ABSTRACTS
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Abstracts

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BLOOD COAGULATION


Antithrombin levels and prothrombin times were determined daily after a major surgical operation in 120 unselected cases. Fifty-three patients had antithrombin levels of 1:16 or less at some time during the postoperative period; of these, 23 had prothrombin times shorter than 20 seconds. In the latter group, 13 developed clinical evidence of thrombosis or embolism. None of the remaining 67 patients, whose antithrombin levels were above 1:16, presented evidence of thrombosis or embolism. In another series of cases, alpha tocopherol and calcium gluconate were administered, the results suggesting that the antithrombin level could be raised in this manner. It was therefore concluded that the routine postoperative use of these medications might be of value in eliminating intravascular clotting.

ABRAMSON


Aureomycin was administered by oral or intravenous routes to 30 patients; the dose was usually 500 mg. twice daily. Lee-White clotting times were determined before the drug was given and at 6, 12, 24, and 48 hours after the initial dose. The variations in blood coagulability were not of sufficient magnitude to be of clinical significance.

WESSLER


A heparin-sensitized clotting time is described and its use in evaluating the coagulability of the blood in normal and disease states is presented in a small group of patients. The author believes that the test is simple, reliable, and sensitive. Shortened clotting times were observed only in patients with acute thromboembolic phenomena. Prolonged clotting times were observed following operations, trauma, hemorrhage, and anticoagulant therapy. The heparin-sensitized clotting time parallels prothrombin values. It is suggested that the test may be used as a guide in anticoagulant therapy.

WESSLER


The authors determined the effect of cortisone and ACTH on clotting times, platelet count, undiluted and plasma-diluted prothrombin time, heparin level, circulating eosinophil count, and plasma accelerator (Ac) globulin, and antifibrinolysin. In normal controls a single 20 mg. intramuscular injection of ACTH produced a significant increase in circulating heparin (or heparinlike substance) with a parallel prolongation of the clotting time.
Although considerable variation existed from patient to patient under continued ACTH administration, there was an initial transient increase in protamine titer and clotting time; a slight but significant lowering of clotting time during therapy, which returned to control levels when the hormone was withdrawn; a varying increase in the level of circulating heparin material, which continued after ACTH withdrawal; and significant changes in both the per cent prothrombin and in the diluted-plasma prothrombin times, which are inverse to the change in protamine titers. Variations were also noticed in the levels of plasma Ac-globulin and -two-stage prothrombin and antifibrinolysin. The significance of these changes to blood coagulation in patients receiving ACTH or cortisone is not apparent, but the release of heparin may be related to the hyper-heparinemia of anaphylactic shock.

WAIFE

CONGENITAL ANOMALIES


In a large group of children with morbus caeruleus, the authors found a mean increase in the total hemoglobin of 163 per cent (26.6 per Kg. of body weight), in the serum iron of 123 per cent (201 y per cent) and in the serum bilirubin of 198 per cent (1.49 mg. per cent). The direct van den Bergh reaction was always negative. Indirect evidence indicates that total body iron, intrinsic and extrinsic iron metabolism, and iron requirement are raised. There is a rise in the total hemoglobin metabolism, but in proportion to the total hemoglobin, the metabolism is normal (based on the reticulocyte count and the rate of urlobin excretion). The main cause of the raised iron and bilirubin is the increased hemoglobin metabolism. The reduction of the plasma volume and the hypoxic liver damage may play a supporting role. There is no accelerated hemolysis. Cases with normal or low serum iron are masked iron deficiency anemias. They are characterized by a low color index and a decreased mean corpuscular volume. A review of literature indicates that the observed changes in the iron and hemoglobin metabolism are probably present in each true polychromatophilia (polychromatophilia of altitude, polycythemia vera).

AUTHORS


The authors studied 50 children with morbus caeruleus. The hemoglobin, number of erythrocytes, and hematocrit value are considerably increased, the color index is normal. Mean corpuscular volume and mean corpuscular diameter are increased (macrocytosis), mean corpuscular thickness is normal, and spherical index is rather decreased (platyctyosis). There is an anisocytosis, but no poikilocytosis. The mean corpuscular hemoglobin is normal; the mean corpuscular hemoglobin concentration is rather decreased. Maximum osmotic resistance is increased; minimum resistance is decreased.

The polychromatophilia often masks an iron deficiency anemia. In these cases the erythrocytes have most of the signs of an iron-deficient anemia, and the usual increase of the amount of iron in the serum is absent. Nearly the same erythrocytic syndrome as in the blue disease is encountered in other polychromatophilies due to lack of oxygen and in liver diseases. Lack of oxygen is possibly the direct or indirect (hypoxic liver damage) cause of the changes of the erythrocytes. It may be an adaptation mechanism for a better utilization of oxygen.

AUTHORS


The authors studied the number of white blood cells and the differential count in 41 cases of morbus caeruleus. They found a slight leukopenia with a slight decrease in the absolute number of eosinophils, monopenia, and lymphopenia. Lack of oxygen may be the direct cause, and a hyperfunction of the adrenal cortex (stage of resistance of Selye's general adaptation syndrome) the indirect cause.

AUTHORS


Two cases of tetralogy of Fallot are reported in which surgical anastomosis between the systemic and pulmonary vascular systems could not be accomplished for technical reasons. Great improvement followed the thoracotomies with extensive dissections of pleural adhesions, the mediastinum and pulmonary hilum. The possible explanations for the improvement were (1) the creation by surgical trauma of new vascular adhesions in the pleura and mediastinum which might function as little "ducti arteriosi"; (2) a sympathetic vasomotor effect on the pulmonary circulation as a result of prolonged dissection in the region of the subclavian artery.

KLOSK

The authors report the sudden death of a 15 year old athlete following wrestling and weight lifting, with detailed autopsy findings. Multiple congenital anomalies were found, of which stenosis of the isthmus of the aorta was the most important. The obstruction produced dilation of the aorta above the isthmus, overdevelopment of the internal mammary arteries, and hypertrophy of the left ventricle. Also present were persistent thymus with active Hassall's corpuscles, hypoplastic thin-walled arteries, and a general abundance of lymphatic tissue. The immediate cause of death was rupture of the ascending aorta.

**TANDOWSKY**


Four instances of ventricular septal defect are reported, 2 with necropsy confirmation, characterized by (1) underdevelopment, (2) absence of cyanosis, (3) liability to respiratory infection, (4) tendency to heart failure in early childhood, (5) Roger's murmur, (6) accentuation of the pulmonic second sound, (7) occasional diastolic murmurs down the left sternal margin, (8) clinical, radiologic and electrocardiographic evidence of enlargement of both ventricles, and (9) radiologic evidence of enlargement of the pulmonary artery and hilar vessels. This anomaly may be associated with tricuspid insufficiency, aortic insufficiency, absence of aortic septum, partial subaortic stenosis, hypoplastic aorta, and absent membranous septum. The prognosis of this group is poor.

**SOLOFF**


The authors describe and illustrate with microphotographs capillary changes observed in the nail fold of 51 children with various types of congenital heart disease. The most pronounced abnormalities were found in cyanotic cases (tetralogy of Fallot) and consisted of enlargement, widening, and tortuosity of the capillary loop, especially in its venous limb. In cases with less marked cyanosis (Eisenmenger complex and truncus arteriosus communis) the changes were similar but of lesser degree. In interventricular and interatrial septal defects, an almost normal capillary pattern was present. In cases of coarctation of the aorta, the capillary picture resembled that usually associated with arterial hypertension, e.g., elongated capillary loops with a narrowed afferent limb.

In cases of tetralogy of Fallot as well as of coarctation, a definite improvement of the condition of the capillaries could be observed within three weeks following successful surgery. Thus, capillaroscopy can be used to assess relatively early the benefit of an operation in congenital heart disease.

**BRUMLIK**


The author describes 3 cases in which the right subclavian artery originated on the left side. In each case the vessel crossed the esophagus in its abnormal course from left to right and produced an unusual indentation of this structure (visualized after the ingestion of barium). In 2 cases the esophagus was found to be compressed in its posterior aspect and in 1 case in its anterior aspect. Dysphagia was present in 1 case.

**PICK**


Congenital heart block is rare, only about 100 cases being described in the literature. Of these about 30 are beyond dispute, 7 being accompanied by autopsy reports. Embryologic studies have shown that the bundle of His develops earlier than the ventricular septum. Therefore, a ventricular septal defect cannot explain the dissociation by interruption of the bundle.

Two instances of complete A-V dissociation were observed in the authors' series of 650 cases of malformations of the heart. One was found at the age of 4 months, the other at the age of 7 years. The diagnosis of malformation of the heart was tentative in both patients. In the first, with an auricular rate of 127 per minute and ventricular rate of 62, there was a complete situs viscerum inversus accompanied by a complex malformation; in the second, whose auricles contracted at a rate of 88 and ventricles at a rate of 50 per minute, an Eisenmenger complex was diagnosed. Both cases fulfilled Yater's and Mahaim's criteria for the diagnosis of a congenital heart block.

**PICK**


In 4 patients in whom a clinical diagnosis of interauricular communication was established, catheterization of the heart and hemodynamic studies were performed. The volume of blood passing through the pulmonary artery was far higher (7.34 to 19.32 liters per minute) than the aortic output (2.59 to 6.66 liters per minute). This difference was due to an arteriovenous auralic shunt (4.75 to 13.15 liters per minute); a venoarterial shunt of insignificant amount was probable in 2 cases. With exercise, the coefficient of oxygen utilization (ratio of oxygen used to pulmonary ventilation) increased consid-
ably in contrast to pulmonary stenosis, which showed a decrease of this coefficient under the same conditions of the test. The pulmonary function appeared normal.

