ABSTRACTS
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BACTERIAL ENDOCARDITIS
A 54 year old physician, known to have previously had a normal heart, was bitten by a laboratory rat. He rapidly became ill, with the development of a loud mitral systolic murmur. Streptobacillus moniliformis was grown from his blood. He was treated with penicillin and recovered.

Wendkos

Data have been presented on three cases which illustrate the difficulty in diagnosis which may arise when hematologic abnormalities overshadow the "classic" manifestations of subacute bacterial endocarditis. All three cases showed anemia, which we have found to be present in 75 per cent of cases of the disease. One case had pancytopenia which has not been present in any case previously reported in detail. It is emphasized that the association of a cardiac murmur and an unexplained anemia or of an unexplained fever and anemia should suggest the possibility of bacterial endocarditis.

Wendkos

BLOOD COAGULATION
Warfarin (sodium derivative) was safely administered intravenously to 23 patients and was effective in producing hypoprothrombinemia in all of them. The hypoprothrombinemia reached the therapeutic range within 24 hours after administration of warfarin (sodium derivative) in 26 of the 29 patients. In one hypersensitive patient with an indwelling catheter, gross hematuria followed the intravenous injection of Warfarin (sodium derivative). No other bleeding or untoward reactions were encountered. Vitamin K was effective in rapidly correcting hypoprothrombinemia caused by Warfarin (sodium derivative) in all three patients on whom it was used.

Simon

Using viper venom as source of thromboplastin the authors purport to have demonstrated a reduction in prothrombin time after a fatty meal. The degree of reduction paralleled the degree of lipaemia. When other sources of thromboplastin, such as acetone (dried extracts of rabbit brain) were employed, this phenomenon was not observed because, the authors believe, these other thromboplastins contain much lipid material which provides an essential factor in excess and masks the effects of lipaemia.

Coagulation time in silicone-coated tubes was also determined. After an ordinary ward breakfast no change in this test was usually seen. After a high fat meal, as in the case of the prothrombin time, coagulation time was reduced significantly in 13 cases.
in which gross lipemia developed. In two cases without gross lipemia no change occurred.

The authors suggest a relationship of their observations to the pathogenesis of arteriosclerosis.

McKUSICK


Studies are reported of the clearing effect of intravenous heparin on lipemic plasma induced after a fatty meal in a total of 69 arteriosclerotic and control patients. In 11 of 12 patients who received a dose of 3 mg. of heparin, the clearing of the plasma did not persist for one hour. When the dose of heparin was increased to 20 mg. the clearing effect failed to persist for two hours in all 10 patients who were tested.

When heparin and the fatty meal were given simultaneously in 11 patients, no detectable difference was noted in the average degree of lipemia three hours later. The intravenous injection of 100 mg. of heparin per day for three days changed the response toward normal in four arteriosclerotic patients. A similar effect was not noted in three arteriosclerotic patients who did not receive heparin between tests.

Simon


In 57 patients, including individuals with and without clinical evidence of arteriosclerosis, the relation between repository heparin and serum lipoprotein patterns was studied. Blood samples were obtained in the fasting state, in the fasting state four hours after heparin injection, and while on a regular diet at 12, 24 and 48 hour intervals after heparin administration. Serum lipoprotein analyses were performed by ultracentrifugation according to the method of Gofman. It was found that the most pronounced effect was upon the lipoproteins in the S 20-100 range, wherein their concentration four hours after the injection of the repository heparin was reduced about 80 per cent. No significantly different responses occurred with heparin doses ranging from 200 to 400 mg. On the average the effect lasted 24 hours.

WESSLER

CONGENITAL ANOMALIES


The author describes an unusual anomaly found at autopsies of two cases (11 weeks and 23 years old) with congenital heart disease. The aorta originated from both ventricles via a high ventricular septal defect, and the pulmonary artery was hypoplastic and completely atresic at its ostium. Its distal portion was supplied by a large branch of the left coronary artery in the first, and of the right coronary artery in the second case. Thus, in these two instances, conditions were present comparable to those created artificially by the Blalock operation, in which a systemic artery is implanted into the pulmonary circulation.

The pathogenesis of this rare anomaly can be explained on the assumption of a faulty rotation of the aortico-pulmonic septum. Instead of separating the endothelial buds of the common truncus, the anlage of the coronary ostia from the pulmonary circulation, the septum meets and splits one of the buds into two portions with the result of a double origin of the afflicted coronal vessel—one ostium being located in the aorta and the other in the pulmonary artery.

PICK


The authors describe four cases of aorto-pulmonary fistula at the site of the ductus. Three of the cases had evidence of right ventricular strain. In two cases, the diastolic component of the murmur was much louder than the systolic. The electrocardiogram of three cases had a pattern of right axis deviation and right ventricular "strain." The pulmonary artery was extremely dilated. Two of the cases had cyanosis, a third presented a late cyanosis. Two of the patients died in failure, one died of bacterial endocarditis and pulmonary tuberculosis, while the fourth died in a state of vascular collapse. Autopsy revealed aortopulmonic fistula, extreme dilatation of the pulmonary vessels and right heart, and, in one case, hypoplasia of the aorta and left heart.

The difficulty of the diagnosis is due to the atypical picture. Surgery requires development of a special technique.

Luisada


The authors describe the clinical and cardiac catheterization data in 10 patients with transposed pulmonary veins. The diagnosis in these cases was made at cardiac catheterization by roentgen visualization of the catheter in the anomalous vein, by a characteristic pulmonary vein pressure curve and finally by 90 to 95 per cent oxygen saturation in the blood sample from the anomalous vein. Surgical exploration to correct this anomaly should be reserved for patients with complete transposition in whom limitation of physical activity is progressive. The authors report one case successfully treated by an
anastomosis of the main trunk of the left pulmonary veins to the left auricular appendage. A second patient in whom a similar operation was attempted expired suddenly several hours after the surgery.

Patients with partial transposition of the pulmonary veins as the sole anomaly have few, if any, symptoms, and usually have normal growth and development. Patients with complete transposition were small of stature and considerably underweight. The heart, normal in size in the patients with partial transposition, was moderately enlarged in patients with complete transposition. Pulmonary systolic murmurs were present in all patients. Roentgenograms of the chest showed increased prominence of the pulmonary artery segment. Fluoroscopy revealed increased pulsations of the pulmonary arteries. Angiocardiography in five of these patients was of no aid in detecting the anomalous pulmonary vein or the presence of an atrial septal defect. The electrocardiogram showed right axis deviation with the pattern of incomplete right bundle branch block in the two cases of partial transposition. With complete transposition there was right axis deviation with a very tall R wave in V1, the pattern of right ventricular hypertrophy.

HARRIS


This study was carried out on dogs because of the difficulty of encountering a large series of humans with severe pulmonary stenosis, and also because some of the experimental procedures, such as left heart catheterization, are too hazardous to be done on humans. Whereas in previous studies the stenosis was developed in the pulmonary artery, in the present study stenosis was made in the infundibulum. This was done by passing two mattress sutures across the pulmonary conus and tying them over small pearl buttons. In this way the pulmonary conus was plicated and the infundibulum made stenotic. Catheterization studies were done and pressures were recorded in the pulmonary artery, right ventricle, right atrium, pulmonary vein, left ventricle and aorta simultaneously with the intrathoracic pressures. Oxygen content of arterial and venous blood was measured and the cardiac output was determined by the direct Fick method. Right ventricular pressures indicate that the degree of stenosis in these animals is comparable to moderate to severe pulmonary stenosis in the human. The course of the adult animals indicates that a severe stenosis may produce chronic right heart failure in as short a time as nine months. It would also appear that a reduction in area of the right ventricular outflow orifice of 75 to 85 per cent is needed to produce failure in a relatively short period of time. Clinically, the urgency for surgery in cases of pulmonary stenosis is customarily based on right ventricular pressure. This may not be well founded physiologically, since pressure depended on too many variables. The same holds true for cardiac output. The authors believe that an accurate estimate of the area of the right ventricular outflow orifice would be the best criterion upon which to base the need for surgery.

Dennison


The authors summarize the literature and present nine cases proven by operation, angiocardiography or laminography. Fundamentally the lesions are hemangiomatous in nature, the majority being cavernous hemangiomata with large vascular channels permitting varying degrees of arteriovenous shunt. Physiologic disturbances, when present, are secondary to the shunting of unoxygenated blood back to the left side of the heart with resultant anoxemia and a polycythemic response of varying intensity.

Dyspnea, epistaxis, cerebral disturbances (secondary to polycythemic arterial thrombosis), hemoptyses and chest pain were not uncommonly noted; continuous or systolic murmurs, cyanosis, clubbing and cutaneous hemangiomata were frequently found. Polycythemia was the rule except when epistaxis or hemoptyses resulted in lowered red blood cell counts.

Schwedel


Alterations in the volume of venous return with consequent change in the oxygen saturation of mixed venous blood are responsible for the postural effects upon cyanosis and dyspnea in the tetralogy of Fallot. These postural effects include the beneficial effects of the squatting and knee-chest position and the more detrimental effect of the standing position. Speculations are adduced to explain the peculiarly marked effect of altered venous return in malformations when there are venoarterial shunts, reduced pulmonary blood flow coexisting with high systemic flow and absence of a tendency to go into congestive heart failure. Diagnostically, these postural effects are important when they can be demonstrated in the form of simple clinical tests. A patient demonstrating them will respond well to systemic-pulmonary anastomosis. Therapeutically they are of real importance in carrying a patient through the period of waiting for definitive surgery.

