen findings simulating occlusion of major pulmonary arteries.

Pulmonary infarction was present in four of the six cases. The authors consider that when the thrombus obstructs a major vessel the following changes ensue: dilatation proximal to the block, enlargement and alteration of the contour of the vessel at the level of the thrombus, and decrease in the caliber of vessels distal to the thrombus causing increased radiolucency in the corresponding area of the lung.

SCHWEDEL


The authors describe a case of pulmonary artery obstruction, probably secondary to tuberculosis, with atelectasis of the affected (left upper) lobe. The right hilus was normal, the left apparently small and retracted in an upward direction. On angiocardiography the left pulmonary artery ended abruptly distal to the bifurcation of the pulmonary artery trunk. The authors suggest that this was the site of an incomplete obstruction of the artery or a complete occlusion which had re-canalized. The right ventricle and atrium were not enlarged.

The electrocardiogram showed marked right axis deviation with inverted T waves and high R waves in leads 2, 3, and aVF, findings compatible with the diagnosis of chronic cor pulmonale. The patient had no past history significant of cardiac or pulmonary symptoms.

SCHWEDEL


The diagnosis of chronic cor pulmonale in this series was based on the pathologic demonstration of selective enlargement of the pulmonary conus and artery, with or without hypertrophy of the body of the right ventricle, in the presence of pulmonary emphysema or other appropriate pulmonary causes for such enlargement.

The roentgenologic features stressed were bulge of the pulmonary artery segment in the postero-anterior position; prominence of the pulmonary artery and right ventricular conus in the right anterior oblique position when the left atrium was not enlarged; enlargement of the right ventricle projecting anteriorly in rotation into the left anterior oblique position of 65 degrees or more, especially when the left ventricular segment was not enlarged; increased circular density of the bifurcation of the pulmonary trunk into its right and left pulmonary arteries, seen in both the right and left anterior oblique positions.

The following conditions simulating chronic cor pulmonale were described: atrial and ventricular septal complex, isolated pulmonic stenosis, idiopathic dilatation of the pulmonary artery, mitral stenosis, thyroid heart disease, heart failure, kyphoscoliosis, aneurysm of the pulmonary artery, Ayerza's disease, age and habitus.

SCHWEDEL


The authors discuss some of the limitations of angiocardiography and relate these to anatomic variations, influence of intrathoracic pressures, variations in the concentration of dye within the right heart chambers due to laminar flow and reflux into the inferior vena cava, superimposition, phase of the cardiac cycle, and variations in the technical factors inherent in the roentgenographic apparatus. They stress that the diagnosis of reopacification is hazardous and suggest that error in angiocardiography is diminished when serial roentgenograms are obtained, and when oblique or lateral views are possible.

Clinical, roentgenological and pathologic observations should confirm each other to avert serious error. This calls for technical as well as clinical teamwork. In general, left to right intracardiac shunts are usually poorly visualized; in such instances more information may be derived from catheterization. Illustrations are offered of some of the common and other less frequent pitfalls.

SCHWEDEL

SURGERY IN HEART AND VASCULAR SYSTEM


In order to reach the left main bronchus in preparation for removal of the left lung in a patient, the authors mobilized the arch of the aorta and temporarily retracted it inferiorly and to the left. In this manner the desired procedure was carried out with much less difficulty. When the aorta was released, it returned to its normal position in the chest.

ABRAMSON


The authors present a case of coarctation of the aorta, located at the level of the diaphragm, which was successfully treated with a vessel graft. The coarctation, which was approximately 6.5 cm. in length, was excised between Potts clamps and a preserved arterial graft of approximately the same size was sutured in place. The patient convalesced uneventfully.

ABRAMSON


The authors investigated the problem of the duration of patency of experimental arterial grafts of small arteries. Both fresh and preserved homografts as well as fresh autografts were implanted in the femoral arteries of 39 dogs, and observations
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were then made on the efficacy of the procedure at various intervals up to as long as one year.

Thirty-four of the grafts were found to be patent as demonstrated by dissection and arteriography. The remaining four became completely occluded. Upon gross examination, all the successful autografts were found to be entirely similar, both in appearance and texture, to the adjoining artery into which they had been implanted. However, in the case of homografts, differences were discernible. These segments were slightly stiffer, less elastic and paler. Histologically they were found to have undergone necrosis of all layers, followed by a collagenous replacement of the media and a fibrocellular replacement of the intima. Nevertheless, the homograft provided a functioning vessel segment with a structurally sound wall and lining of living cells.

It was concluded that arterial grafts of all three types would be useful for bridging defects in cases of human arterial injury or for replacing segments of small but essential arteries sacrificed in extensive radical surgery.

ABRAMSON


The author reports alterations of the circulation and of the electrocardiogram observed in 21 patients shortly after gastric resection, performed in all cases with intravenous sodium Evipan anesthesia. The principal changes in cardiodynamics, which were analyzed according to the method of Broemser and Ranke were, an increase of pulse rate, of pulse velocity, of the elastic resistance and of the diastolic pressure; the pulse pressure, the stroke volume and the work of the heart were diminished. The electrocardiographic changes consisted in prolongation of the Q-T duration without corresponding prolongation of the distance between first and second heart sound (Heggin’s “energetic-dynamic insufficiency”). Calculation of the time of isometric contraction and of ejection revealed marked shortening of the latter, and only insignificant or no alteration of the former value. All these returned to preoperative normal values within five days and are ascribed by the author entirely to the effect of the anesthesia.