BRUMLIK

CORONARY ARTERY DISEASE, MYOCARDIAL INFARCTION


Behrmann and his co-workers discuss the prognostic value of the duration, location, radiation, and mode of onset of pain in 150 patients with proven acute myocardial infarctions. Patients with the longest duration of pain had the highest mortality rate. Patients in whom the pains were confined to the thorax without radiation had higher mortality than those in whom the pain radiated to the extremities and neck. The mode of onset of pain in acute myocardial infarction is variable. It may be painless; it may consist of a few, short pains of intermittent type which are not severe; it may appear suddenly without premonitory pain; it may appear following premonitory pain of long duration; or it may appear after a long period of angina.

HARRIS


A 39 year old schizophrenic patient with normal cardiovascular findings died suddenly three hours following injection of 140 units of normal insulin, on the one hundred sixteenth day of his third series of therapeutic insulin shocks. At postmortem examination, extensive areas of old and recent myocardial necrosis (sarcolysis) were found in the heart. The coronary arteries were intact but at histologic examination showed marked contraction of the internal muscular layer. The liver showed lobular necrosis, and multiple gastrodudenal ulcers were present in the gastrointestinal tract. Changes in the endocrine organs were marked and consisted of eosinophile conglomerates in the anterior pituitary lobe, diffuse hyperplasia of the adrenal cortex and a relative increase of the alpha cells of the islets of the pancreas.

The author attributes the abnormal findings in the various organs to exhaustion of endocrine adaptation to the repeated and massive insulin treatment. The immediate cause of death was probably spasm of the coronary arteries.

PICK


The author observed 2 patients with coronary disease, evidenced electrocardiographically by right bundle branch block, who, following a slight injury distant from the heart, developed transient signs of contusion (concussion) of the heart. In the first case acute dilatation of the heart was accompanied by a transitory inversion of the T wave in leads III and aVF. In the other, acute left heart failure and pulmonary edema succeeded the accident, accompanied by a fall in blood pressure and inversion of the T wave in lead V2. Statistical data, experiments reported in the literature, and clinical observations suggest that in elderly people cardiac contusion may be a pathologic reaction of a diseased heart to a moderate, otherwise harmless injury.

PICK

ELECTROCARDIOGRAPHY


The author injected a 1 per cent solution of strychnine into a circumscribed area of the left ventricle of the rabbit. He observed in a precordial lead the development of an intraventricular conduction defect (late intrinscoid deflection) which changed at times to the pattern of myocardial infarction, characterized by a normal QRS duration, a typical high take off of the T wave, but without appearance of a Q wave.

Basing his conclusions on previous experiments, the author ascribes both patterns to a block developing at the junction between the Purkinje system and ordinary myocardium. While the pattern of intraventricular block represents a mere delay of activation of the injected area, the pattern of infarction would indicate complete exclusion of this region from the wave of excitation (mute zone). Similar patterns, representing incomplete and complete "Purkinje-myocardial block" can also be seen in clinical electrocardiography.

PICK


The authors report a correlation of the incidence of ST-T alterations in standard and multiple chest leads in cases with myocarditis or following injection of adrenalin or digipuratum in normal cases. Only in 1 per cent of the observations did they note ST-T anomalies in the chest leads which were not present in the standard leads. On the other hand, the precordial electrocardiogram was normal in 16 per cent of cases with a definitely abnormal extremity electrocardiogram. The authors question the value of precordial leads for the recognition of infectious or toxic damage of the myocardium.

PICK

The authors registered in dogs a series of precordial leads at different levels of the thorax. Frozen sections made exactly through these various levels permitted an exact correlation of various electrocardiographic patterns with the size and anatomic position of that part of the ventricles nearest the exploring electrode.

The authors were unable to establish a relationship between the variations of potentials at various precordial points and the mass of the underlying heart muscle. Thus, the R wave was found to be largest over the right ventricle, although its thickness was much less than that of the left ventricle. On the other hand, there was good correlation with spatial vectorcardiograms constructed from leads taken in a frontal and horizontal plane. The presence of a tall R wave over the right ventricle was compatible with the direction of the vector loop in the dog's heart. These observations failed to confirm the theory that the potential nearest to an exploring electrode is dominant in the genesis of an electrocardiographic pattern.


Electrocardiograms were taken on 23 patients with acute poliomyelitis shortly after hospital admission. Follow-up tracings were made within two to four days on those patients whose initial electrocardiogram was normal. If abnormalities were discovered, tracings were done at intervals until the electrocardiogram returned to normal. Fifty-five patients without evidence of cardiovascular disease were used as a control group. The only significant electrocardiographic abnormality was prolongation of the Q-T, interval, which occurred in 5 (21.7 per cent) of the 23 patients. The Q-T2 interval was equivocal in 3 patients (13.0 per cent), and in 3 (8.1 per cent) of the control group. The difference in the Q-T interval between the group with acute poliomyelitis and the control group was considered statistically significant.


Large posterior myocardial infarcts may produce no diagnostic signs in standard leads and aVF when the heart is in horizontal position. Infarcts confined to the basal portion of the posterior wall may be undetectable in these leads even though left ventricular potentials are referred to the diaphragm. The purpose of this study was to determine whether or not semidirect leads from the back would be of aid in the diagnosis of posterior infarction.

Nine back leads were obtained, namely, V7, V8, V9 taken in the same transverse plane as V5; V6, HV7, HVb, HVa taken at the horizontal level at the junction of the third intercostal space and sternal and LV7, LV8, LV9 taken at the level of the twelfth rib. These leads were obtained in 25 controls, in 36 patients with definite evidence of posterior infarction established either by autopsy or esophageal leads and in 12 additional patients in whom posterior infarction was established by previous serial electrocardiograms. The QRS-T pattern in the back leads has been correlated with that in the esophageal leads and in aVF. Back leads were of aid in recognition and in estimation of the extent of the posterior infarct in many cases but failed to show definite signs of infarction in a few cases in which esophageal leads were positive.

Authors

MARGOLIES


The author presents an experimental study for the determination of the correct polarity to be used in clinical vectorcardiography. Momentary and successive changes were produced in the electrical charge of an electrolyte and transmitted to a cathode tube. The movements of its ray, accurately reflecting the variations of potential within the electrolyte, were registered by cinematography. Any change of electro negativity was followed by an orientation of the vector loop to the right and in an upward and forward direction. Similar "loops of negativity" were obtained by direct vectorcardiography from the surface of the heart of various animals. Most investigators use such a polarity of the electrodes as to produce vector loops opposite in direction to those obtained in the author's experiments. In order to produce vector patterns corresponding to the true conditions in the electrical field of the heart, the polarity of the electrodes customarily used in clinical vectorcardiography should be reversed.


Since the right bundle branch is in a region where an intracardiac catheter might impinge upon it, it is possible that in some catheterized patients a right bundle branch block might be produced. Since it can be recognized only by electrocardiography, its failure to report could only mean that routine
electrocardiograms are not being made as extensively as they should.

The pressure of the catheter on the endocardium cannot be assumed to have no detrimental effect. The heavier and more rigid the catheter, the more the danger. Where catheterization is done in damaged hearts, the danger of death from arrhythmia is greatly increased. When the heart is depressed by organic disease, not only is the refractory phase of the muscle increased, but the refractory periods of adjacent areas may be very unequal; as a result conditions are ideal for the production of ventricular fibrillation by a premature impulse initiated by the catheter tip.

The safest place for the catheter tip is in the pulmonary artery. If the catheter must be left in place any length of time, the catheter should, if possible, be passed into the pulmonary artery. If it must be left in the right ventricle, it would seem imperative to have continuous electrocardiographic control of the procedure. An instance of death during catheterization is believed to have resulted from displacement of the catheter from the pulmonary artery to the right ventricle during exercise. Preliminary work indicates that quinidine and procaine might be of value in inhibiting the arrhythmias.

WENDKOS


The electrocardiographic observations in 6 patients with congenital tricuspid atresia are presented. Left axis deviation, present in 1 case at 2 weeks of age, is considered an important point in the diagnosis. However, 2 of the 6 patients, 1 with and 1 without transposition of the great vessels, did not have left axis deviation. The factor which determines left axis deviation in the standard leads is the tall R in aVR and the deep S in aVF. The P waves were tall and peaked in all cases, and were associated with atrial enlargement and hypertrophy. The authors suggest that the right atrium, because of its position in relation to the diaphragm, may affect the potential distribution to the chest by marked displacement and rotation of the left ventricle.

MARGOLES


A review of the literature dealing with defective intraventricular conduction is presented. The term intraventricular block seems more appropriate than the term bundle branch block, since intraventricular block includes the latter, as well as defective impulse transmission in the free walls of the ventricles. Intraventricular block is essentially an electrocardiographic diagnosis No symptoms can be related to the conduction defect itself; the symptoms are those of the underlying heart disease.

Intraventricular block commonly occurs in diseased hearts. Rarely, it can be a congenital anomaly of the conduction system associated with septal or other defects, and in a few cases it is an isolated abnormality. In more than 80 per cent of cases, the underlying basis is hypertensive vascular disease and arteriosclerosis. About 10 per cent of cases occur in chronic rheumatic heart disease. Intraventricular block has occasionally been associated with myocarditis due to diphtheria, acute rheumatic carditis, syphilitic gummas of the septum, subacute bacterial endocarditis, tumors of the myocardium, and trauma.

Intraventricular block is about three times as common in men as in women, and more than 80 per cent of the patients are over 50 years old. The prognosis after the appearance of intraventricular block is related to the underlying heart disease. The average survival after the discovery of left intraventricular block is one to two years, but there are many exceptions. The patient, not the electrocardiogram, must be evaluated in the presence of intraventricular block, and emphasis should be given to the realization that intraventricular block occurs in patients who may live many years after its appearance and in persons with no other evidence of heart disease. The initial confusion concerning the localization, the clinical significance and the over-all prognosis of intraventricular conduction disturbances is largely resolved in this discussion.

BERNSTEIN


Among 35,000 electrocardiograms the authors found 25 instances of paroxysmal auricular tachycardia with A-V block. Analysis suggests that this type of cardiac irregularity represents a special clinical syndrome. It occurs only rarely during childhood and is found more frequently in men than in women. In contrast to more common forms of supraventricular tachycardia, this type was found more often in patients with heart disease, produced more marked symptoms, and the duration of attacks was usually prolonged. The ventricular action may be irregular due to variable degrees of A-V block as revealed by an electrocardiography, which is indispensable for correct diagnosis. Quinidine by mouth proved to be most effective in the treatment of this arrhythmia.