Harris

10 cases were found in whom clinical and hemodynamic data indicated a moderate degree of the lesion. The essential common features of this group were: good functional capacity, a small heart shadow with a distinctly pulsating prominence at the left border which corresponded to an ovoid dilatation of the main pulmonary artery as revealed in angiocardiograms and only slight electrocardiographic alterations which suggested right heart strain. Although there was a definite pressure gradient between the right ventricle and the pulmonary artery, right ventricular pressure did not exceed the systemic pressure, and the pressure curve in the pulmonary artery retained its arterial contour. In one case which came to autopsy, the leaflets of the pulmonic valve were only partially fused causing a moderate reduction of the valvular opening.

The authors conclude that in cases of this type corrective surgery is not indicated because the functional capacity of the patient is good and valvulotomy may damage the valves instead of improving their function.

**Pick**


After reviewing the methods designed to establish the presence of overriding aorta in congenital heart disease, the authors conclude that passage of a catheter into the aorta from the right ventricle is undoubtedly the most reliable method of proving the diagnosis of overriding aorta. A rapid right ventricle-to-ear circulation time is strongly in favor of the existence of this anomaly. With rare exceptions the presence of a right-sided aortic arch in a cyanotic patient indicates that the aorta arises in whole or in part from the right ventricle. Conventional studies involving the speed of the circulation, including angiocardiography, may prove a right-to-left shunt without indicating its site. Pressure relationships obtained during cardiac catheterization may be relied upon only to exclude overriding aorta.

**Harris**


In a large group of children with various forms of congenital heart disease it was found that the great majority have a normal or higher than normal arterial oxygen content. This is due to the fact that many have a high HbO₂ capacity. Deviations of the acid-base characteristics from normal were found to be due in most cases either to fixed acid excess or to a combination of fixed acid excess and carbon dioxide deficit.

**Waife**


In seven cases with various types of pulmonary stenosis the authors studied the histologic appearance of pulmonary arterioles and venules less than 1 mm in size. In two cases the vessels showed a normal structure and in five the vessel wall was markedly atrophic so that the histologic distinction between an arteriole and venule became impossible. Evidence of vasoconstriction or of thickening of the intimal layer was found nowhere. Intravascular thrombi in various stages of organization were common findings. In one case, a tetralogy, an angiomatosus pattern of the vessels could be demonstrated, possibly related to the development of collateral bronchial circulation. Application of the index of Kernohan (the ratio of thickness of vessel wall to diameter of its lumen) revealed, as a rule, values far exceeding those found in mitral disease, and approaching values found in conditions with increased pulmonary flow. It would appear that the abnormalities of the small pulmonary vessels in pulmonic stenosis are not the consequence of the altered pulmonary hemodynamics, but rather represent an associated congenital vessel anomaly.

**Pick**


Fifty cases with proven atrial septal defects were analyzed in an attempt to establish a correlation between clinical data, radiologic and electrocardiographic findings, and the results of hemodynamic investigations.

Clinically dyspnea is found predominantly with venoarterial or bidirectional shunts, and when the pulmonary arterial pressure is considerably elevated. Under the latter circumstances systolic and diastolic murmurs in the pulmonic area become very pronounced. Heart failure occurs mainly in older individuals, and in Lutembacher's syndrome.

Roentgenologic cardiomegaly is seen particularly in the presence of bidirectional shunts and in Lutembacher's disease. Although there is no definite correlation of the size of the pulmonary arterial segment and the degree of pulmonary hypertension, aneurysmal dilatation of the pulmonary artery is invariably associated with severe pressure elevation within the vessel.

In about a fourth of the cases the P-R is prolonged and the P wave has an abnormal contour. The latter is almost always associated with pressure elevation in the right atrium or ventricle. In 86 per
cent of the cases right bundle branch block, usually of the incomplete type, was found. With marked pulmonary hypertension, signs of right heart strain appear in the electrocardiogram, with or without evidence of impairment of intraventricular conduction. "Ischemic alterations" of the T wave may be seen over the right precordium.

The authors conclude that in cases with interatrial communications those with severe pulmonary hypertension represent a particular group with regard to the modified clinical picture, the particular conditions of hemodynamics, and the diagnostic problems which may arise.

Pick


Sixteen patients underwent commissurotomy for mitral stenosis. The disability classification was: grade II in 1 patient, grade III in 11 patients and grade IV in 4 patients. Methods of study included lung biopsy, cardiac catheterization, measurements of pulmonary function and finally, clinical estimates of the improvement for periods up to one year.

Definite thickening of the arteriolar walls with intimal proliferation was found in all but one of the lungs. The degree of sclerosis was expressed as a lumen-to-wall ratio. These ratios did not correlate with either the pulmonary arterial pressures or the calculated pulmonary arteriolar resistances, but did show a significant correlation with the product of pulmonary arterial pressure times the duration of symptoms. As a result of these determinations the authors suggest that the age of the patient and the height and duration of the elevated pulmonary pressure are all important in the production of pulmonary arteriolar sclerosis.

The clinical results of mitral commissurotomy were in general good, although patients with severe pulmonary arteriolar sclerosis may take six months or longer to obtain maximum benefit. Poor results appear not to be caused by the state of the pulmonary vasculature but by factors within the heart such as concomitant valvular disease or myocarditis which interfere with normal cardiac function.

Wessler


This report is concerned with observations made in 11 patients with coarctation of the aorta. Two of the three female patients showed features of the syndrome of Turner, including retarded growth, absence of pubic hair, amenorrhea, slight development of the sex organs and hypoplasia of the ovaries. Congenital anomalies such as pterygium colli and cubitus valgus are common in this condition. The excretion of gonadotropin was increased in one of the patients with the Turner syndrome. Of the eight male patients with coarctation of the aorta, five showed delayed puberty while the others were normal in this respect. In the majority of the males the excretion of 17-ketosteroid IV was lower than the average normal value suggesting subnormal testosterone production. On the other hand the metabolites of the suprarenal cortical hormones were present in relatively large amounts in these same patients. It is mentioned that if clear-cut endocrine disturbances are present it seems that one has to reckon with a less favorable condition of the myocardium and blood vessels which may aggravate the risk of surgical correction for coarctation of the aorta. Furthermore, if there are signs suggesting agenesis of the ovary, it may be well to treat the patient with estrogenic substances prior to surgery.

Rosenbaum

CORONARY ARTERY DISEASE


One hundred subjects were investigated, 50 with definite coronary artery disease and 50 hospital controls. Plasma turbidity was estimated by optical densitometry after a standard meal containing 100 Gm. of fat. Heparin, 0.3 mg., was given intravenously 3 hours after the meal, and clearing determined at 15 and 90 minute intervals.

It was found that 31 per cent of the lipemia was cleared in the coronary group as compared with 64 per cent in the controls. Statistically the differences were found to be highly significant for the males and somewhat less so for the females. Two thirds of the clearing had already occurred within one and one-half minutes of injection. There was no correlation in either main group with age, levels of cholesterol or cholesterol esters, or plasma phospholipids. There was a slight overlap in both groups.

A complete explanation of the phenomenon of chylolytic action of heparin is still lacking. Various hypotheses are discussed. It is probable that heparin in some way modifies the physical state of plasma fat, perhaps by altering surface tension or in other ways. It is conceivable that arteriosclerotic changes are associated with diminished availability of an endogenous heparin-like substance, thereby reducing a circulating chylolytic factor.

Enselberg


This report is based upon observations made in 506 patients studied at the University Hospital,

The author calls attention to the problem of pressure differences in the various layers of the arterial wall. There must be a pressure gradient present between the intravascular pressure and that which equals the pressure in the tissues surrounding an artery. otherwise the vessel would dilate until the two pressures are equalized. With the acceptance of such a gradient, it is difficult to conceive a movement of lipids from the capillaries to the arterial lumen, however, it is easier to understand that the lipids wander in the opposite direction—from the lumen into the different parts of the arterial wall. This can explain the fact that the intima and inner part of the media are predisposed sides for precipitation of fatty substances. The concept presented is of importance for a better understanding of the different types of arteriosclerosis.

Pick

ELECTROCARDIOGRAPHY.
VECTORCARDIOGRAPHY AND BALLISTOCARDIOGRAPHY


The scope of this report is limited to an analysis of the electrocardiographic changes occurring during the tetraethylthiuramdisulfide-alcohol reaction, made at intervals during such reactions on 44 patients, representing 221 electrocardiograms. Definite changes were observed in 91 per cent of the 44 patients. The principal changes were lowering, flattening, or inversion of T waves; S-T segment depression in one or more leads; and prolongation of the Q-T interval. The pattern of changes is the same as that seen in ventricular strain (mainly right). The pattern of acute coronary insufficiency has not been observed. There is strong evidence that some of the changes are due to a direct toxic effect on the myocardium. The effect is reversible with recovery from the reaction and with response to the administration of ascorbic acid, but apparently does not respond to oxygen administration. Such changes in the electrocardiogram indicate that tetraethylthiuramdisulfide should be withheld if there is any suspicion of cardiac abnormality.