PICK


The author reviewed the various conditions affecting the cardiovascular system which are amenable to surgery. Among those in which this approach has accomplished good or excellent results are constrictive pericarditis, wounds of the heart, systemic arterial and arteriovenous fistulas, and such congenital lesions as patent ductus arterio-
sus, coarctation of the aorta, pulmonary stenosis, pulmonary arteriovenous fistula and anomalies of the aortic arch. Moderate improvement has occurred in the case of essential hypertension, transposition of the aorta and pulmonary artery and anomalies of venous return. In all other disorders either surgery appears of doubtful value or suitable methods for its application have not as yet been developed.

ABRAMSON


The authors report the case of a 37 year old man with arteriovenous fistula between a renal artery and the inferior vena cava following a gun shot wound of the chest. The diagnosis was made clinically and verified at operation. Clinical signs suggesting the diagnosis were progressive heart failure, a thrill and a loud systolic murmur over the right upper abdomen and the right lower back. The blood pressure was 190/100 mm. Hg. Cardiac catheterization was performed, and a higher oxygen saturation was found in the right auricle (15.3 volumes per cent) than in the superior vena cava (11.3 volumes per cent). A retrograde pyelogram showed atrophic calices and impaired excretory function of the right kidney. At surgery, a large communication between the right renal artery and the inferior vena cava was found and ligated and the markedly atrophic right kidney was removed. Three months after the operation the blood pressure had dropped to 140/90.

The authors point out that, in contrast to usual findings in arteriovenous fistulas, the diastolic pressure in this case was elevated before and dropped after ligation of the communication. The hypertension and subsequent heart failure before surgery is ascribed to an increase of peripheral vascular resistance due to excretion of vasopressor substances by the ischemic right kidney.

PICK


Since smaller arterial transplants were known to live and function in the experimental animal, the authors decided to give the concept a clinical trial. Three cases of sarcoma in the right femoral area, all with invasion of the femoral artery, had radical excision of the neoplasm. In one, the arterial defect was bridged with a vein graft which was successful. In the other two, arterial homografts were available from the “artery bank.”

In one case, the artery graft survived and its function was checked by arteriography and found to
be good. In the other case, the soft tissue wound over the artery graft separated and the graft was exposed. Although the wound was closed immediately by a sliding graft of skin, the artery graft ruptured and profuse hemorrhage occurred. It was necessary to ligate the femoral artery and amputate the limb.

It is pointed out that the use of preserved arterial homografts in bridging defects in main peripheral arteries may increase the adequacy of resection of certain peripheral malignant neoplasms without resulting in radical amputation of the extremity. When the tumor invades the wall of the artery, it can be resected and a graft of similar size can be obtained from the bank and sutured in the gap.

FROEBESE

VASCULAR DISEASE


Using venography the author investigated the state of the deep venous valves in patients with varicosities. Those who did not have a history of deep thrombophlebitis were able to be divided into two groups on the basis of the state of their deep veins. In one the valves were normal, while in the other no valves could be seen in the deep veins which appeared increased in size.

None of the patients with varicosities who had deep venous thrombosis demonstrated visible valves. On venography, some showed small irregular vessels, a response resulting from thrombosis and recanalization, while in others the vessels were larger than normal, giving the impression that they had dilated after an iliac thrombosis.

It was the opinion of the author that when symptoms are present in a patient with varicosities, these are due to abnormal deep veins, even though they had never been subjected to thrombosis. Therefore, in such individuals one would not expect ligation of the superficial veins to produce a cure, since the root of the problem, the abnormal deep veins, is not touched. He believes that only when the superficial veins alone are involved will improvement occur with such a procedure.

ABRAMSON


The typical clinical picture of arteriovenous fistula of the lung is said to consist of a history of cyanosis of long standing, shortness of breath, dizziness and sometimes syncope, while the physical examination discloses polycythemia, clubbed fingers, and a normal spleen and heart. Three cases showing the typical features are described and a fourth case is reported in which there was no cyanosis. The lack of cyanosis in this case was attributed to a relatively small shunt. In another case the blood flow through the chest was calculated to amount to more than 30 per cent of the total blood flow. In the single patient who was treated surgically, death occurred two and one-half years after operation and was attributed to a subarachnoid hemorrhage, possibly arising from hemangioma in the central nervous system.

ROSENBaUM

OTHER SUBJECTS


The authors describe the skin lesions encountered in three patients with systemic lupus erythematosus. In each of the cases, an effort is made to relate the cutaneous manifestations to similar lesions recognized in other diseases associated with diffuse collagenous or vascular pathology. Among the lesions presenting in these patients were: (a) erythematous, scaling patches on cheeks, nose, and ears; (b) deep-seated, papulonodular tuberculosis-like lesions; (c) erythema nodosum; (d) acute, diffuse noninflammatory swelling of the extremities; (e) gangrene; (f) sulfonamide rash; and (g) Reynaud's phenomenon. These unusual cutaneous manifestations appearing in lupus erythematosus were reminiscent of the lesions encountered in periarteritis nodosa, dermatomyositis, scleroderma, anaphylactoid purpura, rheumatoid arthritis, and thromboangiitis obliterans. It is suggested that these diseases in which diffuse vascular reactivity is a fundamental pathologic feature may be related, and that the adrenal cortex may play a role in their pathogenesis.