PICK


A method is described by which in the recumbent
patient synchronous angiocardiorams can be obtained in right and left anterior oblique position. A part of the exposure voltage is transmitted to an oscillograph, which records the time of exposure simultaneously with an electrocardiogram (in lead IV). By this method the dynamics of the heart can be followed during different parts of the heart cycle. With an exposure at the time of maximal systole, the quantity of residual blood in the ventricles can be roughly estimated. The possibility of timing exactly the appearance of dye in the various chambers and in the great vessels permits an accurate estimation of the circulation time.

**Pick**


The clinical course of mitral valvular disease can be divided into two stages. The first, a period of stabilization, is a crippling condition, producing few symptoms, but restricting the patient in his activities. The second stage, the period of evolution, is the stage of complications like pulmonary edema, auricular fibrillation, embolization, and decompensation, and is, from the author's viewpoint, due to the addition of an inflammatory myocardial factor. Signs indicating the presence or approach of the latter stage are slight attacks of fever and elevation of the sedimentation rate. The infectious etiology of complications of mitral valvulitis should be considered in the clinical diagnosis and in the plan of treatment, especially before any attempt at a surgical approach to the disease.

**Pick**


The author reports the case of a 60 year old man with arteriosclerotic heart disease and complete A-V block in whom on two occasions exercise produced transient paroxysmal ventricular tachycardia. The auricular rate rose during the attack from 90 to 165, while the rate of the ventricles changed from 38 to 107, coinciding with a change in direction of the QRS complex. On one occasion, reversion to the original rhythm occurred over a short period of ventricular bigeminy. The author considers the possibility that in the presence of arteriosclerotic heart disease, additional ventricular foci may be activated by ischemia following an exercise test.

**Pick**


The authors applied simple diagrams to the calculation of the vectors of various leads used in current electrocardiography. The orientation of these vectors in the frontal plane depends—in normal subjects—on the anatomic position of the heart and may change from subject to subject. The triangle formed by the 3 standard leads is not equilateral, since the direction of lead I is inclined at a certain angle to the horizontal. Wilson's central terminal lead also produces some deviations of the vector from the direction in which the lead is taken. The author presents a formula according to which this deviation can be avoided by increasing the resistance within the connections to the left leg and to the right arm. The results obtained by these studies confirm the validity of the theory of the summation vector.

**Pick**


The authors studied by multiple esophageal leads 11 cases in whom the presence of posterior myocardial infarction was suggested by the usual standard and unipolar leads and/or by a positive clinical history. In addition, the configuration of the normal esophageal electrocardiogram was studied in 3 subjects with particular reference to the QRS complex at the atioventricular junction. An extensive and complete (transmural) infarction of the posterior wall produced a QS pattern in all leads taken at ventricular levels. A QR pattern over these areas indicates extensive but not transmural infarction. Multiple esophageal leads from various ventricular levels should always be taken, since an incomplete exploration may occasionally fail to reveal localized lesions on the posterior wall. Although posterior wall infarction can usually be recognized in the standard leads or a unipolar lead from the left leg, there are instances in which esophageal potentials may be required for a positive diagnosis, as in high posterior infarction or in cases in which the position of the heart prevents the transmission of potentials of the infarcted area to the left leg.

**Pick**


The authors studied the contour of the P wave in 45 patients before and after transient auricular fibrillation. Cases with mitral heart disease always showed anomalies of P; 75 per cent of these consisted of widening to more than 0.11 second, increase in voltage and a characteristic contour in the chest leads (diphasic in V1 and V2, upright and notched in V5 and V6). In patients with arteriosclerotic heart disease similar changes were found; however, they were present less often and were less marked. In cases with clinically normal hearts.
which developed paroxysmal auricular fibrillation, the P wave was normal preceding as well as following an attack.

The authors present an electrophysiologic explanation for the differences in P wave patterns in the three groups, based on the principles of direction, projection, and balance of vectors developed in normal and hypertrophied auricles. In patients with mitral heart disease, impeding auricular fibrillation can be predicted if the P waves show marked alterations. In patients with arteriosclerotic heart disease the onset of fibrillation cannot be prognosticated due to the frequent lack of significant P wave changes.

Pick


In studying the effect of epinephrine and nor- epinephrine upon the cat heart, the author observed different types of electrical alteration which could be classified from an electrophysiologic standpoint into three groups. The first type, characterized by an alternation of QRS contour and a secondary alternation of S-T and T, can be explained by alternation of the sequence of electrical activation of the heart muscle. This may be effected either by an alternating delay of conduction or by alternating partial premature contraction (pre-excitation). The second type consisted of (primary) alternation of displacement of the S-T segment and of the direction of the T wave, without appreciable alteration of the QRS. This type is ascribed by the author to an alternation of "possession," i.e., of the degree and extent to which the heart muscle responds to stimulation. The third type, alternation of regression or restitution, is characterized by alternation of the duration of the T wave and of the Q-T interval. This was seen with abrupt changes of the heart rate and could be correlated with the duration of the diastolic pause. The author discusses the possibility of a fourth type, namely alternation of the amplitude of QRS and T due to changes in distribution of electrical potentials in association with mechanical alteration.

Pick


The authors report electrocardiographic observations in a 25 year old woman with syphilitic heart disease and almost complete atrioventricular block. Conduction of sinus impulses occurred when a sinus P wave preceded or followed at a short interval an automatic beat. The QRS of the automatic beats was of normal duration in contrast to the QRS of the idioventricular pacemaker, the origin of which could be located above the bifurcation of the common bundle.

In the course of various pharmacologic tests, an additional ventricular parasystolic pacemaker was activated by epinephrine, which, similar to the original supraventricular pacemaker, initiated single instances of A-V conduction. The authors assume the presence of a supernormal phase of both A-V and intraventricular conduction and a facilitating effect (Skramlik's "Bahnung") of retrograde impulses from both pacemakers upon A-V conduction. The liberation of an additional ventricular pacemaker by epinephrine indicates that the use of sympathomimetic drugs may be dangerous in cases in which one ectopic pacemaker is already in action.

Pick


Electrical ventricular systole is not identical with the mechanical systole. According to previous investigations of the authors, the beginning of the mechanical systole coincides with the peak of the S wave in a chest lead, the distance R-S being variable. Furthermore, the second sound, indicating the end of ventricular ejection, may, in the experience of the authors, occur any time between the formation of peak of the T wave or 0.12 second later. The authors feel that the clinical value of the relation of electrical systole to electrical diastole, determined from a limb lead electrocardiogram, and the various formulas recommended for such calculations are questionable. Instead, they recommend the determination of "hemodynamic systole," defined as the distance between the peak of S wave to the onset of the second sound. This value can be readily determined by simultaneous registration of a precordial lead and a phonocardiogram from the base of the heart.

Pick


It is possible to produce in the exposed frog heart (Rana temporaria) by moderate electrical stimulation of the vagus nerve typical Wenckebeck periods, which consist of progressive prolongation of the conduction time between atrium and ventricle or between sinus venosus and atrium. This effect can be promptly abolished by brief perfusion of the heart with Ringer's solution. It appears that following vagus stimulation, the heart loses its ability to destroy acetylcholine which accumulates in the tissues, especially the conduction system, and affects the refractory period of the latter. However, the fixation of the vagus substance to the muscle cells seems to be only a loose one as evidenced by the
prompt restitution of normal rhythm following perfusion.

**ENDOCRINE EFFECTS ON CIRCULATION**


Cerebral blood flow and oxygen consumption were studied in 9 patients with hyperthyroidism who were irritable, nervous, and emotionally labile. The cerebral blood flow, mean arterial-cerebral venous oxygen difference, oxygen consumption, vascular resistance, and cerebral venous oxygen tension were all within normal limits. Since no effective means of increasing cerebral metabolism in man has been found and since apprehension fever and thyrotoxicosis do not increase cerebral metabolism, it is suggested that cerebral metabolism normally functions at nearly its maximal rate, and it appears that the psychic manifestations which occur in hyperthyroidism are not related to increased metabolism of the brain.

**HYPERTENSION**


Repeating experiments described previously by Victor, the author studied in 4 dogs the effect of ischemia of one suprarenal gland upon the blood pressure. Isolation of the left adrenal from its blood supply was achieved by double ligation of the vessels or by complete dissection of the organ from the surrounding tissues. The presence of ischemic changes was proven histologically in one animal, which was sacrificed 15 days following operation. All of the animals remained normotensive during an observation period up to 14 months. The experiments failed to confirm the role of suprarenal ischemia in the production of experimental hypertension, as claimed in the literature.

**PICK**


The authors describe 4 cases of pheochromocytoma diagnosed clinically and successfully removed. These were associated with the following symptoms: (1) vasomotor manifestations in the form of palpitation, sweating, and blotchiness of the skin, (2) substernal pain with dyspnea simulating angina pectoris, (3) occipital headache, (4) blindness and symptoms of toxemia occurring early in pregnancy. The clinical findings in these cases were sustained hypertension in 1 case, hypertensive crises in 2 cases, and mild fluctuant hypertension in 1. The basal metabolic rate was elevated in all either during or before and after the attacks. Intravenous pyelograms were sufficiently abnormal in 3 cases to indicate the site of the tumor. Abnormal blood sugar levels were observed in 3 cases. The specific diagnostic tests with histamine, Etamon, Mecholyl, and Dibenamine were helpful, but not entirely specific. A negative test with any one of these agents did not rule out pheochromocytoma.