Pick


There is no distinct T wave although the terminal QRS segment is notched. Bradycardia of cooling or hypoxia separates the notch into a definite wave without a distinct S-T segment. Potassium increased notch amplitude. The authors assume that depolarization and repolarization overlap due to the short duration of excitation. K_{Q-T} values fall far outside the human range. First heart sounds occur in adult mice 0.015 second after the onset of QRS. The second sound is found just before the start of P.

Oppenheimer


A ballistocardiographic system consists of a series of elements—the heart, the arteries, the body, and the table—each of which has its particular characteristics of oscillation. A curve obtained by such a system represents the algebraic sum of a variety of oscillations, and its final contour is determined by interference, resonance, superposition and mutual extinction of waves of various origin. Most of these waves, however, have a similar range of frequency (5 to 6 cycles per second).

At the present time, interpretation of clinical tracings must be based purely on empiric grounds. Both piezoelectric and photoelectric curves are displacement curves and are therefore similar in contour but differ in the size of their amplitude. Even with reduction of the standardization to one half, piezoelectric curves are about 3.5 times larger than photoelectric recordings. Normally H is the smallest and J the largest of the systolic deflections, while K equals or exceeds the I wave. Among the diastolic waves L is the largest and M, N, and O become progressively smaller. In fact, N and O may be absent under normal conditions. From the clinical standpoint the evaluation of the amplitude of IJ is most important. However, respiratory variations do occur, and must always be taken into consideration.

Pick

The authors studied the contour of the normal precordial electrocardiogram (leads V1 to V4) in 150 healthy children of various ages (5 weeks to 15 years), and its gradual transformation from the pattern characteristic of the infant to that of adolescence. All data were submitted to vectorial analysis. Normal ranges of the size of the R wave in each of the six precordial leads were tabulated for five age groups.

The R/S ratio in right sided chest leads is greater than 1 in the youngest and decreases proportionately with increasing age. The timing of the intrinsicoid deflection, however, remains unchanged in these leads, whereas it shows a slight and progressive delay in leads V3 and V4 as the child becomes older. In infants and small children negativity of T wave may extend from V1 to V4. The incidence of negative or diphasic T waves in these leads then decreases in proportion to the advancing age.

Rinzler


This report deals with studies relating to the determination of the angle between certain spatial QRS and T vectors and the angles between their planar projections. A trigonometric method is used for the calculation of the angle between any two spatial vectors, given the angular positions of their projections on two mutually perpendicular planes. An appendix gives the necessary formulas and their derivations.

The determination of the angles between the mean QRS and T vectors from 12 lead electrocardiograms of 20 normal individuals, 18 to 57 years of age, suggests that the upper limit of normal previously given for this determination is too low. Statistical study of the vectorcardiographic data indicates that there was a significant difference in the mean of the angles between the largest spatial and frontal QRS and T vectors obtained with the cube and tetrahedral reference frames. A significant association, as determined by regression, could not be demonstrated for either the spatial or the two planar angles obtained with these two systems. While these findings do not prove conclusively that a significant association might not exist if more cases were studied, it suggests that there would be difficulty in translating from one system to another in a given patient.

Rinzler


The frontal plane vectorcardiogram derived from leads I and aV6 of a case presented by the authors showed ventricular complexes which resembled fairly closely the corresponding complexes of the electrocardiogram. When lead PA (the posterior-anterior lead which is taken at the level of the tenth thoracic vertebra with one electrode at the right posterior axillary line and the other at the right anterior axillary line, and which has polarity such that relative positivity at the anterior electrode produced an upward deflection) was combined with lead I to derive the horizontal plane vectorcardiogram and the precordial complexes derived from the loops, it was revealed that these ventricular precordial complexes differed from those taken directly from the patient.

Because in some individuals the horizontal plane vectorcardiogram may fail to reflect changes which are recorded by the precordial leads of the electrocardiogram, the authors conclude that the usefulness of the vectorcardiogram is limited and may not equal that of the conventional electrocardiogram.

Rinzler


The effect of various surfaces on the direct ballistocardiogram were studied. It was found that hard, flat surfaces were less desirable than one of relatively nonelastic material which fitted the contour of the body. The evidence for this was as follows: In certain healthy, young men, grossly
abnormal patterns were observed on the table and floor, but became normal with the subject in sand or putty. Alterations in the area of contact between the back and the table made by alterations of the positions of the arms resulted in well-marked changes in the ballistocardiogram; these changes were not observed in sand or putty. Cadaver experiments showed a quicker return of body oscillations to the base line, following a standard tap, with an increased vibratory frequency, in some cadavers at least, in the sand and putty as compared to the table and floor. Minor changes in footrest, headrest, etc., caused changes in tracings made on the table.

In the study of the recording apparatus, the authors found that the commercial coil-magnet system using a 25 microfarad capacitor records a mixture of velocity and displacement. However, if physiologic correlation is sought, this might not be desirable. The bellows with air-conduction system to a piezoelectric crystal was satisfactory.

**Rinzler**

Arch. mal. coeur 46: 769 (Sept.), 1953.

In 30 cases of mitral regurgitation (six confirmed during mitral surgery, eight by autopsy, and the rest diagnosed on clinical grounds) the electrocardiographic findings were correlated with hemodynamic, roentgenologic and anatomic findings. The material was divided into two groups according to presence or absence of concomitant mitral stenosis. Cases complicated by aortic valvular lesions or systemic hypertension were excluded.

Three types of electrocardiograms were found, one characteristic for left heart strain in an electrically vertical position, a second characteristic for combined heart strain, and a third which was normal in every respect. The type of the electrocardiographic alteration depends on the dynamic importance of the regurgitation relative to the stenosis present. The pattern of combined heart strain may develop in pure mitral insufficiency when the latter leads to anatomic alteration of the pulmonary vessels and thus to the development of pulmonary hypertension. A normal electrocardiogram does not rule against a significant mitral lesion. It can be found in the presence of marked pressure elevation in the pulmonary artery and apparently is the result of "compensated" (balanced) biventricular strain.

**Pick**


Vectorcardiograms recorded according to the method of Polzer and Schuhfried in 50 cases of myocardial infarction, some with autopsy control, are reported, and patterns typical for various localizations of infarction are illustrated. The observed abnormalities of the QRS loop consisted in a change of the spatial location of the entire loop, in a change from a normally clockwise to a counterclockwise direction especially in the frontal plane, and in marked distortions of the loop contour by abnormal buckles and notchings.

Vectorcardiographic analysis permits the separation, in posterior wall infarction, of a group with more apical (diaphragmatic) location from a rarer group with strictly posterior (basal) infarction. In the former, there is a greater tendency of the initial portion of the frontal loop to deviate upwards and to the left, and to take a counterclockwise direction. Although there was no case where the vectorcardiogram would reveal myocardial infarct not recognizable in a standard electrocardiogram, the authors believe that vectorcardiography is of diagnostic value, especially in cases with equivocal alterations of the conventional electrocardiogram.

**Pick**

**Hypertension**


The effects on renal hemodynamics of oral Dibenzyline sufficient to induce adrenergic blockade were studied in 12 patients with hypertension with and without renal disease, by measurements of glomerular filtration rate (inulin clearance), renal plasma flow (para-aminom hippurate clearance), and maximum tubular excretory capacity. The rates of urine formation, sodium excretion, potassium excretion, and changes in blood pressure were observed. The effects on renal hemodynamics were observed in both the recumbent as well as the tilted position.

In the recumbent position, adrenergic blockade produced a reduction in blood pressure without alteration in renal function. In the tilted position, the reduction in renal function was the same before and after adrenergic blockade. These changes were not related to the degree of renal impairment as measured by glomerular filtration rate.

These results suggest renal autonomous adjustment to decreased filtration pressure, independent of autonomic control or else a specific resistance of the kidney to adrenergic blockade.

The excretion of water and electrolytes in patients with hypertension and associated renal damage is depressed out of proportion to renal blood flow and glomerular filtration rate. This indicates that the effect of tilt on electrolyte excretion in the hypertensive patient is qualitatively similar to the nor-
motensive subject without renal damage and is not affected by adrenergic blockade with Dibenzyline.

RINZLER


Drastic sodium depletion accomplished by a 200 mg. sodium diet plus mercurial diuretics twice weekly caused decreases of more than 10 mm. of mercury in the diastolic blood pressure in 27 of 46 patients with benign essential hypertension. Statistically significant hypotensive effects resulted in about three-quarters of the cases. The hypotensive action was accompanied by weight loss, fall in serum sodium levels, and occasionally, mild manifestations of the low salt syndrome.