SHUMAN


An increase in the plasma volume and extracellular fluid volume during pregnancy has been demonstrated repeatedly. In this study, the "bromide space" was determined using a 10 per cent solution of sodium bromide for the calculation of the extracellular fluid. Among the subjects used for these measurements were 25 normal antepartum and 15 normal postpartum patients in whom there was no evidence of toxemia or water imbalance. The results were in close agreement with those obtained using other methods, such as thiocyanate space. The volume of extra-cellular fluid in normal pregnancy at term was found to be 11.3 liters per square meter of body surface or 28.8 per cent of body weight. The normal nonpregnant women showed a volume of 9.5 liters per square meter. In the series of measurements on postpartum women, the extracellular volume was 10.2 liters per square meter. The data
indicate that the estimation of extracellular fluid volume on the basis of surface area gives more constant results than that calculated on the basis of weight. Using surface area for their calculations, the authors state that pre-eclamptic patients have significant increases in extracellular fluid above those found in the normal pregnancy.

**Shuman**


The United States Public Health Service has planned an epidemiologic study of cardiovascular diseases in Framingham, Massachusetts, a city of 28,000 population. The problems involved in setting up the study may be divided into four groups: professional, administrative, organizational, and technical. The subjects selected for this study receive a complete history and physical examination together with an X-ray of the chest, electrocardiogram, electrolymographic tracing, and a number of laboratory studies including serum cholesterol, phospholipid and S10-20 fractions. Six thousand people in the age group of 30 to 59 years have been selected. The subjects will be re-examined biennially and will be followed for about 20 years.

From this study it should be possible to test a number of hypotheses with respect to factors associated with the development of arteriosclerotic or hypertensive cardiovascular disease.

**Waife**


Autopsy material from 15 patients with lupus erythematosus was studied histologically. The most prominent changes were muscle degeneration and involvement of the venous circulation consisting of three phases: edema, cellular reaction and sclerosis. These histologic alterations were identical with those observed in some active cases of rheumatoid arthritis. In only one instance of lupus did the changes in the muscle suggest fibrinoid degeneration.

**Abramson**


The problems of establishing a blood vessel bank are fully discussed. It is important that autopsy permission for donor graft material must be cleared rapidly after the death of the donor. The material must be removed within six hours of death to be useful. The authors discuss preparation and storage of donor material by the nutrient medium method and the quick freezing method. Extreme care and caution must be exercised in the preparation and use of these grafts in order not to jeopardize a promising new field of surgery.

**Kitchell**


Investigation of 17 cases of acute disseminated lupus erythematosus disclosed the L. E. cell in the marrow and peripheral blood of all. This cell is a polymophonuclear leukocyte containing a large, round, homogeneous inclusion body which is stained by basic dyes and is Feulgen-positive. The inclusion body of the L. E. cell is altered nuclear material derived from polymophonuclear leukocytes and lymphocytes. This material contains partially depolymerized deoxyribose nucleic acid and is identical both optically and chemically with the "hematoxylin-staining body" of Klemperer. The L. E. cell may be found occasionally in other conditions, but it is considered to be specific in 96 per cent of cases for lupus erythematosus. Biochemical studies indicate the L. E. cell may be found in clotted blood and does not depend on the presence of an anticoagulant for its formation, but only on the amount of time outside the body. The factor responsible for the L. E. cell phenomenon is said to be contained in the gamma globulin fraction of the plasma. This factor produces a very powerful stimulus to phagocytosis which causes the leukocytes to ingest the altered nuclear material, thereby forming the typical L. E. cell.

**Harris**


When studied by means of a special technic and motion pictures the first heart beat of the living chick embryo shows that the myogenic beat occurs before either a specialized muscle conduction mechanism or nerve regulation affects the heart action. The very first movements are local fibrillar contractions along the right margin of the ventricular region in the embryonic cardiac tube. These fibrillations coalesce to produce movement of the entire right side of the single ventricle. After similar movement of the left side the rhythmic contractions of the entire primitive ventricle developed a slow regular pulsation. During this time the atrium has begun to develop. It, in turn, begins to exhibit contractile activity at a higher rate than that of the ventricle. The circulation begins when the peristaltoid contractions initiated in the atrium gradually increase in power and rate. During this time the sinus venosus is still unformed. This sinus has a higher contraction rate than the atrium and as it is incorporated into the heart it speeds up the
rate and causes contraction waves to start further posteriorly. These changes occur before there is any histologic differentiation suggesting specialized conduction systems.

WAIPE


The authors reviewed the findings observed in their series of 42 patients with scalenus anticus syndrome. In all instances neurologic signs or symptoms were present, while in approximately half the cases vascular findings were also noted. A consistent observation was tenderness on palpation of the belly of the scalenus anticus muscle.

The scalenus anticus syndrome was divided into an acute and a chronic stage. In the acute stage, generally a history of acute trauma could be elicited, the pain was severe and diffuse, and muscle spasm existed. A prompt response to conservative therapy generally occurred. The chronic stage was not necessarily associated with trauma, while localized paresthesias and atrophy were more common. Complete relief of symptoms in most instances was obtained only after a scalene tenotomy. The chronic stage of the disorder frequently followed repeated prolonged exertion involving the musculature of the neck and shoulder regions.

The tests which were found of value in making the diagnosis of scalenus anticus syndrome were local tenderness of the belly of the involved muscles, the relief of pain following the injection of procaine into them, and the Adeon maneuver.

In the treatment of the condition, if the relief of pain was not satisfactory following the injection of procaine into the scalenus anticus muscle, the stellate ganglion was infiltrated. If relief of pain was now obtained, thoracic sympathectomy was performed at the same time that scalenotomy was done.

ABRAMSON


In rapid decompression to altitude above 52,000 feet breathing oxygen, using a parasite compartment attached to a large low pressure chamber by a valve system, it was shown that loss of consciousness can be avoided only if the total exposure time does not exceed five to six seconds. Longer exposures lead to unconsciousness after a latent period of 15 to 17 seconds regardless of the ambient pressure or arterial oxygen saturation prevailing at that time. Hypoxia of this type occurs without subjective or objective prodromal signs. This latency of hypoxia shifts the physiologic ceiling of the subject breathing oxygen to higher altitudes with increasing rate of climb.