The authors recommend ethylene-ether or cyclopropane-ether anesthesia administered endotracheally. They warn against the use of fluids and cortical extracts to combat surgical shock during the procedure. The hypertensive reaction during manipulation of the tumor may be countered by the use of adrenolytic drugs. Many of the shock-like syndromes seen are due to acute left ventricular failure due to the hypertensive reaction. Exploration of both sides is necessary, because in 10 per cent of the cases tumors are bilateral, and because there may be congenital absence or atrophy of the contralateral adrenal gland.

**KLOSK**


The author reports the clinical and pathologic findings in a patient with pheochromocytoma. He believes that the sudden onset of headache preceding the rise in blood pressure, periodic morning and evening headache, upper abdominal paresthesias with sinking spells, and slow increase in intensity of symptoms without rise in blood pressure should raise suspicion of the presence of this lesion. Tests suggestive of hypersecretion of adrenaline are (1) massage of the tumor region with production of an attack, (2) the use of benzodioxanes to lower the blood pressure, (3) intravenous injection of histamine to produce an attack, (4) visualization of the kidneys or perirenal insufflations with oxygen, and (5) an increase in basal metabolism.

**SOLOFF**


The authors studied the effect of a femoral arteriovenous fistula on the course of experimentally induced renal hypertension in 19 dogs. Arterial blood pressure was measured directly in the femoral artery of the unanesthetized trained dog, using the Hamilton manometer. Hypertension was produced by wrapping the kidney in silk. No permanent lowering of the blood pressure occurred as a result of the existence of the arteriovenous fistula. The cardiovascular alterations were of greater magnitude than were observed from either the hypertension or the
fistula alone. The mortality was higher and the pathologic changes more widespread.

Abramson


The author attempted to clarify the following problems: the time of onset of hypertension after the one-stage operation of unilateral nephrectomy and contralateral renal constriction by the Grollman technic; the relation of the amount of functioning renal tissue to the development and degree of hypertension and the effect of this constriction on renal growth, with and without contralateral nephrectomy.

After basal blood pressure levels were determined on 42 young male albino rats, they were divided into four groups and subjected to one of the following operations: (1) unilateral nephrectomy with exposure and handling of the opposite kidney; (2) unilateral nephrectomy and constriction of the remaining kidney with a silk figure-of-eight ligature; (3) unilateral renal constriction with a silk figure-of-eight ligature, the other kidney being left intact after exposure and handling; and (4) unilateral nephrectomy with removal of the poles of the contralateral kidney.

For 50 days following operation a significant increase in blood pressure developed in the group subjected to the second type of operation, starting within four days after operation. Hypertension did not develop in any of the other groups. The development of renal contractile hypertension in rats was not believed due either to reduction in the total mass of functioning renal tissue, to the prevention of renal compensatory hypertrophy, or to the presence of fibrous perinephritis. The results were most compatible with the hypothesis that there is some disturbance of hemodynamics or of tissue tension with the liberation of a pressor substance by the affected kidney.

Schwartz


In a previous study medial arteriolar hypertrophy was a common finding in experimental hypertension in rabbits, particularly in the submucosa of the intestinal tract. Other viscera were affected to a lesser degree but showed the same pattern. Accidental infection in 3 rabbits was accompanied by the development of arterial and arteriolar lesions similar to those of periarteritis nodosa in man.

The author studied the possible role of infection in the production of such lesions in rabbits made hypertensive by unilateral nephrectomy and cellophane wrapping of the other kidney. Controls consisted of untreated rabbits and uninfected hypertensive rabbits. Infection in the third group was caused by inserting gauze soaked with Staphylococcus albus culture under the perirenal cellophane wrapping. In 100 days the normal animals showed no arteriolar changes. The uninfected hypertensive group revealed the medial arteriolar hyperplasia noted in the previous work. Two infected hypertensive rabbits in a group of 6 showed typical lesions of periarteritis nodosa.

The author discusses the relative importance of both hypertension and infection in the development of these lesions and reviews the theories of others, especially in reference to the sharpness of the ascent of the experimental hypertension and the sudden strain thrown upon vessel walls. However, his own rabbits showed their vascular lesions in the presence of only a moderate hypertension.

Gouley


The author reviews the experimental data showing that medullary circulation through the basal or juxtamedullary glomeruli might persist or even increase while the renal cortex is ischemic. The author suggests that under certain conditions the medullary bypass is a functional adaptation to stimuli which may vary from cold, emotion, or fatigue on the one hand, to "shock" on the other. In 2 human kidneys removed at autopsy from patients who died from shock, the medullary circulation was found to be exceedingly rich; the distribution of the intrarenal blood, judging by the caliber and easy injection of these vessels, was found to be reversed in its normal proportions.

It is suggested that in certain people the normally highly contractable arterioles of the renal cortex are frequently subjected to constriction, either by the sympathetic or by the hormonal complex. This fulfills the requirements for the production of renin, VEM, or other pressor substances or for the inhibition of antipressor substances by the renal cortex. Persistent repeated hypoxia of the cortex ends by producing sclerotic changes of the cortical vessels.

Waife


The authors report the case of a 12 year old Negro boy with known severe hypertension for two years, with episodes of coma, evidence of fundic, renal, and cardiac damage, and a left hemiplegia. A pheochromocytoma was diagnosed on the basis of a depressor response to benzodioxane and Dibena-
mine, and despite negative radiologic evidence, the patient was explored. A 6 by 4.5 cm. tumor was removed from the upper pole of the right kidney with the pathologic characteristics of a pheochromocytoma. Extracts of the tumor were assayed on dogs before and after Dibenamine, the results suggesting that 90 per cent of the pressor activity was due to norepinephrine, with 1 Gm. of tumor equivalent to the activity of 0.86 mg. of d,l-norepinephrine. By the method of paper chromatography, the activity of 1 Gm. of tumor was determined as equivalent to 1.04 mg. of d,l-norepinephrine. Small amounts of epinephrine were also present. Following surgery the patient showed improvement in all signs and symptoms and a normal blood pressure.

Cortell


The authors report on 50 hypertensive patients treated by lumbar dorsal sympathectomy in the years 1941 to 1946. A control group of 50 hypertensive patients in the same age range, who were not subjected to sympathectomy, was used for comparison. All the patients had the same interrogator and examiner during the study. The 50 sympathectomies were all performed by the same surgeon and by one technic. All cases were seriously affected by hypertension as shown by the presence of some important cardiovascular complication such as myocardial insufficiency, cerebral vascular accident, past myocardial infarction, or angina pectoris. Patients with renal insufficiency were excluded from the study. The sympathectomized patients included 38 men and 12 women; the control cases included 37 men and 13 women. After a three year follow-up of the sympathectomized patients, the result was excellent or good in 11; fair with definite (though not decided) improvement in 11; little or no change in 5; 11 patients were worse, and 12 were dead. Among the controls only 1 patient continued to be in good condition, 4 were unchanged, and 41 were worse or dead.

Kitchell


A discussion is presented of a fatal case of chronic glomerulonephritis in a hypertensive man 23 years of age who had previously had rheumatic fever and acute glomerulonephritis. These diseases were considered to be diseases of hypersensitivity. They occur together in 1 to 2 per cent of cases. The anemia associated with renal insufficiency is attributed mainly to the insufficient production of red blood cells, although in some patients at certain times an extracorporeal hemolytic factor may operate. In patients with normal or mild hypertension, the transfusion of hypertensive blood leads to little or no change in blood pressure or renal hemodynamics, but hypertensive blood administered to patients with severe renal disease causes their blood pressure to rise to higher levels than prior to transfusion.

Harris


The author reports a 20 year follow-up study of 448 young individuals with transient blood pressure elevation of more than 30 mm. Hg. The cases were divided into 3 groups (15 to 24 years, 25 to 34 years, and 35 to 44 years of age) according to the age at which the pressure elevation was first noted. After 20 years, hypertension was found in 45 per cent of group I, in 60 per cent of group II, and in 51.8 per cent of group III. The author concludes that transient hypertension is of significance in all age groups, especially in middle age, in which it represents an early sign of hypertensive disease. An elevated blood pressure found during puberty led to permanent hypertension in more than 40 per cent of cases.

Pick

PATHOLOGIC PHYSIOLOGY


A new formula and nomogram are given for the calculation of the volume of dog's heart from the area of its shadow in an anteroposterior x-ray film. Data concerning this area-volume relationship were obtained empirically from 61 normal dogs.

Changes in heart volume were observed (1) during a stepwise hemorrhage with or without pretreatment with Dibenamine, (2) on bleeding during epinephrine hypertension. The reduction in heart size after hemorrhage was striking and in some instances amounted to one-fourth of the total lethal bleeding volume. Epinephrine increased the heart volume in these experiments, but an equal hypertension produced by section of the buffer nerves was not followed by a significant volume change. The heart volume changes may account for a large part of the intrathoracic blood volume changes calculated from dye injection methods.

Hecht


The author believes that part of the benefit derived from bilateral splanchnicectomy in hypertension may be due to some redistribution of the blood flow within the kidney. Inasmuch as such an effect would be demonstrable by an alteration in the
urine obtained before and after the operation the author undertook this study.

Complete renal analysis was made on each patient before and after surgery. In four of the 7 patients studied, sympathectomy produced an improvement in the standard urea clearance of the denervated kidney. In 3 cases, an increased volume of urine was obtained, which he believes was evidence for an increase in the number of nephrons brought into action. Besides the increase in urinary volume in these, an increased urea content indicated improvement of tubular function. In 2 of the patients evidence of increased renal blood flow followed surgery. In 5 cases followed over a year’s period, renal function was well correlated with the late result of treatment.

**PATHOLOGY**


The author studied the histologic picture of the left ventricle in 3 normal subjects and in 7 patients with moderate to marked cardiac hypertrophy. Of the latter, 3 also had marked dilatation of the chamber. The increase in size of the muscle fibers, characteristic of hypertrophy, was more marked in sections taken from the apical region than in sections from the basal parts of the ventricle. On the other hand, myofibrosis, which accompanies dilatation, was found only in the basal myocardium and was absent in sections taken from the apex. These histologic findings are in accord with the roentgenologic picture of elongation of the outflow tract of the left ventricle in early hypertrophy and of rounding of the contour of the left ventricle in the presence of dilatation. The characteristic changes of the electrocardiogram, S-T depression and T wave inversion, could be demonstrated in each of the 7 cases with hypertrophy in a bipolar chest lead, with one electrode over the base and the other over the apex of the heart.