BERNSTEIN


This report is concerned with a man aged 23 years who was found to have a pheochromocytoma the size of a hen's egg located anteromedial to the hilus of the left kidney. Sustained elevation of the systolic and diastolic blood pressures had suggested essential hypertension but an elevated basal metabolic rate, a hyperglycemic response to the glucose tolerance test, sweating, eosinopenia and fatigue were considered suggestive of pheochromocytoma. This diagnosis was not sustained by x-ray investigation nor by the responses to tetraethylammonium or Regitin. Measurement of the urinary catechol excretion disclosed definitely increased levels (1010–2400 µg. noradrenaline and 16–19 µg. adrenaline per 24 hour period). Simultaneous measurements showed an average blood level of 3.6 µg. per 100 ml. noradrenaline and a corresponding urinary output of 110 per µg. per hour. After operation the urinary excretion became 1.5 µg. adrenaline and 34 µg. noradrenaline per 24-hour period and the catechol level in the blood was less than 0.2 µg. per 100 ml. The tumor weighed 40 Gm.; it showed 590 Gm. per Gm. noradrenaline and 12 µg. per Gm. adrenaline.

ROSENBAUM


Eighty-two severely hypertensive patients have been treated with various degrees of adrenal resection with and without the limited Adson sympathectomy or the more extensive Smithwick thoraco-lumbar sympathectomy. After a postoperative period varying between 1 and 33 months, it has been observed that 23 per cent have shown an excellent response; in 14 per cent the response was fair; in 32 per cent the results were poor. Twenty-one per cent have failed to survive. Only one has died from uncomplicated adrenal insufficiency. The usual cause of death has been a stroke or a coronary occlusion. Paroxysmal dyspnea or congestive heart failure have been strikingly benefited, even to the point of eliminating the need for digitalis. This appears to be primarily the result of extensive resections of adrenal cortex. The majority of those subjected either to total or subtotal adrenalectomy have required adrenal cortical replacement therapy postoperatively. The indications for operation include three features: (a) an average diastolic blood pressure of 120 mm. of mercury or more; (b) a failure to respond to intensive medical therapy; (c) evidences of progressive vascular damage. Tentative contraindications include any of the following: (a) poor renal function, with excretion of less than 20 per cent of phenolsulfonphthalein 15 minutes after intravenous injection and/or a blood urea nitrogen of over 20 mg. per cent; (b) convalescence from a stroke or coronary occlusion for less than 6 months; (c) age of 55 years or more; (d) inability for any reason to cooperate in taking adrenal cortical replacement therapy. The hazard of acute adrenal insufficiency after operation constitutes an ever present threat, particularly during the summer months. The early symptoms of this syndrome must be recognized immediately and treated promptly in order to prevent an unfortunate outcome. For this reason, this operative procedure should be performed only when a highly integrated team of specialists is available to deal with any emergency.

WENDKOS


These authors outline a method of classifying hypertensive patients depending on level of blood pressure and amount of cardiovascular disease present. Mortalities and survival rates for 1,266 hypertensives treated by thoracolumbar splanchnicectomy and for 457 medically treated control patients are compared. Superior results were had following surgery in all four groups, but best results were obtained in patients who fell into groups 2 and 3. Patients should be operated upon before they fall into group 4 as the eventual mortality for this group is high regardless of the therapy employed. The authors' present method of selection of therapy for hypertensive patients is outlined and is based on the known effect of surgical treatment on prognosis.

KITCHELL

A case of acute psychosis as a result of hydralazine (Apresoline) overdosage in a patient with essential hypertension is reported. This episode was not related to change in blood pressure or renal function. Clinical recovery followed in 12 to 24 hours after withdrawal of the drug. The fact that there was a subsequent severe prolonged depression that was unrelated to hydralazine therapy suggests that the episode may have resulted from a release of basic personality conflicts after the disease stage had been altered by the drug. It is suggested that administration of Apresoline as well as of other agents used in the treatment of hypertension should be discontinued or the dose reduced if personality changes occur.

Kitchell


There is little information concerning splanchnic blood flow after the administration of hexamethonium. The authors studied seventeen patients without evidence of hepatic dysfunction or disturbance of carbohydrate metabolism. Five had essential hypertension. The splanchnic blood flow was estimated by infusing Bromsulphalein and determining hepatic extraction, and by measuring the arterial and hepatic vein concentrations. It was found that in fifteen of the seventeen subjects splanchnic blood flow fell in proportion to the fall in arterial pressure. There was no change in the vascular resistance of the splanchnic area, thus indicating no splanchnic vasodilatation. There was no significant alteration in splanchnic oxygen consumption, glucose output from the liver, and arterial glucose and lactaid acid concentrations. In two subjects, splanchnic blood flow rose and there was a fall in vascular resistance. In short, there was no over-all change in the capacity of the splanchnic vascular bed and it also appears that the fall in blood flow leads to a fall in portal venous pressure without changing the vascular resistance.

Waife


The available data indicate that all forms of hypertension involve both nervous and humoral pressor mechanisms to some extent, although neurogenic hypertension is predominantly nervous in origin and renal hypertension predominantly humoral. Both elements are intermixed in post-desoxytocricosterone acetate and essential hyper-

tension to degrees which appear to vary from one animal or human subject to another.

Of all the varieties of experimental hypertension, the post-desoxycorticosterone acetate syndrome most closely resembles the human disease in its functional as well as in its anatomic aspects. It is notable that no other types of hypertension are as independent of the presence of the adrenal cortex for the continued maintenance of elevated blood pressure.

Of potential significance for the treatment of the human patient is the resistance of post-desoxycorticosterone acetate hypertension to all therapeutic efforts, with the sole exception of hypophysectomy. If this experimental disease is analogous to essential hypertension, the intensive study of the hypophysis and related hypothalamic areas becomes of singular importance.

Wendkos


The effect of intravenously injected hexamethonium on the urine flow, glomerular filtration rate, renal plasma flow and effective renal blood flow, filtration fraction, and calculated renal resistances was studied in two nonhypertensive and 10 hypertensive subjects. Hexamethonium caused marked reduction in urine flow and moderate to marked decrease in glomerular filtration rate. Renal plasma flow and effective renal blood flow were elevated in more than half of the observations and decreased in the remaining ones. The filtration fraction was markedly lowered in all observations. The renal vascular resistances generally were markedly decreased, but showed an increase in some observations. The changes in renal resistances affected all parts of the renal vascular tree about equally.

The decrease in renal plasma flow and the increase in renal vascular resistance, when observed in periods immediately following the administration of the drug, may be a result of transitory activation of a sympathetico-mimetic mechanism by the ganglion-blocking agent. These results and other data reported in the literature do not indicate a detrimental influence of the drug on the kidney. Overdosage of the drug, leading to a too sudden and too prolonged reduction in urine flow, should however, be avoided.

Bernstein

PATHOLOGIC PHYSIOLOGY


Thirteen cases of Paget's disease were studied, including one in which the disease process was inactive. In this patient, the cardiac output was normal. In five active cases, the resting cardiac
output was increased (7.2 to 13.3 L. per minute). In general, the cardiac output was not abnormally elevated in those cases with alkaline phosphatase levels below 45 K-A units per 100 cc., or in those cases with less than 35 per cent involvement of the skeleton by active disease.

The author emphasizes that the occurrence of increased cardiac output in cases of generalized active osteitis deformans is not uncommon. It may be difficult to recognize the high output clinically. The finding of a high phosphatase level does not necessarily imply an associated rise in cardiac output. The extent of skeletal involvement is of at least equal importance in this regard. It is to be borne in mind that an increase in heart size or left ventricular hypertrophy may be a consequence of the high output.

ENSELBEG


Data have been collected dealing with blood gases, oxygen saturation, and acid-base balance in a study of one group of 41 children of both sexes, age 2 to 10 years, another group of 63 boys 11 to 17 years of age, and a number of normal young male adults. Among the findings was the fact that the hemoglobin concentration of the blood increases with age from 12.3 Gm. at age two to 15.8 Gm. per 100 ml. in the adult. In very young children the mean per cent arterial oxygen saturation and the carbon dioxide content of the blood are lower than in the older children and adults. In the 2 and 3 year age group, displacement of acid-base balance from the adult pattern is entirely in the direction of fixed acid excess or metabolic acidosis. Between the ages of 4 and 11, there appears to be a slight acid excess and carbon dioxide deficit. Above the age of 12, the acid-base pattern is shifted toward a slight carbon dioxide excess.

Although available data agree that the alkali reserve of the blood is low in the very young child, and the adult level is not reached until about twelve years or later, a satisfactory explanation must await further experimentation.

WAIFE


The effects of breathing high concentrations of oxygen on the pulmonary hypertension found in mitral stenosis were studied in 13 patients, in 12 of whom the principal lesion was considered to be the stenosis and in one, mitral regurgitation. The administration of pure oxygen resulted in a fall in the raised pulmonary artery pressure in all instances and a significant fall in total pulmonary resistance in 10 instances. There was no correlation between initial arterial anoxia that was present in nine patients and the fall in pulmonary resistance following oxygen. In spite of this, the authors feel that local anoxia caused by pulmonary congestion and edema may at least play some part in the development of pulmonary hypertension in mitral stenosis.

RINZLER


The recording of intra-arterial blood pressure during surgical operations by means of an electrical condenser manometer and a fine plastic catheter provided opportunity for recording pressures during cardiac massage after the onset of ventricular fibrillation in one case and very feeble cardiac action in another. In the first case a blood pressure of 55/20 mm. Hg was attained and in the second, one of 70–75/30. The pulse waves were of a slowly rising plateau configuration.