BERNSTEIN


Circulation time measurements, in 13 cases of massive pericardial effusion and in one case of adherent pericardium, were normal in 11 and slightly prolonged in three. These findings indicate that in any given case in which the cardiac silhouette is much enlarged, the circulation time can provide a means for differentiating between pericardial effusion and cardiac dilatation. The circulation time would be expected to be markedly prolonged if the increased size of the cardiac silhouette is due mainly to cardiac dilatation.

WENKOS


The author describes a simple and rapid method of catheterizing the aorta in dogs in order to secure repeated x-ray records of aortic grafts. A polythene catheter is inserted into a 13 gage short bevel needle, and the tubing is flushed and filled with isotonic saline or saline plus heparin. The needle is then inserted into a femoral artery and the catheter tip is advanced to the desired level in the aorta. The needle is withdrawn, leaving the catheter in place. Diodrast is injected through the tube into the aorta for purposes of x-ray visualization.

ABRAMSON


The author previously showed that repeated intravenous injections of minute fibrin clots into rabbits produced fibroelastic intimal thickening in the pulmonary arteries. He utilized the same method in a study of right ventricular hypertrophy in rabbits as a sequel to pulmonary embolism.

Three groups of 10 rabbits were used. Group I was subjected to small biweekly injections for 20 weeks. Some of this group died before the completion of this period, generally soon after an injection. The others were sacrificed. Group II, similarly treated, were allowed to recover for another period of 20 weeks and then were killed. The third group, used as controls, remained untreated.

The pulmonary arteries were injected with radiopaque mixture and studied by x-ray examination for embolism. The ventricles were dissected from each other and their relative weights recorded. In Group I, in which embolization was continuous
ABSTRACTS


The Aleuts are a genetically homogenous group of Eskimos living in the Aleutian Islands. Their diet is based on fish, while cholesterol containing foods are largely missing from the diet. At the time of this study the Aleuts diet was low in cholesterol but high in neutral fats and amino acids (a low-calorie high-protein diet). The mean adult serum cholesterol of 81 native Aleuts did not differ significantly from adult Americans. No significant sex difference in total cholesterol was noted. The cholesterol ester-total cholesterol ratio closely approximated that of Americans. Despite a common diet, four cases of hypercholesterolemia were encountered. The evidence suggests that endogenous mechanisms are responsible for the maintenance of the serum cholesterol.

Gouley


The authors arranged an x-ray tube, a rotation table, a lead slit and a film cassette for this method. The film moves just behind the stationary slit which is 1 mm. wide, and cut out horizontally in the lead plate. A lead wire is set across the slit where it is intersected by the plane, containing the tube-focus and the rotation axis of the rotation table. A patient is placed on the rotation table. By this means they then do discontinuous or continuous rotatory-kymography.

Waife


The L.E. phenomenon (rosettes of clumped leukocytes and L.E. cells in the bone marrow of patients with systemic lupus erythematosus) is well known as a diagnostic test. Using the patient's own marrow is difficult because the patient is often extremely ill and the marrow is often hypoplastic (giving false negative results). The plasma L.E. test in which plasma of the suspect is mixed with the bone marrow cells from another person is quite accurate. Twenty-three patients who reacted in a positive manner to these tests in the Cleveland Clinic are reported. The authors conclude that the procedure is valuable diagnostically; it may correlate many unrelated conditions, and it continues positive longer than any other tests during remissions of lupus erythematosus. It prevents wrong diagnoses, such as epilepsy and/or syphilis. Negative tests may occur with abnormally low gammaglobulin in patients who have systemic lupus erythematosus. The test is not valuable in making a prognosis.

Kitchell


The observations made in 13 patients with acute benign pericarditis are reported. Pain in the chest, a pericardial friction rub, changes in the RS-T segments and T waves in the electrocardiograms, rapid alterations in the cardiac size, and a benign ultimate outcome were the outstanding features of this series of cases. One patient had paroxysmal auricular flutter. Several patients developed pleural effusions, which were bilateral in two cases. All patients were followed for 18 months and six were followed for three years. Except for recurrent pericarditis in two of them, all had an asymptomatic course.

Rosenbaum


A new method for demonstrating the presence of Lupus erythematosus cells is presented. It is neither more nor less specific than other methods, but is simpler to perform and is more sensitive. It permits clean-cut distinction between bloods which show the L. E. phenomenon and those which do not.

Venous blood is permitted to clot in a clean, dry test tube. After standing at room temperature for about two hours, the clot is "fished" out with a wooden applicator and discarded. In the process, the clot is traumatized so that some blood escapes from it into the serum. The tube is then centrifuged at 1000 to 1500 rpm, the serum poured off and smears made of the sediment. The smears are stained with Jenner or Giemsa stains and examined under low power and then oil immersion.

Few white cells are found and these are at the periphery of the smear. The finding of clumping of polymorphonuclear leukocytes, "rosette" formation, and free homogeneous nuclear masses ("hematox-
lysin bodies") creates suspicion, but a positive result is not reported unless true L. E. cells are found. The search requires no more than five minutes in positive cases, where at least one L. E. cell has been found in the first 100 polymorphonuclear leukocytes counted.

The blood of 11 patients with acute disseminated lupus erythematosus was examined by this method on 39 occasions. In one case L. E. cells were not found by the clot method or any of the older methods, including a study of heparinized bone marrow. In the other cases the correlation was complete, and in all positive cases L. E. cells were far more frequently encountered by the clot method.