**PHARMACOLOGY**

**Charlier, R., and Philippon, F.: The Prevention by Khellin of Ventricular Fibrillation Induced by Chloroform-Adrenaline Technic.** Arch. internat.
ABSTRACTS

de pharmacodyn. et de therap. 81: 404 (March), 1950.

Khellin produces an arterial hypotension which counteracts the hypertension produced by injection of adrenaline in dogs given chloralosane. The hypertensive effect is very short and is believed due to its relaxing effect on smooth muscle of the blood vessels. It seems to be independent of the carotid sinus and aortic-cardiac reflexes. Khellin is also a coronary vasodilator. Some investigators believe this effect is responsible for prevention of chloroform-adrenaline ventricular fibrillation. The authors studied this matter with experiments in 14 dogs. In 10 of 12 experiments, khellin prevented the induction of ventricular fibrillation by chloroform and adrenaline. Five dogs developed fatal ventricular fibrillation when given adrenaline intravenously during chloroform anesthesia without khellin. This antifibrillatory action of khellin differed from that seen when caffeine and amyl nitrite were used. The latter drugs were able to prevent the hypertensive effect of large doses of adrenaline, but khellin was not. Therefore, this antifibrillatory action seems to be independent of the adrenaline hypertension. This suggests that khellin may also prevent ventricular fibrillation by stopping the initiation of adrenaline-induced cardiac ectopic rhythms.

LECKS


The authors studied the effect of diethylaminoethanol, a vasoactive derivative of novocain, upon the circulation of 15 normal persons, 2 subjects with acroparesis, and 3 patients with endangiitis obliterans. The changes occurring following intravenous injection of the drug were analyzed according to the method of Broemser and Ranke. The skin temperature was measured thermoelectrically.

The usual result was a decrease in blood pressure and cardiac output and an increase in peripheral resistance and skin temperature over peripheral parts of the extremities. This would suggest, that diethylaminoethanol produces a passive hyperemia of the extremities, due to an accumulation of blood in the blood depots, mainly in the subpapillary plexus of the skin.


In infancy and childhood, a sympathetic tone unfavorable to the myocardium can be diagnosed with the aid of the ergot derivatives dihydroergotamine (D.H.E.) or Hydergin.

1. The electrocardiograms of 5 out of 18 healthy infants without pertussis showed significant changes 30 minutes after subcutaneous administration of D.H.E. (0.005 mg. per Kg.): normalization of flattened T waves, decrease in tachycardia, and disappearance of auricular and ventricular extrasystoles. These 5 infants showed a change in skin color, acrocyanosis, and a tendency toward convulsions and vomiting.

2. Flattened T waves in 20 infants and children with pertussis were brought to normal level in 6 cases by Hydergin (0.01 mg. per Kg.). The angle between the greatest R and T vector was thereby reduced an average of 35 per cent. These 6 cases all showed the severest attacks of either apnea, cyanosis, or pneumonia.

3. An individual sensitivity to the ergot preparations exists in infancy and childhood. Paradoxically, the sympatholytic Hydergin can temporarily increase the sinus rate, flatten the T waves, and in cases with cerebral lesions revert a paroxysmal tachycardia. In the Hydergin-refractory cases we are dealing with either uncomplicated, mild cases of whooping cough (electrocardiogram normal) or with severe clinical cases (mostly with pathologic T waves).

Hydergin (0.01 mg. per Kg. by subcutaneous injection) in cases of pertussis lowers the leukocyteosis in the peripheral blood on the average of 16 per cent within 45 minutes. (In the electrocardiogram, the angle between the vector R and the vector T is at the same time lessened on the average about 14 per cent; the sinus rate only about 5 per cent.) No obligatory connection exists between the normalization of the electrocardiogram and the influence of Hydergin on the leukocyte count.


The authors studied the influence of magnesium upon various arrhythmias, particularly those associated with digitalis administration and definite digitalis intoxication. Magnesium sulfate was given intravenously (20 cc. of a 20 per cent solution) 29 times to 25 patients with a variety of rhythmic disturbances. Injection was completed within 10 seconds, and continuous electrocardiographic observations were made for the first one or two minutes after the start of injection and at short intervals thereafter. The cardiac effects were rapid in onset and lasted rarely more than eight minutes. Ventricular extrasystoles were diminished in number or abolished in 13 of 14 cases. Often magnesium caused a transient increase in their frequency, and occasionally extrasystoles from new foci appeared for a few
ABSTRACTS


The authors studied the effects of oral potassium salts (2 to 10 Gm.) on a variety of arrhythmias due to digitalis intoxication in 27 of 31 patients. Electrocardiograms were made before the ingestion of potassium and at intervals of 30 to 60 minutes thereafter. Serum potassium was not determined. Effects occurred within half hour and persisted at least 4 hours. Ventricular extrasystoles were abolished or greatly diminished in each trial. Sinus rhythm was restored in 2 patients with auricular tachycardia within 30 minutes after the administration of potassium. In patients with auricular flutter, fibrillation, and incomplete heart block, the ventricular rate decreased. In 2 patients, periods of sinus arrest occurred more frequently after potassium. There were no significant changes in the T wave or RS-T segment. Since toxic effects of digitalis are associated with a loss of potassium from the myocardium, the abolition of associated arrhythmias (ventricular tachycardia, ventricular extrasystoles) may be due to the replacement of this deficient ion in the heart muscle.

Hellerstein


A 50 year old man with congestive failure daily received 2 cc. of Mercuhydrin intramuscularly. On the eighteenth hospital day, within 30 minutes after injection, the patient complained of severe pains in his eyes, head, and lumbar region. This was followed by generalized tingling, dyspnea, nausea, vomiting of a large amount of blood-tinged fluid, pains in the chest, and blanching of the feet. Five hours after injection, he went into profound shock and died. At necropsy there was striking pallor of the renal cortex and extreme vascularity of the medullary portion. The glomeruli were pale, bloodless, and swollen so that Bowman's capular space was very narrow. There was extensive necrosis of the proximal convoluted tubules. It is believed that death was due to an anaphylactic reaction.

A second patient, a 56 year old man with pulmonary and peripheral edema resulting from rheumatic heart disease, was also given 2 cc. of Mercuhydrin intramuscularly daily. On the tenth and eleventh hospital days, he complained of weakness and dizziness, and a temperature rise of 4 F. was noted. Mercuhydrin was withheld until the fourteenth hospital day. Within an hour after injection he complained of nausea and headache, followed by vomiting, coughing, chills, and slight cyanosis. He became restless and confused; his temperature rose to 104.6 F., and his pulse rate to 140, accompanied by disorientation and marked flushing. This was followed by incontinence of urine, generalized twitches, and clonic contractions of all extremities. He became comatose but gradually recovered. Mercuhydrin was withheld for 11 days. Then a trial dose of 0.25 cc. was given. Within a half hour the patient complained of headache, vomiting, arthralgia, was again confused, and had a rise in temperature. The patient felt fairly well the following day. He was then given Mercupurin .05 cc. intramuscularly, which was doubled daily until 2 cc. was reached. Because there was no adverse reaction to Mercupurin, he was again tested with .05 cc. Mercuhydrin. Within 90 minutes he had a repetition of all the symptoms previously encountered. It was several days before he felt well. The reactions in this patient are thought to be allergic, because reactions did not occur following initial injections of Mercuhydrin, a severe reaction followed injection of 0.05 cc. of Mercuhydrin, and unfavorable reactions did not follow injection of 2 cc. of Mercupurin.

Wendkos


The author determined which of the medullary hormones in U.S.P. commercial epinephrine is responsible for the eosinopenia secondary to anterior pituitary-adrenal cortical stimulation. Three tenths cc. of U.S.P. epinephrine, synthetic L-epinephrine, and norepinephrine was injected into each of 15 normal fasting male subjects on different days. It was found that norepinephrine had no effect on total circulating eosinophils. This indicated that the anterior pituitary-adrenal cortical stimulating effect of U.S.P. epinephrine is attendant on its L-epinephrine content, and not on the norepinephrine which is present.

Waife


Ninety patients were investigated during cyclopropane anaesthesia by constant observation of an electrocardiogram. A record was made of all arrhythmias. The effects of (1) hypoxia, (2) hypoxia and carbon dioxide accumulation, (3) hyperventilation and carbon dioxide accumulation, and (4) hyperventilation and deep anesthesia were studied. The author concludes that carbon dioxide accumulation precipitates ventricular arrhythmias during cyclopropane anaesthesia, possibly by a sympathomimetic effect which liberates adrenaline that produces cardiac irregularities. There is no difference in incidence of ventricular premature beats in individuals with normal and those with abnormal hearts. Ventricular arrhythmias due to cyclopropane can be prevented by assisting respiration to insure an adequate intake of oxygen and output of carbon dioxide. Irritant gases such as ether cause reflex vagal inhibition of the heart by stimulation of vagal receptors in the air passages which inhibits the ectopic centers in the ventricles.

To prevent cyclopropane arrhythmias, the various factors that lead to carbon dioxide accumulation must be avoided. One should avoid pre-operative sedation, assist respiration, cocaine air passages, use fresh soda-lime, and pay careful attention to the unidirectional valves of the apparatus.


The authors injected by slow intravenous drip (0.007 to 0.02 mg. per minute) Arterenol (noradrenaline) into young, healthy individuals and made the following observations:

Noradrenaline produced a marked increase of both systolic and diastolic blood pressure without changing the pulse pressure. At the same time, a decrease in skin temperature and a drop in pulse rate were noted. The latter could be prevented by atropine. The degree of blood pressure elevation and bradycardia was proportional to the amount of Arterenol injected. Hydergin reduced the elevated blood pressure to normal and, if injected preceding the experiment, prevented elevation. A change in the distribution of blood constituents was indicated by an increase of the hematocrit with no change in circulating blood cell volume. The electrocardiogram showed significant alterations. In contrast to adrenaline, Arterenol did not affect the basal metabolic rate and produced only a small and transient elevation of the blood sugar level.