MCKUSICK


The authors describe their method of simultaneous estimation of effective renal blood flow and circulating blood volume in the normal human body by para-aminohippurate, and also demonstrate that the amount of para-aminohippurate which penetrates into tissue cells can be calculated in the course of the estimation. As para-aminohippurate concentration in plasma and extracellular fluid is perhaps equal in para-aminohippurate equilibrium, they discuss at the same time the probability of calculating the volume of extracellular fluid by ascertaining it in their study.

BERNSTEIN


Using P32 labeled red blood cells, the blood volume was determined in 157 pregnant patients and 34 postpartum patients. The study demonstrated that there was an initial drop in total blood cell volume of approximately 200 cc. during the first two months, followed by a progressive rise to a peak in the ninth month. At the latter period the volume was 270 cc. above the normal nonpregnant value. During the last month before delivery there was a decrease of 170 cc., with a further reduction of 300 cc. during delivery and in the immediate postpartum period.

The plasma volume showed a progressive increase
ABSTRACTS

beginning with the first month of pregnancy and reaching a peak in the ninth month of approximately 1200 cc. above the normal volume. In the period prior to delivery and in the postpartum state, there was a significant drop in volume. From the data, it was felt that a true anemia existed in the first and second trimesters of pregnancy.

Aramon


The authors study 45 cases of left bundle branch block and describe a new electrocardiographic sign which appears only in those cases which are complicated by anteroseptal infarction. This sign consists of a small notch, lasting 0.05 second or more in the terminal part of QRS. It is present only in those chest leads which have a rS or a QS type—usually V2 and V4. This sign was found in 91 per cent of the cases with infarction and in 6 to 9 per cent of those without infarction.

The authors discuss the possibility that a focal block or an inactive area of the septum may cause this notch.

Luisada


Therapeutic doses of digoxin, k-strophansodium and ouabain were given intravenously to sheep whose hearts had been replaced functionally by a double perfusion pump and whose pulmonary and systemic circulations were perfused at constant rates. These glycosides increased mean inferior vena caval, mean superior vena caval and mean hepatic venous pressures; in sheep with intact circulations, however, they caused no significant alteration of systemic venous pressure. Since any cardiac effects were excluded by the constant perfusion, it was concluded that the glycosides have a direct contractive action on the systemic veins. The direct action on venous pressure is probably not the principal action of these drugs, but should be considered in interpreting the many effects of digitalis in the intact animal.

Maxwell


Recovery is rapid after vagal stimulation in guinea pigs, rabbits and dogs. The vagi liberate acetylcholine at a constant rate for a duration of stimulation that exceeded the time for vagal escape. Repeated stimulation of the vagi remained effective in dogs but was easily exhausted in some guinea pigs. In these latter cases eserine, epinephrine or norepinephrine restored the response. Vagal stimulation would bring the heart to a standstill, but acetylcholine would not. The authors suggest that this difference may depend upon intracellular vagal endings as compared with injected acetylcholine which must penetrate from without. Using radiosodium it was shown that the sinoatrial node has a higher concentration of sodium than surrounding tissues. When the vagus was stimulated this difference became less. This disappearance of the difference between node and surrounding tissue was thought to be a sign of a simultaneous decrease of the high sensitivity of the node to acetylcholine.

Oppenheimer


A method is described for the recording of aortic pressure pulses through a needle introduced into the arch of the aorta percutaneously from the suprasternal notch in the neck. The needle used has an outer diameter of 0.9 mm. and an inner diameter of 0.5 mm. It is mounted on a three-way stopcock and supported by a closely fitting cylinder which surrounds its proximal 4 cm. The free distal length of the needle is 10 cm. A stilette is in place until the aorta is punctured. The needle is then connected with a Tybjaerg Hansen manometer by means of a canalized knob and a short Cournand catheter. An infusion of saline-heparin solution is maintained through the needle when recordings are not being taken. The puncture is done with the patient supine, with fluoroscopic control and local anaesthesia. Vigorous pulsations are said to be felt with the needle, usually at a depth of 4 to 7 cm. but when the tip of the needle has been inserted through the aortic wall these vigorous pulsations are no longer palpable. The number of cases in which the procedure has been applied is not given, but it is stated that complications have not been encountered.

Rosenbaum


An attempt has been made to ascertain the extent to which the standard sizes of inflatable cuffs normally available are applicable to children of different ages, presuming that to obtain comparable readings they should enclose two-thirds of the upper arm of the children for whom they are intended.

Mean values for the size of children's arms at different ages are presented, and it was found that
the 10 cm. cuff can be used for all children between 4 and 12 years. Below 4 years only the 5 cm. cuff will fit, but children over 12 years can take the adult cuff.

In those age ranges in which these cuffs departed materially from the requirement of enclosing two-thirds of the upper arm, readings taken with the standard cuff and with a cuff folded to comply with this requirement were compared. The discrepancies, while they varied in individual cases from 0 to 20 mm. Hg, were generally small.

**Bernstein**


In a case of pulsus alternans the various components of the mechanical cardiac cycle were calculated from simultaneous recordings of the carotid pulse curve, the electrocardiogram and the phonocardiogram. The stronger beats were characterized by shortening of the time of isometric contraction and a longer ejection time, while in the weaker beats these values changed in an opposite way. The total time of mechanical systole was longer in the larger beats. Occasional premature ventricular contractions transiently accentuated a pre-existent pulsus alternans. The first postextrasystolic pulse increases in size regardless of whether the premature beat follows a weaker or a stronger contraction.

The author explains these alterations of dynamics in the course of alternating strength of pulse waves by a variety of factors such as alternation of diastolic rest blood volume, variations of initial aortic pressure at the time of onset of ejection, and variations in recovery and conductivity of the myocardium with alternate beats.

**Pick**


Studies in cerebral metabolism were made in 22 patients with chronic pulmonary disease of moderate severity. These were compared with normal controls of the same age, and the effects of mild exercise were studied in some of the patients. In this particular group the mean values for cerebral blood flow, AV oxygen difference, oxygen consumption, and vascular resistance did not differ significantly from the normal controls. No correlation was found between the cerebral blood flow and the arterial pressure of oxygen, or the per cent arterial oxygen saturation. However, a good correlation between the blood flow and the arterial carbon dioxide pressure was found. There was no significant effect on metabolic functions following exercise.

The authors feel that these data demonstrate the relative unimportance of the clinical and spiro-metric severity classification to the cerebral blood flow in chronic pulmonary disease while re-emphasizing the important relationship between the arterial carbon dioxide pressure and the cerebral blood flow.

**Waife**

**PATHOLOGY**


Seven fatal cases of endocardial fibroelastosis are briefly described. In all, left auricular enlargement was demonstrated radiologically and this is considered to be a useful confirmatory sign in diagnosis.

**Bernstein**


Idiopathic myocarditis is a serious, frequently fatal malady occurring usually in the first two years of life. The pathologic lesion consists of widespread but usually patchy muscle damage with an associated inflammatory cell reaction. The common clinical illness is a rapidly developing, usually fatal cardiac failure which is manifested by severe respiratory embarrassment, cyanosis, tachycardia with low or normal temperature, an enlarged heart and liver, and electrocardiographic changes of myocardial damage.

The illness in some patients may be more insidious in onset and the heart failure not so severe. Recovery frequently occurs after a long illness, but there is permanent myocardial damage. The acute form of the disorder is commonly mistaken for pneumonia, since respiratory embarrassment and cyanosis are the outstanding clinical features and cardiac enlargement is difficult and frequently impossible to detect clinically. Treatment with digitalis and oxygen has been of very definite value in some patients.

**Bernstein**


Two fatal cases of acute isolated myocarditis occurring in newborn infants are described. The lesions in the myocardium were focal in distribution and showed a peculiar degenerative change limited to the sarcoplasm of the affected muscle fibres. The relationship of this parenchymatous lesion to the more common interstitial type is discussed. There was no response to treatment with various antibiotic agents.

**Bernstein**
PHARMACOLOGY


There appears to be an increase in the number of patients who require resuscitation. The subject should be given thought because the delay of only a few minutes in beginning treatment may make the difference between a dead or disabled patient and a living and well one. Techniques of cardiac resuscitation are discussed. The construction of defibrillator equipment is gone into carefully, and the author lists the necessities for the construction of a resuscitation kit and its adjuncts. He gives an outlined form pointing out all the instruments and drugs necessary or useful in cardiac resuscitation. It is felt that such a resuscitation kit and adjunct equipment should be available for instant use in operating rooms and wherever necessary on each ward or area in the hospital where it might be needed. At any rate, it would be wise to keep the complete kit and adjunct equipment in readiness at some central point in every hospital. One might have to depend on mouth to mouth breathing to maintain respiration until the equipment can be brought to the patient.