Bernstein


Electromyography is a branch of medical science which deals with the eliciting, indicating, recording and evaluating of voltages produced within skeletal muscle. This paper outlines some of the desiderata of a portable electromyograph which is suitable for clinical and research purposes. It also describes the electromyograph which was designed to meet these requirements. Among its unique features are the accurate built-in calibrator, the versatile sweep circuit, the provision for calibrating duration of sweep, the wide range of sensitivity, and the use of a 16 mm. motion picture camera for photographing and titling each oscillogram.

Bernstein


A standard 16 mm. motion picture camera, having the magazine-loading feature, has been adapted to the purpose of getting vast numbers of completely identified permanent records from the electromyograph previously described.

Bernstein


There are described numerous cases of respiratory and intestinal infections which have been marked by the complication of acute myocarditis. Among these cases have been a small number of patients who develop such precordial pain that they might be confused with ordinary cases of acute coronary occlusion without infection. It was noticed on the electrocardiograms in all cases that the characteristic findings consist of T-wave changes almost exclusively. Rarely one sees a minor S-T or QRS change. The T-wave changes are apt to be found in any lead and may consist of change in one or more leads. The T-wave changes develop quickly and reverse themselves just as quickly. From day to day the T-wave direction does not necessarily progress steadily upward or downward, but may vary up and down. The T waves tend to be pointed. The amplitude of all waves in V2 and V3 generally was large. The P waves are seen to be occasionally flattened or inverted. Autopsy material is not available in this series. Other authors describe the pathology of this acute myocarditis in detail. There are complete reports available with reference to subepicardial and myocardial hemorrhage, myocardial degeneration, and areas of myocardial inflammation, with polymorphonuclear leukocyte invasion.

Bernstein


The author reports the presence of an erythrocyte aggregation factor which causes clumping of washed group O Rh-positive red cells in a mixture of egg white and fresh plasma and serum obtained from patients with acute lupus erythematosus. This phenomenon occurs following refrigeration for one-half hour. The factor is not destroyed by activating serum or plasma at 56 C for 30 minutes. Samples of plasma and serum containing this erythrocyte aggregation factor also produced a so-called L. E. cell phenomenon. Further study is being made to see whether the cold phenomenon producing erythrocyte aggregation and the so-called L. E. cell phenomenon are produced by the same factor.

Waife


It should never be the purpose of phonocardiography to bring to light heart sounds or murmurs which do not yield to auscultation; its function is to show where these lie in relation to the separate phases of the cardiac cycle, and their exact incidence in the different parts of systole and diastole. The clinician is helped to tell the various forms of triple heart rhythm, enlisting this sign to help significantly in diagnosis, and can more easily recognize clinically, an innocent heart murmur.

The phonocardiograph shows that there are only three kinds of triple rhythm and the first is the only important one, the other two having most weight in differential diagnosis: (1) from addition of third heart sound; (2) from audible auricular sound; (3) from added sound in late systole.

The innocence or otherwise of a murmur on pho-
nocardiographic grounds is decided from its place in the cardiac cycle.

When more is known of its interpretation, phonocardiography will come into common use, and it will have as its chief function the according of greater precision to the art of auscultation, and will render unnecessary other more elaborate tests which impose unwarranted discomfort on a sick patient.

BERNSTEIN


In 10 diabetics it was possible to demonstrate repeatedly that insulin can increase the effects resulting from carotid sinus stimulation. The hormone may affect the vagus center so that ordinary impulses from any part of the body to it can produce exaggerated responses. The carotid sinus receptors thus serve as a convenient way of influencing vagus mechanisms. The hypoglycemic effect of insulin was eliminated by using comparatively small doses of the hormone and by the administration of glucose whenever blood sugar level fell below 80 mg. In three of the cases, where both syncopal and cardionhibitory effects were observed, atropine and its derivatives were used with insulin as part treatment and were effective in eliminating these symptoms. Withdrawal of the insulin in two patients yielded the same beneficial results. These experiments were repeated on several occasions and showed essentially the same responses.

WENDKOS


This is the report of the first instance of fatal air embolism complicating peritoneoscopy. A 19 year old girl with hepatolenticular degeneration underwent peritoneoscopy to obtain a liver biopsy to confirm the diagnosis. After approximately one-third of the usual amount of air utilized to induce pneumoperitoneum, respirations ceased. Autopsy examination suggested that air entered a mesenteric vessel or the inferior vena cava, although a definite puncture of a blood vessel could not be found. A retroperitoneal hematoma precluded the demonstration of the precise site of bleeding. Air was found in the heart and the brain.

WAIFE


The presence of fine particles in chyle was noted as early as 1770. However, it was not until 1846 that similar particles were found in blood. In 1907 Neumann showed the connection of these tiny particles with the ingestion of fat. Since then a number of different laboratory techniques have been devised to study these minute particles. They have been studied by darkfield microscopy, nephelometry, and by physicochemical means. The authors describe a modification of a method involving darkfield microscopy and direct count. The method is reported as being quick, accurate, and simple. Normal subjects showed a temporary rise in chylomicrons in the blood after the ingestion of fatty foods. However, a patient with thoracic duct obstruction did not exhibit this postprandial increase in chylomicrons.

WAIFE


Radioactive sodium (Na24) was injected into 21 infants and children. The serum was analyzed for sodium and radioactive sodium from 18 to 24 hours later and the urine was collected during this interval. The total "exchangeable sodium" was highest in the young infant, averaging 70 mEq. per kilogram in the 3,300 Gm. newborn, and declining in a curvilinear manner with age until adult values are reached (approximately 42 mEq. per kilogram). Analysis of this and other data show that a straight line relationship exists when sodium content is plotted against body weight on a double logarithmic grid.