The authors conclude that noradrenaline has a marked vasoconstrictor and hypertensive effect, has no marked metabolic properties, and does not influence the activity of the heart. It is of value in the treatment of certain types of shock, especially in diabetics. It should not be used in oligemic shock, since the study of its action reveals "a withdrawal of a portion of plasma from the actively circulating blood stream."


A study of some effects of cortisone acetate was carried out on 5 patients with acute, subacute, or chronic glomerulonephritis. They all exhibited varying degrees of edema, hypoproteinemia, and considerable excretion of protein in the urine. In 3 cases the nephrotic features predominated, while in 2, general anasarca was accompanied by azotemia.

The administration of cortisone in doses of 50 to 100 mg. a day for 12 to 20 days to the 3 edematous patients produced definite effects on the body weight and renal excretion of water, salt and protein. In the first few days there was a noticeable increase in weight and in proteinuria, accompanied by a decreased excretion of water, chloride, and sodium. Within a week to 10 days this period of retention of fluid and salt was replaced by one of loss of weight, diminished protein excretion and saline diuresis. The diuresis finally led to disappearance of the edema. A metabolic effect on intracellular metabolism was indicated by an increase in the urinary nonprotein nitrogen and a simultaneous rise in the concentration of urea in the blood. The hypoproteinemia of a single patient was restored to normal. In 1 of the 3 patients with nephrotic edema diuresis was accompanied by a distinct rise in the concentration of urea and potassium in the blood such as is observed in early azotemia. This suggested renal insufficiency. In 2 patients who had chronic glomerulonephritis, edema and azotemia, cortisone increased proteinuria and the formation of nitrogenous waste products. It failed to alter renal func-
tion or to bring about diuresis. The azotemia increased and hyperpotassemia resulted.

SIMON

PHYSICAL SIGNS


A 60 year old woman, from whom no history could be obtained, presented a loud systolic murmur over the entire precordium and in the electrocardiogram right axis shift and inversion of T in leads II, III and CF. The patient died in congestive heart failure after 14 days of observation. The autopsy revealed a funnel-shaped perforation within an area of healed infarction of the intraventricular septum. In addition, a recent posterior wall infarct was also found. The authors discuss the anatomic and clinical features of an acquired defect of the intraventricular septum. The main clinical sign—appearance of a loud systolic murmur in the course of recent myocardial infarction—may be obscured if the patient is seen some time after the perforation. The diagnosis may be suggested by the electrocardiogram, the suggestive findings being right heart strain in the absence of cor pulmonale and/or the pattern of posterior wall infarction in the limb leads, and anterior wall infarction in the chest leads.

PICK

PHYSIOLOGY


While previous studies with the oximeter have been concerned primarily with the determination of oxygen saturation of the blood, the instrument is adaptable to the study of other circulatory variables. Circulation time from the lung to the ear can be determined by suddenly changing the oxygen content of the gas mixture being breathed and measuring the elapsed time to the onset of the resultant change in the oxygen saturation of the blood at the ear. In this instance, the elapsed time required is a measure of the time required for the production of a change in the oxygen tension in the alveoli, the resultant change in oxygen tension in the pulmonary capillaries, and the time required for the blood to flow from the pulmonary capillaries to the left side of the heart and out into the systemic circulation to the ear. This so-called lung-to-ear circulation time can, therefore, be affected by several factors unrelated to the actual circulation time from the lungs to the ear. The use of the whole-blood cuvette oximeter attached to an indwelling needle in an artery or vein, or to an indwelling arterial or venous catheter, makes possible the measurement of the "circulation time" to other portions of the body.

The oximeter can also be used to measure the time required for circulation of injected dyes which possess spectral absorption characteristics. Methylene blue and Evans blue (T-1824) are two such dyes. The contours and magnitudes of dye injection curves may provide more objective diagnostic evidence than does the time sequence of the tracing.

The arm-to-ear time determined by the ether injection method in 10 normal subjects was not significantly different from that calculated by subtracting the lung-to-ear from the arm-to-ear time determined by the oximeter.


A simplified version of the single scale oximeter has been designed which is completely operated on 110 volt A.C., and in which the switching and control circuits are incorporated as an integral part of a standard box-type portable galvanometer. If the calibration settings of the earpiece are known, the technic for operation can be mastered easily. With this instrument an operator can readily complete an initial estimate of the percentage saturation of arterial blood with oxygen in a five minute period, and a practically continuous record of the arterial oxygen saturation of the subject can be obtained for any desired period thereafter.

Extensive calibration data of an earpiece and a cuvette against direct manometric analyses of blood indicate that in oxygen saturation above 90 per cent the variability of the single scale method of operation is similar to that of the double scale method of operation and compares very favorably with that of Van Slyke analyses of arterial blood. The variability of the single scale method of operation, however, increases considerably more in the lower ranges of saturation than does that obtained with double scale operation. This greater variability in the low ranges of saturation is partially compensated by the multiple chances for galvanometer reading and calculation errors unwittingly introduced when the double scale method is used.


Studies were conducted on 81 infants varying in age from 3 hours to 7 days. These subjects were divided into 8 groups according to age. The average saturation of arterial blood of the various age groups during the first week of life fell within the range of individual values found in normal adult persons. Single determinations, however, frequently fell below this range. The results tend to show that under the
conditions of these studies normal newborn infants, although very hypoxic at birth, have a rapid increase in the oxygen saturation of arterial blood so that at 17 minutes of age the average value falls within the range of individual values obtained for normal adults. The studies carried out during the first 7 days after birth indicated that transient decreases in saturation to values below the range obtained for normal adults occurred frequently, especially when these infants were sleeping or resting quietly. Spontaneous recovery of the saturation of arterial blood to the normal range regularly occurred when the infant was awakened or startled. These transient decreases in arterial saturation were probably pulmonary in origin and that the infant oximetric values were reasonably accurate is indicated by the fact that the arterial saturation readings uniformly increased to values not significantly different from 100 per cent when the infants were exposed to an atmosphere containing 90 per cent oxygen.

SIMPON


The authors describe a method (rheocardiology) of registering periodic changes of conductivity within the human body during the cardiac cycle. Two electrodes, one on the right shoulder and the other over the heart of the patient, are connected with one arm of a Wheatstone bridge. Variations in voltage occurring in the system are amplified and registered by an electrocardiograph. In the curves obtained by this method, different parts of the heart cycle can be determined. The authors present examples of abnormal tracings, which in their opinion are characteristic for disturbances in hemodynamics of valvular lesions and heart failure. Certain conclusions can also be drawn concerning the dynamics of the peripheral circulation.

RHEUMATIC FEVER


The prevention of acute rheumatic fever by the prompt treatment of streptococcal infections with penicillin was attempted in this study. Only patients having exudate on the tonsils or on the pharyngeal wall, a total of 1,634, were included in the study group. A total of 798 patients, whose serial numbers ended in an even digit, received penicillin treatment, and 804 patients, whose serial numbers ended with an odd digit, received no specific treatment and were used as controls. Of the specifically treated patients, 253 received 300,000 units of crystalline procaine penicillin G (suspended in peanut oil containing 2 per cent aluminum monostearate) intramuscularly as soon after admission as possible, and the dose was repeated in 72 hours; 545 of the specifically treated cases received 300,000 units of the same preparation at the time of admission and again in 48 hours, and 600,000 units were received 96 hours after the initial dose. The authors performed follow-up studies for the detection of rheumatic fever between the third and fourth weeks after the initial infection, using rigid criteria based upon a modification of the classification of T. Duckett Jones. Of the 798 treated patients 2 developed definite acute rheumatic fever; 17 of the controls were found to have this disease. This difference between the two groups could be due to chance only 6 times in 10,000. Probable acute rheumatic fever developed in 2 patients in the treated group and in 6 patients in the untreated group. It is felt that this evidence is sufficient to indicate that rheumatic fever can be prevented by the treatment of streptococcal disease with penicillin.

KITCHELL


Loutfy reports a case of aortic aneurysm occurring in a youth of 19 whose past history and clinical findings left no doubt as to a rheumatic etiology. He discusses the rarity of this condition and reviews the literature. The case reviewed showed, in addition to the major features of aortic aneurysm, the presence of severe rheumatic heart disease involving the mitral and aortic valves. His serologic studies were negative for syphilis, blood cultures were repeatedly negative, and there was no suggestion of dilatation above a coarctation of the aorta.

TANDOWSKY

ROENTGENOLOGY


A method for direct aortography is described for visualization of the area of coarctation. This method utilizes the left radial artery and permits a catheter to enter the descending aorta. With local anesthesia the radial artery is exposed in the antecubital fossa. Its nearest large tributary is isolated, a ligature placed on it distally, and a small bulldog arterial clamp proximally. A small transverse incision is made in the occluded portion and a size 9 or 10 intravenous catheter introduced into it. The clamp is removed and the catheter passed into the subclavian artery to the mediastinum or to the coarctation itself. The catheter is then withdrawn 1 to 2 cm. The procedure is performed on a fluoroscopic table and the exact site of the catheter tip observed. Twenty-five cc. of 70 per cent Diodrast is then injected rapidly and films are taken at one second intervals by means of an automatic cassette changer.
A total of not more than 75 cc. is given during the procedure. The catheter is withdrawn after a ligature is placed about the tributary.

Thirteen cases were subjected to this procedure. Nine cases showed the usual type of coarctation at operation. In 1 case a patent ductus was found in addition to the coarctation. In another an aneurysm of the first left intercostal artery was visualized. A third case had aneurysm of both first intercostals which were not visualized on the aortogram. A fourth case had a dissecting aneurysm of the aorta immediately distal to the coarctation not demonstrated on the aortogram.