Kitchell


In a clinical study using ambulatory cardiac patients with congestive heart failure, the authors observed the effects of treatment of fluid retention with an oral mercurial diuretic, Mercumatilin (Cumertilin). Each tablet contains the equivalent of 20 mg. of mercury and the dosage employed ranged from 1 to 5 tablets daily. No significant toxicity was recorded except looseness of the bowels which disappeared without stopping the drug. In 15 of 20 patients with heart failure resistant to digitalis and salt-free diet, addition of the oral mercurial maintained compensation. Supplements of parenteral mercurials were required in the other five patients. This oral preparation appears to be a safe and effective agent in the treatment of congestive heart failure.

Shuman


The purpose of this study was to investigate clinically a new oral mercurial diuretic, 3-chloromercuri-2-methoxypropylyurea (1347 EX) (Neohydrin).

The response of each patient to the oral mercurial was classified as "good" if the parenteral mercurial was completely replaced or required infrequently. Ten of the 15 patients were classified in this group. A "fair" response consisted of partial replacement of the oral preparation or an uncertain "good" response. Five patients fell into this category. In none of the patients included in this study was there a "poor" result, and that consisted of total ineffectiveness of the drug.

The dosage of Neohydrin was found to average three tablets daily for replacement during the first week or two of therapy and one to three tablets daily for maintenance. All the tablets were usually taken with meals, but there were no complaints of intolerance if ingested on an empty stomach.

Untoward effects including stomatitis, severe diarrhea, cramps or vomiting were not encountered in any of the 15 patients in this study. In two other patients not reported in this study, cramps and diarrhea did occur. All patients were cautioned to exercise good hygiene.

Albuminuria was noted in 5 of 10 patients tested, and a slightly elevated serum urea nitrogen was observed in 3 of 9 patients examined. Neither the albuminuria nor azotemia could be attributed to the oral mercurial. In the nine patients on whom electrocardiographic and hematologic examinations were performed there were no changes that could be ascribed to the Neohydrin.

Mintz


Orange of acridine caused a progressive decrease of systolic contractions and finally a systolic arrest in the isolated frog heart. When studied in heart-lung preparations of dogs or cats, this drug decreased the volume of a previously diluted heart. Doses of 15 to 50 mg. per kilogram were followed by electrocardiographic changes similar to those of digitalis. Doses of 70 mg. in the heart-lung preparation were able to overcome spontaneous heart failure, not that caused by barbiturates.

It should be noted that orange of acridine has a chemical structure quite different from that of digitalis glycosides. Its cardiac action is independent of any vagal effect.

Luisada


Control subjects and patients with peripheral vascular disease received intravenous injections of vasodilator drugs under controlled environmental conditions with measurements being made of digital cutaneous blood flow, cardiac output, pulse rate and blood pressure in a search for an agent
which would produce selective vasodilatation of the
digital skin. Of the three drugs tested, Peniomiode
(BA-9295) caused significant increases in the
digital blood flow in the majority of subjects without
evidence of having produced vasodilatation else-
where. Its action was not accompanied by a hypo-
tensive effect or a change in cardiac output such as
occurred with pentamethonium (C5). BA-9295
may be a useful drug in the treatment of peripheral
arterial disease.

SHUMAN

PHYSICAL SIGNS

Bean, W. B.: Precordial Noises Heard at a Distance
from the Chest. J.A.M.A. 152: 1293 (Aug. 1),
1953.

A variety of clinical conditions which may be
associated with precordial sounds heard by the
unaided ear at a distance from the chest is assembled,
compared, and assessed. The commonest causes of
such sounds are cardiac murmurs produced by
valve rupture or other lesion, interstitial mediastinal
and pulmonary emphysema, spontaneous and
traumatic pneumothorax, pneumopericardium, and
a small mysterious miscellany of unexplained sounds.
The noises considered have diverse sources and
there is no physiological common denominator.
With such differences in cause, in treatment, and
in prognosis, the attention should be directed to
the cause which usually comes to light on careful
clinical scrutiny.

KITCHELL

PHYSIOLOGY

Grette, K.: Micromethod for the Determination
of Calcium and Magnesium in Serum. Titration
with Ethylene-diamine-tetraceta. Scandinav.
J. Lab. & Clin. Investigation 5: 151 (no. 2),
1953.

A micromethod is described whereby the calcium
and magnesium in 0.05 ml. of serum is determined
by titration with ethylene-diamine-tetracetae with
the dye Eriochrome Black T as the indicator. The
sum of calcium and magnesium in the serum is
determined by direct titration. Calcium is then
determined after precipitation as oxalate. The
oxalate is decomposed with perchloric acid making
the calcium directly titratable. The difference
between the two titrations represents the mag-
nesium. The method is said to show an accuracy for
calcium of 1 per cent and for magnesium of 5 per
cent.

ROSENBAUM

Gifford, R. W., Estes, J. E., Code, C. F., Baldes,
E. J., and Roth, G. M.: Study of Movements of
Cutaneous Interstitial Fluids in Human Beings
by Means of a Fluorescent Tracer Substance.

The present study is concerned with the photo-
fluorometric determination of the rate of disap-
pearance of a fluorescent tracer (Riboflavin) after
its intradermal injection. This method enables
one to study the flow of interstitial fluid in human
beings.

The disappearance of riboflavin after its injection
in the skin of the legs of 20 normal persons was
studied under basal conditions. These results were
compared with those obtained after subjecting the
same persons to various experimental conditions
designed to alter the flow of tissue fluid.

An increase in the rate of disappearance of ribo-
flavin, considered to indicate increased flow of tissue
fluid, was observed in normal persons in a warm
environment and after local injections of histamine.
A slow disappearance of riboflavin, considered
to indicate a slower rate of flow of tissue fluid, was
observed in normal people in a cold environment,
after local injections of epinephrine, and when the
limb in which the injection was made was dependent
or obstructed by the inflated cuff of a sphygmoma-
nometer. No significant changes were observed in the
flow of tissue fluids in the skin of the lower ex-
tremities of patients suffering from chronic occlusive
arterial disease. The disappearance of riboflavin
was more rapid in the skin of edematous extremities.

MINTZ

Tyrer, J. H.: The Actions of l-Adrenaline and dl-
Noradrenaline on the Pulmonary Circulation of
Artificially Perfused Sheep. Quart. J. Exper.

Both l-adrenaline and dl-noradrenaline caused a
rise of mean pulmonary artery pressure in sheep
artificially perfused at a constant rate thus confir-
mimg work on other species. Tachyphylaxis was
encountered in the pulmonary artery pressor
response to both drugs, but not in the aortic pressor
responses. Synthetic l-adrenaline had a slightly
weaker pulmonary artery pressor effect than did
twice the dose of dl-noradrenaline.

MAXWELL

Rodbard, S.: Bronchomotor Tone. A Neglected
Factor in the Regulation of the Pulmonary

By analyzing the factors regulating pulmonary
blood flow, the author reviews the physiology of
respiration and calls attention to extravascular
mechanisms in the approach to the general physi-
ology of the pulmonary circulation. His thesis is
that the regulation of intra-alveolar pressure, which
is in part effected by the (extravascular) broncho-
omotor apparatus through nervous and humoral
impulses, plays a far more important role in the
regulation of blood flow through the lungs than is
generally appreciated. In particular, the hydro-
dynamic balance in the alveolar capillaries during
pulmonary edema, chronic cor pulmonale, and congestive heart failure is analyzed.

HARRIS

RHEUMATIC FEVER


The substance in serum which reacts with diphenylamine to give it a purple color has not been identified. Under certain conditions its concentration increases in the blood stream. One of these conditions is a sterile inflammatory reaction, such as rheumatic fever in man and anaphylactic arthritis in the guinea pig. In the latter, when a single experimental lesion is produced the substance reaches a peak concentration in the circulation about 24 hours after the onset of inflammation. In rheumatic fever the peak appears to coincide with or follow shortly the height of rheumatic activity. The concentration of the reactive material in the blood stream, as detected by the diphenylamine reaction, appears to be conditioned by the intensity of the inflammatory process.

During this and related studies it has been observed that: (a) connective tissue is a rich source of the diphenylamine-reactive substance; (b) an inflammatory disease of the connective tissue, rheumatic fever, is accompanied by an increased concentration of this substance in the blood; and (c) increased concentration of similarly reacting material is observed in the blood when the tissues around the guinea pig joint are injured by an anaphylactic reaction.

BERNSTEIN


The author reviews the literature on the histology and pathogenesis of the Aschoff body in correlation with his own investigations. The Aschoff nodule is a form of granuloma with a specific histologic structure and is characteristic of rheumatic infection. The type of primary tissue damage which precedes the formation of the granuloma has not yet been established. Apart from fibrinoid degeneration of connective tissue, primary necrosis of muscular tissue has to be taken into consideration. The subsequent cellular reaction serves to remove the necrotic tissue. The characteristic cells are large basophilic elements, considered by the author to derive from histiocytes, which later change to the "Anitschkow cells." The latter, therefore, are not myocytes, but "cardiohistiocytes," that is interstitial cells specific for cardiac tissue, but not specific for the rheumatic process. The same type of cells may be found in the myocardium as well as in the endocardium and pericardium in a variety of pathologic conditions, such as subacute bacterial endocarditis, healing infarcts and traumatic lesions.

From the viewpoint of etiology, the author's conclusions are in keeping with the opinion of others who consider acute rheumatism a streptococcic infection leading to allergic tissue reactions.