Total sodium changes with body weight in a predictable systematic fashion, as a fractional power of body weight, and behaves as a constant differential growth ratio.

WAIFE

Gamble, J. E., and Patton, H. D.: Pulmonary Edema and Hemorrhage Induced by Hypothalamic Lesions in Rats. Science 113: 626 (June 1), 1951.

Hypothalamic lesions were produced in anesthetized rats by a stereotaxic instrument. Acute pulmonary edema developed in 18 rats less than 24 hours after placement of these lesions. Severe hemorrhage and edema was found, with alveoli distended by fibrous transudate and often erythrocytes. Calculations reveal that only the accumulation of a dilute transudate such as plasma could account for the increased percentage of lung fluid.

In another group of animals which showed pulmonary pathology when sacrificed 24 hours postoperatively, there was a spotty distribution of hemorrhagic lesions. It was found that hyperthermia was not essential to the development of pulmonary edema and hemorrhage following hypothalamic lesions. Identification of the destroyed region revealed that there was bilateral damage just overlying the anterior half of the optic chiasm in most of these edematous animals.

WAIFE
ABSTRACTS


The clinical manifestations of acute myocardial infarction, acute idiopathic pericarditis, pulmonary embolism and dissecting aneurysm of the aorta are often quite similar, and the differential diagnosis in many cases is very difficult. The author emphasizes the diagnostic importance of pericardial, pleural and pulmonary involvement in these conditions and presents illustrative cases. In acute myocardial infarction pericardial involvement is noted one to several days after the onset of the attack and almost never after the first week. The signs are transitory and pericardial effusion is rare. In dicumarol-treated patients persistence of pericardial signs or their development after a week should suggest hemorrhagic pericarditis secondary to hypoprothrombinemia. Pleural involvement is not found in uncomplicated cases, but abnormal pulmonary signs, especially at the left base, are common. The pericardial involvement in acute idiopathic pericarditis is distinguished by its appearance at the onset of chest pain and its persistence for days or weeks. Pericardial effusion is uncommon or small in amount. Pleural friction rubs, progressive thickening of the pleura, or pleural effusion is almost invariably found and the involvement may be bilateral. Pulmonary signs when present are due to pulmonary compression consequent to pleural or pericardial effusion or to pulmonary infection. In pulmonary embolism a sound resembling a friction rub may be heard in the pulmonary area, but pericardial involvement does not occur. Pleural involvement is manifested by pleuritic pain, pleural friction rub or pleural effusion. Pulmonary signs may be found anywhere in the lung fields, but more commonly appear at the right base. Large pericardial and pleural hemorrhagic effusions may occur in dissecting aneurysm of the aorta and may be noted with or some time after the onset of pain. They may be persistent or recurrent. Pulmonary signs and findings are common.

SAGALL

Barbato, E., Pinto Lima, F., Cotrim, E., Merlino, G., and Moraes Dantas, O.: Some Aspects of the Pulmonary Artery in Schistosomiasis. Importance in Differential Diagnosis with Congenital Heart Disease. Arq. bras. cardiol. 4: 233 (June), 1951.

In a number of cases of schistosomiasis, the authors have observed roentgenologic evidence of a prominent pulmonary artery and conus segment, particularly enlarged in two patients. Both cases are reported, with special emphasis on the differential diagnosis with certain types of congenital heart disease. On the basis of angiocardiographic studies and cardiac catheterization, no evidence of congenital cardiac malformations could be demonstrated, thus leading to the diagnosis of pulmonary hypertension due to obliterator arteritis caused by Schistosoma mansoni.

The need for a more careful consideration of this diagnosis is pointed out, particularly in those areas where this disease is known to occur, since it may simulate a number of acquired and congenital cardiac conditions.

Schlesinger


Only 66 autopsied cases of Boeck’s sarcoid have been recorded in the literature and of these only 15 cases presented direct cardiac involvement. The author presents an unusual case with a 15-year history of carotid sinus syncope, the patient suffering from infrequent attacks of fainting in which the pulse rate became slow. Pressure over the right carotid sinus brought on syncope. In her last attack she suddenly developed weakness, dyspnea, and dizziness with a varying pulse rate. Electrocardiographic tracing showed complete auriculoventricular block with a ventricular rate of 44, ventricular extrasystoles and left bundle branch block. Five days later an electrocardiogram showed a cardiac rate of 79 and with minor grade of auriculoventricular block and a right bundle branch block. Six days later the electrocardiogram had reverted to the picture first seen. The patient died 13 days after the attack. Autopsy disclosed generalized sarcoidosis with massive involvement of the myocardium, partial involvement of the auriculoventricular bundle. The possible linkage of the sarcoidosis in this case with a 15 year history of carotid sinus syncope is discussed.

KitcheIl


Four cases of benign pericarditis are presented, of which three serve to present common variations of the disease. A known infection of the respiratory tract preceded the subjective onset of pericarditis in two cases. The admission diagnosis was "acute myocardial infarction" in two cases, "acute cholecystitis" in one and "acute pleurisy" in the last. The diagnosis of acute benign pericarditis was suggested shortly after admission, because all four patients showed the characteristic symptoms and signs as previously described. The diagnosis was confirmed by the alterations in the electrocardiographic pattern. The results of laboratory tests were contributory, but not entirely diagnostic.