This method assures visualization of the ascending aorta and eliminates the possibility of the catheter's obstructing the orifice of one of the coronary arteries. A smaller amount of contrast substance is required, and the greatest amount of contrast substance is placed at the site of the coarctation.

KLOSK

SURGERY IN HEART AND VASCULAR SYSTEM


Surgical treatment can completely cure arterial hypertension, if the latter is due to coarctation of the aorta, to a solitary tumor of the adrenal medulla or to unilateral kidney disease. Sympathectomy represents an attempt to decrease, by surgical methods, the peripheral vascular resistance, which, however, depends not only on sympathotonic factors, but also on endocrine and humoral factors. Sympathectomy is indicated primarily in patients below the age of 40 years. At this age, the author observed improvement of symptoms even in cases of malignant hypertension which were followed for a period of one year after the operation. Contraindications are arteriosclerosis, repeated cerebral accidents, mental disturbances, heart failure not responding to treatment, auricular flutter and fibrillation heart block and angina pectoris. An immediate improvement following operation (disappearance of headache and of retinopathy) can be ascribed to an orthostatic fall of tension. The persistence of subjective improvement despite rising blood pressure is probably due to an altered distribution of the blood within the body. In his 30 cases of hypertension, in which sympathectomy was performed the author had no operative fatality.

Pick


Three cases of rheumatic heart disease with mitral stenosis and recurrent embolization are reported, in which further embolic phenomena were prevented by ligation of the left auricular appendage at its base.

The course of each patient during the surgical procedure and in the immediate postoperative convalescent period was uneventful. The authors chose this procedure because of its simplicity and safety as compared with resection of the auricular appendage. No effort was made in these cases to remove the thrombus, although it was suggested that in future cases the tip of the appendage be opened and the thrombus removed. This latter procedure should be done, however, only after preliminary ligation of the base of the appendage.

KLOSK


A case of sustained arterial hypertension treated by sympathectomy is reported, in which subsequent autopsy showed the presence of an undiagnosed pheochromocytoma. Following lumbar-syringe sympathectomy, the patient no longer had persistent hypertension, but had wide swings of blood pressure with symptoms of postural hypotension and attacks of hypertension due to excessive adrenaline secretion. The authors stress the importance of careful palpation of the adrenal glands during lumbar-syringe sympathectomy in order to rule out pheochromocytoma.

KLOSK


An attempt was made to increase the cerebral blood supply in 125 patients with localized or generalized gliosis of the brain by producing a fistula between the carotid artery and the internal jugular vein. The latter was tied off and cut proximal to the anastomosis to prevent blood from returning directly to the right side of the heart. It was felt that blood under arterial pressure in the venous system would thus be freely distributed throughout the capillary anastomosis of the cortex.

In 39 children with mental retardation secondary to various types of organic brain injury, definite signs of improvement followed operation in the majority of cases. In 35 per cent these were objective while in 19 they were subjective. The remainder failed to show improvement. In 31 cases of convulsive disorders, 5 had complete absence of attacks postoperatively, 9 showed complete control, and 6, improvement with added medication. Most of these had previously been refractory to anticonvulsant therapy.

The procedure, in the early stage of evaluation, should be considered a new approach to the problem rather than an acceptable and complete solution.

ABRAMSON
THROMBOEMBOLIC PHENOMENA


Ninety five cases of thromboembolic disease occurred among 7343 consecutive general surgical admissions. The importance of prophylaxis is emphasized by the fact that pulmonary infarction was the first sign in 25 per cent of the 95 cases and was fatal in 38 per cent of the cases in which it occurred. To identify those patients who would be most likely to develop thromboembolic disease, the authors established an arbitrary scoring system utilizing 15 predisposing factors graded from 1 to 3. It is concluded that any patient with a score of 6 or higher should be seriously considered for some form of prophylactic therapy.

WESSLER


The authors report a case of thrombophlebitis migrans in a 25 year old male who had numerous attacks of superficial and deep thrombophlebitis of both legs and of the abdominal wall. In the last admission abdominal distention occurred; two abdominal explorations were performed. Chronic adhesive peritonitis was found at operation. The patient went into shock following the second operation and died. At autopsy multiple thromboses of mesenteric, splenic and portal veins were observed, associated with infarction of jejunum and ileum.

The etiology of thrombophlebitis migrans remains obscure. It is a disease of the young and middle aged, and is about four times as common in males as in females. In the differential diagnosis the phlebitis of Buerger's disease must be ruled out. The superficial veins of the extremities and, to a lesser degree, of the abdomen and thorax are most frequently involved. Other parts of the body may also be affected. The segment of vein affected is usually small, it gives rise to tenderness and redness, and the process subsides in a matter of days or weeks. Fever and leukocytosis commonly accompany each attack, and involvement of visceral veins is the most serious complication.

There is no specific therapeutic agent for the condition, although the anticoagulants appear to be beneficial in limiting the duration and extent of each recurrence. Ligation is not ordinarily recommended because emboli, when they occur, are small. Furthermore, such a procedure is not practicable, since recurrences appear in widely disseminated areas.

ABRAMSON


The relationship between exercise and embolism in mitral stenosis was studied in 29 individuals who had 31 embolic accidents. Twenty-three showed auricular fibrillation and 6 had regular rhythm. Twenty-four had good exercise tolerance. Only 3 had congestive failure. Only 2 embolic accidents occurred while the individuals were actively mobile. Seven with auricular fibrillation suffered embolic accidents while undertaking easy physical exercise, 13 while sitting and 9 while asleep in bed. The author concludes that embolism is not directly related to physical effort, is not usually due to clot formation in the dilated auricle of severe congestive failure, and is most common in those with good exercise tolerance in whom the mitral orifice is fairly large.

SOLOFF

VASCULAR DISEASE


Renal lesions were studied in 429 known autopsied diabetic patients. In addition 100 kidney sections from uremic patients who were nondiabetics, and 50 kidney sections of benign and malignant hypertensives were reviewed. Sixty per cent of all diabetics showed some degree of glomerular sclerosis, ranging from the early diffuse type to the obvious hyaline sphere lesion. Twenty-four per cent showed frank glomerular sclerosis. Arteriolosclerosis was frequently encountered and was present in a marked degree in 25 per cent of the cases. It paralleled the severity of glomerular involvement. Massive albuminuria and edema were the most constant clinical accompaniment of the severe stages of this process. A significant drop in serum albumin was a connecting link between albuminuria and edema.

Hypertension was found somewhat more frequently in patients presenting this lesion than in other diabetics. Renal insufficiency or azotemia was no more frequent in the presence of this lesion than in other diabetics. Similar lesions were not found in nondiabetic hypertensive and uremic patients.

WEFFE


In the reported patient the characteristic picture of Addison's disease developed at the age of 20. The etiology was considered to be atrophy of the adrenal glands on a vascular basis. The Addisonian symptoms, except for the pigmentation, were largely improved by hormonal therapy and administration.
of suitable electrolytes. At the age of 24, he developed convulsions and temporary psychotic episodes which were found to be due to spontaneous hypoglycemia. By appropriate treatment of the hypoglycemic syndrome, these symptoms disappeared. When he was 25 years of age, a biopsy of skin and muscle from the left deltoid region showed fibrinoid degeneration and necrosis within arteries and arterioles with variable degrees of vascular occlusion and increased melanin in the stratum germinativum of the skin. At the age of 28, he developed retinal hemorrhages and systolic and diastolic hypertension and abnormal urinary findings. From then on, he gradually deteriorated, became more stuporous and died while in a comatose state. On the basis of the gross and microscopic findings of the necropsy material, the following diagnoses were made: Generalized obliterative angiitis; subacute and chronic glomerulonephritis; extensive fibrosis with marked cortical regeneration of the suprarenal glands and absence of the adrenal medulla (probable old infarction); multiple regions of softening of the brain; pigmentation of the lips, external genitalia, skin, nipples and buccal mucosa; atrophy and fibrosis of the thyroid with marked lymphocytic infiltration and adenoma formation; subinvolution of the thymus; hypertrophy and dilatation of the left ventricle; patchy myocardial fibrosis of the left ventricle; atherosclerotic coronary artery disease with thrombotic occlusion of the right coronary artery; organizing nonbacterial thrombotic endocarditis of the mitral valve; multiple old and recent infarcts of the spleen; chronic splenitis with splenomegaly; acute and chronic pneumonia. This case is unusual in that a generalized obliterative angiitis with involvement of the adrenal vasculature was responsible for the Addison's disease.

**WENDKOS**


The authors discuss the misleading symptoms of dissecting aortic aneurysm which not infrequently lead to the diagnosis of peripheral vascular disease. Two cases are presented. In one the antemortem diagnosis of embolism of the right femoral artery was made, while in the other it was felt than an embolism had occurred in the right arm, probably from an aortic plaque. The differential diagnosis between dissecting aortic aneurysm and embolism is discussed and the treatment of dissecting aneurysm and peripheral embolism is briefly reviewed.

**TANDOWSKY**


The authors report a case of syphilitic involvement of the aortic arch and pulmonary artery, with possible spread to the adjacent lung tissue and smaller pulmonary arteries. The patient was a 56 year old woman admitted to the hospital because of paroxysmal nocturnal dyspnea and dependent edema. The blood serologic tests had been positive for the previous seven years, and the patient had received sporadic antisyrphilitic therapy. Examination of the lungs revealed moist rales posteriorly. The heart was enlarged and aortic insufficiency was present. With cardiac management the patient was able to leave the hospital in a compensated state but returned three months later with symptoms of recurrence of heart failure. Despite treatment, the patient developed a shock like state and died. Autopsy revealed a syphilitic process around the orifices of the vessels leaving the aortic arch and thrombosis of the left branch of the pulmonary artery. Histologically the walls of the arteries in the left lung were very thick and the lumina were partially occluded by an endarteritic process. The diagnosis was syphilitic pulmonary arteritis with a mural thrombus. It was suggested that the spirochetal infection might have extended from the aorta to the pulmonary artery, inducing the productive cicatricial type of lesion.