PICK


The author describes a type of treatment for rheumatic fever which is said to be a complex antiinflammatory, desensitizing, aspecific, antiallergic, antihistaminic, capillary permeability reducing therapy. It consists of (1) aminopyrine, antihistaminic substances and calcium, (2) exclusion of any biologic or pyretogenous stimulant therapy, (3) rest in bed over a long period, and (4) continuous oxygen therapy for two to three weeks. It is stated that 50 successive patients, suffering their first attack, who were treated in this way, recovered quickly and without valvular lesions. No new cardiac lesions and no aggravation of those already present were observed in 156 cases of relapses of rheumatic fever. The importance of early diagnosis and early intense therapy is stressed.

ROSENBAUM


The skin reaction caused by smearing a thin layer of Trafuril ointment (tetrahydrofurufuryl nicotinic acid ester) on the volar surface of the forearm was studied in various rheumatic diseases and in normal subjects. A positive result consists of the appearance of erythema and swelling, surrounded by an inflamed ring. Positive reactions occurred in nearly 96 per cent of 69 control subjects. More than two-thirds of a group of 255 patients with various forms of chronic arthritis showed negative reactions. There were no cases of rheumatic fever studied, but the author predicts that the reaction during the active period will be negative, becoming gradually positive as the subject improves. Treatment with cortisone and corticotropin tends to make the reaction stronger. More positive reactions were observed in patients with rheumatoid arthritis during reactions to gold therapy such as esinophilia and dermatitis.

ROSENBAUM

SURGERY IN HEART AND VASCULAR SYSTEM


Five patients with a variety of neurologic deficits
were subjected to a right carotid-jugular anastomosis for periods of from 4 to 24 months. Cerebral angiograms revealed no revascularization of the brain. No significant improvement in cerebral function was noted. Undesirable side effects were common, although usually reversible if the shunt was eradicated. The authors recommend that the procedure be abandoned.

WESSLER


The anomalous vein draining the entire left lung was found to empty into the left innominate vein at the apex of the thorax. The entire veinous trunk was mobilized, as was the left pulmonary artery. A clamp was placed on the left pulmonary artery to prevent congestion of the lungs while the venous outflow was obstructed. It was apparent that the left auricular appendage was of such size that its removal would leave a defect in the left atrium approximately the size of the anomalous vein. A Satinsky clamp was placed on the auricular wall below the base of the auricular appendage. The appendage was then excised, leaving an oval defect in the auricular wall. Digital exploration of the left auricle through this defect revealed only one venous orifice within the auricle; from its position, it appeared probable that this was the common orifice of the right pulmonary veins. A small auricular septal defect, about 1 cm. in diameter was noted.

After the clamp was replaced on the auricular wall, an anastomosis was made between the anomalous trunk and the left auricle. The thin-walled vein was sutured accurately to the endocardium of the auricle rather than to the full, somewhat thick auricular wall so as to assure a smooth surface across the line of attachment. When all clamps were removed, the trunk made a smooth curve over the hilus of the lung and lay in its new position without tension or kinks. Flow through the anastomosis appeared to be excellent.

Simon


Ligation of the inferior vena cava, common iliac or superficial femoral vein was performed in 21 male patients for a postphlebitic syndrome or an acute phlebitic process with or without pulmonary infarction.

The authors conclude that ligation of major veins to prevent recurrent episodes of pulmonary infarction is a life saving procedure and is usually not followed by enough disablement or impairment of function of the extremity to prevent the patients from returning to their previous or to an adequate means of livelihood.

Major vein ligation in the presence of an acute thromboembolic process carries with it less disability than similar procedures in patients with a postphlebitic syndrome.

WESSLER


The causes of injury to the pulmonary vessels during pulmonary resection are described and methods for their prevention, for the control of hemorrhage and for repair of the injured vessels are outlined. From an experience involving more than 250 pulmonary resections, 11 cases are reported in detail in which pulmonary vascular injuries were repaired.

WESSLER


The indications for mitral commissurotomy are described and listed as follows: "Exertional dyspnea, orthopnea, paroxysmal nocturnal dyspnea, hemoptysis, peripheral emboli, congestive failure and episodes of paroxysmal arrhythmia." These have constituted the authors' cardinal indications for operation. Likewise, the contraindications to mitral commissurotomy have been listed. They are: "Active rheumatic fever, subacute bacterial endocarditis, and significant left ventricular enlargement." Thirty-four cases are described in which finger fracture valvuloplasty was done on 28 cases with no deaths; in the group taken to the operating room six additional cases were not operated on with three deaths in this group. Preoperative preparation, anesthesia, surgical technic and postoperative results are presented. Three situations were encountered in which mitral valvular commissurotomcy could not be performed for technical reasons. These are: obliteration of the auricular appendage by thrombus, massive calcification of the valve and valve ring, and a giant left auricle. It is pointed out that the role of surgery in mitral stenosis is not definitive but only palliative. This palliation may be extraordinary in degree or minimal in character. Every one of these patients has rheumatic heart disease after operation as well as before, and the role of surgery must be appraised as a component factor in the over-all, long-term management of the rheumatic cardiac.

Dennison

VASCULAR DISEASE


The inhalation of 5 per cent carbon dioxide results in a marked and selective cerebral vasodilatation in normal young individuals and results in an increase in cerebral blood flow. Using the nitrous oxide technic, these authors studied the effect of carbon dioxide in patients with vascular disease. Normotensive individuals were compared to elderly arteriosclerotic but normotensive individuals, hypertensive individuals without evidence of arteriosclerosis, and subjects with hypertension and arteriosclerosis.

The results indicate that the normotensive arteriosclerotic subjects fail to show a significant decrease in cerebrovascular resistance although the blood flow is increased slightly. A small group of patients with essential hypertension responded normally to carbon dioxide inhalation when hypertension and arteriosclerosis coexisted. The severity and diffuseness of the arteriosclerosis appears to be much greater, and there is an increased persistent vascular tone. The net effect is a great increase in cerebrovascular resistance with a marked reduction in cerebral blood flow and oxygen consumption.

The authors suggest that this technic may provide a convenient means of estimating and associating the components of increased cerebrovascular resistance.

Waipe


Distinction should be made between the two types of anomalous pulmonary venous connection, namely total and partial. In total anomalous connection, both right-to-left and left-to-right shunts are present, whereas partial anomalous pulmonary venous connection is responsible for a left-to-right shunt only. Prognosis is usually poor in the total form; the majority of patients who have such an anomaly die in infancy. The prognosis in partial anomalous pulmonary venous connection is generally good; many patients who have this form of anomaly reach adult life.

The developmental basis for anomalous pulmonary venous connection into a systemic thoracic vein, into an abdominal vein or into the lower portion of the right atrium depends on retention of an embryonic connection which is normally lost, coupled with failure of the developing pulmonary veins to make the normal secondary connection with the heart. In those cases in which the anomalous pulmonary venous connection is with the upper aspect of the right atrium, the malformation may depend on abnormal positioning of the atrial septum.

Simon


Problems encountered in the diagnosis of partial anomalous pulmonary venous drainage are not solved readily by clinical methods or by the usual cardiac catheterization technics. Diagnosis of such conditions by demonstration and localization of the site of arterIALIZATION in the right atrium or its tributaries is greatly facilitated by the use of the cuvette oximeter. However, when the anomalous vein connects directly with the right atrium, differentiation from atrial septal defect is often a difficult problem, even when the catheter is manipulated successfully into the vein.

Differences in the recorded patterns of dilution of an indicator (T-1824) during its initial circulation after injection into a pulmonary vein and the venae cavae or into the left and right pulmonary arteries will demonstrate the presence or absence of functional anomalous venous drainage resulting from abnormal venous connections. However, in patients who have atrial septal defects and extremely large pulmonary flows, it often can be demonstrated that blood draining from the right lung is shunted preferentially across the defect. In such cases, a much greater degree of functional anomalous pulmonary venous drainage may occur from the right lung than from the left without the presence of an anomalous venous connection; the possibility of an anomalous vein cannot usually, however, be completely excluded.

In patients who have atrial septal defects, it is often possible by means of dilution curves recorded following injection of dye into the right atrium or the venae cavae to demonstrate right-to-left shunts of a magnitude too small to cause demonstrable desaturation of arterial blood. In a portion of such patients, dye curves recorded following injections into the venae cavae demonstrate that the proportion of blood draining from the inferior vena cava, which is shunted from right to left across the defect is larger than the proportion of similarly shunted blood draining from the superior vena cava.

Simon


During the course of an investigation of the local effects of carbon dioxide on peripheral blood vessels, small quantities of gaseous carbon dioxide were
Six cases of dissecting aneurysm are reported and variations in the clinical picture are discussed. The aneurysm is caused by bleeding from the vasa vasorum into a weakened and degenerated media. Weakening of the media may be causally related to congenital malformations, chemical or hormonal disturbances and atherosclerosis. When dissection starts with an intimal tear, hypertension is an important contributing factor.