Treatment with Aureomycin and Terramycin effected a rapid symptomatic improvement. However, the changes in the electrocardiographic pattern and the sedimentation rate did not revert to
normal any sooner than in the control cases. Three patients showed complete recovery in follow-up studies. The remaining patient has not been followed long enough to permit a conclusion in regard to complete recovery.

Unless one follows the clinical picture closely, in conjunction with repeated tracings from limb, unipolar and multiple precardial leads, acute benign pericarditis will continue to be mistaken for myocardial infarction.

BERNSTEIN


Radioactive sodium was injected intravenously into 32 healthy young adults. Measurements of total "exchangeable sodium" by the isotopic dilution method revealed an average value of 41.9 meq. and 39.9 meq. per kilogram of body weight for males and females respectively. The range for males was 32 to 54, and for females 36 to 42 meq. per kilogram of body weight. During the 18 to 24 hour equilibration period only about 40 per cent of bone sodium exchanged with Na24. From various studies, it was concluded that about 82 per cent of the total body sodium was measured by this method. The isotopic dilution method measures the portion of total body sodium which is intimately concerned with body fluid exchanges.

WAIFE


Direct measurements of the circulating red cell mass during normal pregnancy and puerperium were made in 12 patients using the radioactive iron, tagged red cell technic. Following the injection of the tagged cells, 15 minutes were allowed for complete mixing in the pregnant patients before sampling. Plasma volume and extravascular thioneanate space studies were also performed at the same time. From 6 to 12 determinations were made on each patient at five to six week intervals throughout pregnancy. During the puerperium, studies were conducted at the end of one week and between the twenty-fifth and sixty-sixth days.

The results showed an increase of 495 cc. of red blood cells with an increase of whole blood by approximately 1800 cc. The maximum blood volume occurs 60 days before delivery but may vary from 68 to 5 days prior to delivery. The iron demand for new hemoglobin formation was approximately 500 mg. in this group, and was satisfied by a normal unsupplemented diet. These demands were apparently satisfied by increased absorption and reutilization of iron by the bone marrow.

At the end of the first puerperal week, the red cell volume remains increased but the total blood volume declines rapidly as a result of a reduction of plasma volume. The red cell mass returns to normal by the second month after delivery.

The body hematocrit, representing the ratio of the plasma volume to the red cell mass, was compared to the large vessel hematocrit. Here it was found that the latter value decreased by 15 per cent as pregnancy progressed while the body hematocrit fell only 8.4 per cent. It was observed that the ratio of body to venous hematocrit increased during pregnancy which suggests that the greater part of new blood volume is accommodated by the larger transport vessels rather than being equally distributed between these vessels and the capillary bed.

SHUMAN


The author describes a form of heart disease thought to be due to malnutrition and invariably associated with progressive liver disease known to be caused by malnutrition. His series consists of 30 cases, 22 men and 8 women, aged 30 to 63 yrs.

The diet was composed of white bread, tea, sugar and porridge made from maize. The duration of symptoms was brief. Dyspnea was present in all but three. Twelve had a dry cough and 16 pain in the right upper quadrant. Generalized massive edema spreading from below upward and engorgement of the neck veins were present. Liver enlargement was present in all.

The heart was enlarged in all. There was a feeble apical impulse and pulsations, as seen fluoroscopically, were minimal. Sinus rhythm and a diastolic gallop were present. The most constant electrocardiographic abnormality seen in 12 of 20 tracings was a pattern of subepicardial injury.

Digitalis, digitalis and mercurials, aneurin, Brewer's yeast, alpha-tocopherol and testosterone propionate were ineffective. A well balanced diet within two to three weeks produced complete recovery in 13 and eight died. The hearts show hypertrophy of the walls of both ventricles and microscopically interfibrillar edema of the myocardium.

SOLOFF


Hyperventilation may be severe enough to overcome the compensatory mechanisms and the pH of the blood then rises above the accepted upper limit of normal (7.45). The authors feel that respiratory alkalosis is an easily produced and often overlooked syndrome. Patients who have a slight, asympto-
matic, pre-existing alkalosis from other causes such as vomiting or excessive alkaline therapy, need only moderate hyperventilation to precipitate severe symptoms. The authors present three cases. Diagnosis was made by securing an initial venous blood pH determination, then having the patient hyperventilate to produce symptoms and repeating the venous blood pH determination. Venous blood pH determinations were made on a standard Coleman pH meter which gives readings 10 to 20 seconds after the needle punctures the vein and usually within 20 to 40 seconds after application of the tourniquet. The ease and rapidity with which this test can be made makes it a most valuable clinical aid in the correct interpretation of acid-base disturbances.

Kitchell


An excellent diuresis was obtained on 11 of 14 patients by the use of cation exchange resins. Most of the patients who responded to resin administration have been maintained virtually free of edema for periods that vary up to one year. For several patients the difference in their clinical condition since the initiation of resin therapy is comparable to the dramatic effects produced by cortisone administration in a patient with severe rheumatoid arthritis. For example, one patient, who was bedridden for 18 months with profound anasarca, after a complete diuresis has returned to his former occupation with no disability, although he continues to show the blood and urinary changes characteristic of continuing glomerular nephritis.

Of the three patients who did not have diuresis, two were unable to take the resin in adequate amounts. Of the latter, one was a child. The other was uremic, with nausea and vomiting. The remaining patient apparently took adequate doses of the resin for a sufficient time, but no diuresis occurred.