**ABRAMSON**


In a consecutive series of 35 patients with either arteriosclerosis obliterans or thromboangiitis obliterans, a systolic murmur over the abdomen was elicited by auscultation in 22 cases. In a similar group of 35 patients without peripheral vascular disease, the murmur was not heard. It is stated that the murmur arises from the lower abdominal aorta; its mode of production is not known.

**WESSLER**


The writers point out that coronary sclerosis is common in adult fowl, occurring as a focal cellular infiltration and hydropic degeneration in the media. Cholesterol is not an etiologic factor; however, its ingestion in large amounts increases the size of the plaques and adds to their lipid content. An extremely common neoplastic disease of chickens is lymphomatosis. The writers suspected that it is an etiologic factor in the development of coronary sclerosis. They observed two groups of chicks, one a control, the other subjected to intratracheal instillation of pooled tracheal washings from adult birds suffering from advanced lymphomatosis. At the end of one year, autopsy revealed a sixfold increase of
coronary arteriosclerosis in the infected birds. The medial lesions and the overlying intimal lipid thickenings were strikingly increased in number and size.

"Spontaneous" coronary arteriosclerosis in chickens is possibly the vascular type of lymphomatosis. The latter exists as an avian disease in many forms, none of which have been transmitted to man. The authors, however, believe the mechanism of development of arteriosclerosis in the two species may be similar.

GOULEY

OTHER SUBJECTS


The authors describe a method for simultaneous determination of pulmonary flow and cardiac output. In anesthetized dogs, the pulmonary flow was found to increase if the cardiac output rose following arterial arteriovenous fistulas or transfusions. A fall in pulmonary flow occurred following venesection or cooling of vagi and sympathetic. The latter procedure, however, produced an increase of cardiac output. The observation that alterations in pulmonary flow do not produce, but follow changes of cardiac output contradicts the assumption that the pulmonary vascular field acts as a blood depot for the systemic circulation.


Stressful situations may produce a rise in venous blood ketones in both diabetic and nondiabetic humans. Ketonemia was much greater in the diabetic. With relative emotional security, the blood ketone levels returned to normal levels without extra insulin. Blood sugar changes were variable. The authors suggest that the mechanisms involved may include disturbances of the anterior pituitary and adrenal glands.


In 24 patients with chronic pulmonary emphysema, cardiac catheterization revealed a significant elevation of the pulmonary arterial diastolic pressure (mean pulmonary diastolic pressure 22 ± 7 mm. Hg) related to increased vascular resistance in the lungs. In a majority of the patients, the pulmonary systolic pressure was elevated. There was no correlation between the degree of pulmonary hypertension and the severity of the emphysema as estimated by the altered ratio of residual air to total lung volume. The pulmonary arterial pressure was significantly higher and the oxygen saturation of the arterial blood lower in 8 patients with previous history of right heart failure than in 16 patients without this history. The mean arteriovenous oxygen difference in 23 patients with pulmonary emphysema was similar to that reported in normal subjects. There was no evidence that oxygen unsaturation of the arterial blood in pulmonary emphysema induces an increase in the cardiac output.


The author reports an instance of primary pul-
monary hypertension in a man 26 years of age; necropsy showed atheroma and mural thrombosis of the main branches of the pulmonary artery and internal thickening with obliteration of the lumen of 2 small bronchial arteries in the periphery of the lung. In the region of the right hilum were two conglomerations of communicating arteries and veins forming complicated arteriovenous aneurysms. They appeared to arise from bronchial and pulmonary arteries and veins. It is suggested that primary pulmonary hypertension results from excessive entry of blood into the lesser circulation from the bronchial arteries. The increased pressure causes dilatation and sclerotic changes in the pulmonary artery and hypertrophy with eventual failure of the right ventricle.

SOLOFF


A 26 year old woman, in excellent health except for gallstones, was anesthetized with piperocaine hydrochloride (metycaine hydrochloride), and cholecystectomy was begun. Twenty-five minutes later pulse and respiration ceased, and the patient apparently died. The left hand of the surgeon was introduced into the abdomen, and the heart was massaged through the diaphragm by being squeezed between the palmar surface of the hand and the anterior chest wall. It was noted that upward pressure of the massaging hand on the heart would produce respiratory exchange. It was also found that, while continuing the rapid massage of the heart performed by the left hand inside the abdomen, adequate respiration could be produced by slow alternate lifting and depressing of the lower end of the sternum with the right hand (the fingers being hooked around the sternal manubrium). Twelve minutes after the anesthetist had announced the cessation of pulse, rapid regular heart beats began. Artificial respiration still had to be maintained for 32 minutes. The authors conclude that such massage of the heart can adequately maintain circulation for 12 minutes or longer, and that manipulative artificial respiration by rhythmic alternate upward and downward pressure on the lower end of the sternum is effective and easily done.

KITCHELL


The author presents 11 cases of acute benign nonspecific pericarditis seen in private practice in a subtropical climate. He draws attention to the fact that all the patients had chest pain aggravated by body motion or deep inspiration which helped to differentiate the condition from acute myocardial infarction. The pericardial friction rub is heard early in this disease rather than three or four days after the onset as is commonly noted in infarction. Mild fever was present and was associated with increased sedimentation rate and leukocytosis in most cases. Eight of the patients were given penicillin; however, the effect of this is dubious because the disease itself is self-limited. Electrocardiographic changes indicative of pericarditis were noted in 10 cases. Two of the cases reported were associated with chronic rheumatic valvular heart disease.


The authors show that with a rigorous cholesterol-free diet the blood cholesterol may be readily and rapidly lowered both in normal men and in men with extreme hypercholesterolemia. However, the blood cholesterol level is independent of the intake over a wide range, and most of the so-called low cholesterol diets in current use are probably ineffectual.

SACHS


Survival time for rats decompressed rapidly to altitudes above 52,000 feet is twice as long in 100 per cent oxygen as it is in air. The maximal survival time above this altitude is fixed at approximately 40.0 seconds in oxygen, and 18.0 seconds in air. At altitudes below 52,000 feet, survival time in oxygen progressively increases, and at a much more rapid rate than in air.

Similarly, survival by recompression from high altitudes at free-falling rate is markedly enhanced in 100 per cent oxygen. From an altitude of 65,000 feet 87 per cent of a group of rats survived in pure oxygen compared with a mortality of 100 per cent in air.

Examination of the lungs of rats surviving rapid decompression and recompression at free-falling rates in both 100 per cent oxygen and air revealed a marked capacity for recovery of injury sustained. The most frequent changes, emphysema, edema, and cellular infiltration, were only minimal 24 hours after conclusion of the experiment. Hemorrhage in the middle ear was observed in 37 per cent of rats exposed to altitudes above 45,000 feet.

HECHT


An analysis was made of the effect of long term alterations in the cholesterol content of the diet on 482 clinically normal men. With ranges in habit-
ual cholesterol intake of 250 to 800 mg. a day, no significant differences in serum levels were found. Forty-one middle aged normal males were studied before and after a 50 per cent reduction of cholesterol intake. One year later, and after at least several months of low cholesterol intake, the mean cholesterol level was unchanged. Four patients were maintained on the rice-fruit diet which is cholesterol-free. The mean total cholesterol value fell from 232 mg. per 100 cc. of serum to 151 mg. after about three weeks. The rate of fall was related to the previous level of cholesterol.

The authors doubt whether most so-called low cholesterol diets reach critical levels or are significant in reducing serum levels. One patient when changed from a cholesterol- and fat-free diet to one containing vegetable fats, but without cholesterol, had a return of serum level almost as rapid as it had fallen. This confirms other reports that vegetable oils in the diet promote cholesterol accumulation in the body even on a cholesterol-free diet.

**Waife**


Because of the occasional report of an undesirable reaction following the administration of oxygen to patients with chronic anoxemia, the authors studied the development of mental changes, ranging from somnolence to coma, in 8 of 65 patients with mild to severe chronic anoxemia, who were given high concentrations of oxygen to breathe. The possible mechanisms for the causation of such pictures are discussed. They include carbon dioxide narcosis, cerebral vasospasm, reflex depression of cerebral cortex by high oxygen tension, increased cerebrospinal fluid pressure, and direct depression of the cerebral cortex by high oxygen tension. The authors agree with Barach that in chronic anoxemia coma may be prevented if a low concentration of oxygen is used to begin therapy.

**Kitchell**


The oxymetric method enables us to determine precisely the circulation time, arm to ear (by injection of methylene blue), and lung to ear (by inspiration of nitrogen). In a normal case, the arm to ear time is 10.3 seconds, and the lung to ear time is 5.12 seconds on the average. Repeated measurements on the same case give identical results. Such techniques eliminate the reacting time which is unavoidable with the taste methods and the ether method. They enable us to divide the complete circulation time in different circuits. This data has numerous clinical and experimental applications.

**Authors**


Maxwell and associates examined the by-pass role of the juxtamedullary glomeruli and from both morphologic and physiologic considerations conclude that, whatever its significance in the rabbit, the juxtamedullary circulation has no specific functional significance in man as far as can now be ascertained. Experimental perfusion of the juxtamedullary circuit during cortical ischemia has been partially confined in the rabbit, but has failed of confirmation in the dog, as in man. This circumstance may reflect a species difference in the fetal development of the kidney and the degree of renal maturity at birth.

Harris


Following a discussion of the physics of phonocardiography the authors present and illustrate their experiences with a new Swedish instrument (Elema Type EM 130), a multibeam phonocardiograph, which permits the synchronous registration of acoustic phenomena of the heart at various filtered frequencies. By synchronization with an electrocardiogram, the onset of heart sounds can be timed exactly, permitting a more accurate determination of the mechanical systole. Duration and various qualities of heart sounds and heart murmurs can be demonstrated and different types of additional (gallop) sounds can be distinguished by more accurate timing within the cardiac cycle. The time of isometric contraction and ejection of the ventricles can be determined by pairing a phonocardiogram with a rheocardiogram.

PICK