Bernstein


Paracentesis was performed on two patients with hepatic cirrhosis. A clinical picture of apathy, weakness, confusion, anorexia, muscle cramps, hypotension, tachycardia, and hemoconcentration followed. The serum nonprotein nitrogen was elevated and hyponatremia was found. Hypertonic saline caused all these symptoms to disappear. Both patients developed symptoms concomitant with the decline in serum sodium concentration following paracentesis. This occurred despite the presence of an abnormally large total volume of extracellular fluid with an excessive total body sodium content. With a large amount of ascitic fluid in the peritoneal cavity, it appears that the extraperitoneal extracellular fluid (the effective fluid volume) was actually decreased in both patients when the hyponatremic syndrome developed, and it is likely the administration of hypertonic saline served to correct both the hypotonicity and the diminished plasma volume.

Waife


This paper describes experiments in which comparison studies of erythrocytes labeled with K2 and P32 were made. Radiopotasium has a short physical half-life of 12.4 hours, and emits beta and gamma particles which can be easily detected. The biologic half-life of the K2-labeled cells in vivo ranged from 28 to 35 hours. Essentially the same values were obtained as with P32 in six instances of almost simultaneous blood volume determinations by the two methods.

Waife


A 29 year old white male was first seen eight days after the sudden onset of left parotid swelling, subsequently proved by immunologic studies to have been the result of a mumps virus infection. His left parotid gland and left testicle were swollen and tender, and his oral temperature was 102.6 F. At that time, although he complained of a dull ache in the left lower anterior chest, a chest x-ray film as well as examination of the heart revealed no abnormalities. On the following day the chest pain became worse and physical examination disclosed the presence of a pericardial friction rub. An electrocardiogram made at that time was abnormal, the T waves being inverted in the limb leads and in the single precordial lead. The friction rub did not persist although electrocardiographic abnormalities were present for approximately 10 weeks. Disturbances of A-V conduction did not develop. Convalescence was relatively uneventful except for the occurrence of a complicating arthritis which subsided completely within a few weeks. Antistreptolysin titers remained normal throughout the entire illness, and at the time of his discharge from the hospital no residual evidences of a cardiac lesion could be detected by physical, electrocardiographic or fluoroscopic examinations. It is therefore concluded that, in this case, the involvement of the pericardium and synovial membranes of the affected joints represents an instance of serositis complicating the course of epidemic parotitis.

Wendkos

The authors tested the widely accepted concept that the clinical state produced by expanding intracranial lesions is characterized by an increase in intracranial and arterial pressures and a bradycardia. In the case of rhesus monkeys, only when the intracranial pressure was increased to a level which approached arterial pressure were these signs apparent. Moreover, they were not present in human subjects with artificially elevated intracranial pressures as high as or higher than those usually found with intracranial neoplasms.

It was concluded that reflex dilatation of cerebral arterioles rather than an increase in blood pressure is the usual mechanism whereby the cerebral blood flow is adjusted to an elevation of intracranial pressure. Therefore the use of such signs as a rise in blood pressure and a fall in pulse rate as an indication of a high intracranial pressure is not warranted, since they will be initiated only at much higher levels of intracranial pressure than occur even in fatal cases of acute intracranial hemorrhage or neoplasm.

Abramson


The authors studied the effect of several factors on the ability of white rats to withstand the acute effect of exposure to an atmosphere of reduced oxygen content. The resistance of the adult rat to the effect of anoxia was lowered by hypoglycemia (insulin), hyperthyroidism (thyroxine) and anemia (hemorrhagic), was raised by hypothyroidism (thiouracil), and was unaffected by hyperglycemia (glucose injection). Newborn rats were more resistant to the effects of oxygen deprivation than adult rats. Animals suffering a two-hour exposure to atmospheres containing 4.5 to 6.0 per cent oxygen were normal after a few days but did show some loss of appetite and required about twice as long to regain their pre-experimental body weight as did rats exposed to 20 per cent oxygen.

Sagall


The triad of symptoms, namely, precordial pain, a rise in blood pressure and tachycardia, has been observed for many years in children suffering from protacted rheumatic carditis and aortic disease. The implication has always been that precordial pain associated with aortic insufficiency might be explained on the basis of a decreased coronary filling resulting from a low aortic pressure. This reasoning falls short in explaining why many patients with a low diastolic pressure do not present this symptom complex. Further, it does not explain the paroxysmal nature of these attacks. The incidence of precordial pain in aortic insufficiency is greater in patients with a moderate reduction in diastolic pressure than those with an extremely low diastolic pressure. In addition, the minute coronary flow is actually increased because of the better filling during systole. By direct catheterization of the coronary sinus in cases of aortic insufficiency, it was demonstrated that the oxygen consumption in these cases is actually increased rather than decreased. It would follow then that the symptom complex of precordial pain associated with aortic insufficiency could not be explained solely on the basis of a decrease in coronary flow.

It is tempting to postulate the following explanation for the cause of paroxysmal attacks in these patients. If the assumption is correct that in aortic insufficiency the minute coronary flow is increased, but relatively fixed, one might assume that the following train of events may possibly occur in patients having these paroxysmal attacks. A psychic stimulation produces a reflex tachycardia. The increase in cardiac rate also increases cardiac work. An increase in cardiac work presupposes an increase in oxygen consumption by the heart muscle. Since the coronary flow is fixed, the myocardium does not receive the supply of oxygen required under stress. This causes a relative myocardial ischemia with resultant pain. The pain produces further psychic stimulation for the propagation of this train of events.

Bernstein


A direct method for measuring circulating blood volume by using red blood cells labeled with radiophosphorus is described. The sources of error are discussed, and the over-all error of the method has been checked by measurements in vitro. The circulating blood volume has been measured in 21 dogs, with an average of 9.5 ± 1.7 ml. per 100 Gm. of body weight. The clinical possibilities of the method are discussed. With modification the method could give a reliable estimate of blood volume within 30 minutes of injection.