Studies were made in 18 cases of active osteitis deformans. Peripheral blood flow was measured in 21 out of 23 affected limbs, using a venous occlusion plethysmograph. Estimations of bone blood flow were also made in four cases. In all of the foregoing, evidence of increased blood flow was found. It was also noted that skin temperatures were increased in areas overlying actively diseased bones, and that these temperatures did not fall on exposure. On the other hand, areas on affected limbs not overlying the diseased bones showed normal skin temperatures which did fall on exposure. Intravenous injection of epinephrine resulted in a fall in blood flow in two affected limbs, indicating constriction of bone blood vessels. An increase in bone vascularity in the active phase of the disease was demonstrated by bone biopsy and by autopsy studies. These indicated that the increased flow through bone was chiefly by way of an increase in periosteal plexus flow and to a lesser extent by increased flow through the nutrient artery.


These studies are in accord with those of others who were unable to demonstrate an increase in blood flow after intermittent venous occlusion. Venous occlusion for five minutes with a pressure of 40 mm. of mercury in normal and atherosclerotic subjects resulted often in a decrease in blood flow.

Directional limb compression using 13 cuffs was not effective in increasing the skin temperature, the pulse volume or the blood flow of the toe, regardless of the direction of compression, even though these patients showed considerable vasodilation following alcohol and heat. In two patients lymphedema was decreased. Such changes were observed after 30 minutes of treatment with the direction of compression upward. This beneficial action on lymphedema may have occurred locally by means of the increased external pressure on the tissues and the stripping of the lymphatic vessels of their contents without

McKusick


Cerebral vascular reactivity to carbon dioxide is high in normal adult people of all age groups, and there is only gradual reduction in reactivity with the normal aging process. In severe cerebral vascular disease, cerebral vascular reactivity to carbon dioxide is greatly reduced. The response to carbon dioxide is altered by thiopental anesthesia deep enough to reduce the cerebral metabolic flow by 40 per cent. Cerebral vascular reactivity to carbon dioxide can be utilized to separate certain patients with senile dementia due to primary parenchymal brain damage from those with dementia secondary to cerebral vascular disease. A normal high increase in cerebral blood flow after carbon dioxide makes the diagnosis of generalized cerebral vascular disease highly improbable while a poor response may or may not indicate its presence.

Harris


The authors reported on the treatment of 77 consecutive vascular injuries sustained in the Korean war. The lesions were divided into those affecting either minor or major arteries. Thirty-two occurred in the upper extremity and the remainder in the lower.

With regard to therapy, lesions of minor arteries were ligated unless it was obvious that such a procedure would result in arterial insufficiency and gangrene. All major vascular injuries were repaired without regard to the size of the defect and the length of time between wounding and operation. The procedure consisted either of transverse suture anastomosis, end-to-end suture anastomosis or the use of vein grafts.

Of the 43 minor vascular injuries treated, gangrene, requiring amputation, occurred in five patients. In the case of the 34 major vascular injuries, only three extremities were amputated. Because of the good results obtained in the latter group, it was recommended that in every instance attempts should be made to repair an acute major arterial injury.

Abrahamson
producing general changes in lymph circulation. Further studies are indicated.

Bernstein


Using a negative suction test to determine capillary fragility, the authors found a higher incidence of positive tests in older patients. Patients with diabetes mellitus and hypertension or other vascular diseases showed an extremely high incidence of positive capillary fragility tests. All patients with hypertension as well as those with arteriosclerotic disease without hypertension showed a moderately high incidence of positive fragility tests.

Harris


The author attempted to determine whether there was any difference between arterial disease occurring in diabetics and in nondiabetics. The study was carried out in 100 unselected diabetics and in 52 cases of gangrene. On the basis of the analysis of his results the author arrived at certain conclusions.

First, the severity of the diabetes bore little relation to the occurrence of arterial disease. Secondly, arteriosclerotic disease of the legs in diabetics was associated with the early appearance of gangrene, while in nondiabetics, intermittent claudication commonly preceded such an event. From such findings it was concluded that in diabetics with arterial impairment, the femoral and popliteal arteries were relatively unaffected, while the brunt of the lesion fell on the more distal vessels.

Abramson


The author describes a modification of the technic used in the venographic study of the valves in the deep venous system. This consists of the addition of the Valsalva maneuver to the method of ascending venography. A small cut-down is made over a suitable vein on the dorsum of the foot and a polythene catheter is passed up the vessel for 1 cm. The catheter is connected with a simple positive-pressure saline infusion apparatus, controlled by a sphygmomanometer. A rubber tube is applied around the lower portion of the leg, in order to occlude the superficial venous system, and 50 cc. of 35 per cent Diodone are injected through the catheter. With 10 cc. of the radio-opaque material still in the syringe, the patient performs the Valsalva maneuver which consists of closing his lips, holding his nose and exhaling forcibly. This step tends to force the material backward and in so doing it visualizes the normal valves. If the latter are incompetent, they will not be demonstrated by such a measure. By use of Valsalva blowing by the patient, the contrast medium can be retained in the region being examined so as to permit the veins to be studied individually. Through this technic, incompetent communicating veins can also be readily identified.

Abramson


A case report is presented of an aneurysm of a pulmonary artery which was successfully treated surgically. Initial examination revealed a loud systolic murmur heard over both sides of the upper and anterior part of the thorax, being slightly more intense on the left side. At times it was continuous, particularly at the end of deep inspiration. Roentgenograms demonstrated a vascular anomaly in the upper lobe of the left lung which was considered to be a large vessel. Oximetric studies appeared to exclude pulmonary arteriovenous fistula.

When surgical exploration was carried out, a large pulsating mass was found. In order to remove it, the upper lobe of the left lung was excised. The patient made an uneventful recovery. Examination of the specimen revealed fusiform dilatation of the pulmonary artery to the upper lobe. Injection of the vascular tree did not demonstrate any evidence of an arteriovenous fistula.

Abramson


After reviewing the various methods utilized in the treatment of varicosities, the author described a relatively new procedure. Using a nonabsorbable suture material, he passed subcutaneous ligatures around incompetent veins at various levels. In each instance, two nicks were made in the skin, one on each side of the vessel. A large circle needle, threaded with braided nylon, was passed, blunt end first, through one nick, then under the vein and out the other, leaving the ligature in its track. It was rein-stated, blunt end first, through the second nick and passed under the skin but over the vein, to emerge through its original point of entry. The two ends of the ligatures were then pulled backward and forward once or twice, to enable the suture material to slip through the fat around the vein, and tied tightly with three hitches. When the free ends were cut off and the skin straightened, the knots disappeared under the skin.

Coupled with high ligation, multiple ligature was found to give better end results than the other commonly used procedures. However, it was necessary to use many ligatures in order to accomplish the desired aim. The procedure was not complicated by the delayed healing and minor sepsis which may follow multiple incision in the leg. Furthermore, no
visible scar was produced. Another advantage was that the method was much shorter than the use of incisions.

**ABRAMSON**


Attention is called to the use of venography in elucidating the problem of ulceration associated with the postphlebitic syndrome. With the aid of the Valsalva modification, this procedure is of value in demonstrating the presence of incompetent deep venous channels following acute deep thrombophlebitis. It is also important in outlining incompetent communicating veins which may in great part be responsible for the existence of ulceration by maintaining a state of venous stasis in the involved region. As a result of such information, proper surgical therapy can be instituted to rectify the unphysiologic state and hence contribute to permanent healing of the nutritional disturbance.

**ABRAMSON**


The patient who is the subject of this report was considered on preoperative examination to have an anomalous left pulmonary vein draining the blood of the entire left lung and emptying into the left innominate vein. This anomalous vein was transplanted successfully into the left atrium. The patient’s convalescence was marred only by transient bronchopneumonia that appeared two weeks after operation. Postoperative cardiac catheterization revealed normal blood-oxygen saturation values in the superior vena cava and right atrium. The systemic cardiac output at this time was 9.0 liters per minute and the pulmonary flow was 10.4 liters per minute. This difference perhaps is indicative of a small left-to-right flow through the atrial septal defect.

When the patient was dismissed, the cardiac auscultatory findings were normal and no murmurs were heard. Thoracic roentgenograms, taken three weeks and five months after operation, showed some diminution in the size of the heart and the mediastinal vascular shadow. A follow-up examination five months after dismissal, revealed that the patient’s fatigability and dyspnea on effort had disappeared and that he felt normal. His tolerance to exercise had improved considerably.

**SIMON**


The serious consequences of this vascular anomaly are not caused by abnormal pulmonary function, but rest largely on the increased burden to the right side of the heart. When pulmonary recirculation occurs, the right ventricle must maintain a pulmonary arterial flow equal to the systemic output plus the volume of blood that is recirculated.

A clinical study has been made in two cases of partial anomalous pulmonary venous connection in association with other unusual defects. The findings in one case were typical of anomalous pulmonary venous connection with anomalous drainage. In the second case, an anomalous connection was present; however, since the blood from the anomalous vein ultimately emptied predominantly into the left atrium, actual anomalous drainage was not present. The value of cardiac catheterization and the arterial dye-dilution technic after injection of T-1824 into various cardiovascular sites for the elucidation of these diagnostic problems is emphasized.

**SIMON**


With improved surgical methods for the direct treatment of arterial aneurysms—by excision, grafting, bypassing and wrapping—the need has arisen for more extensive study of these problems in the experimental laboratory. This work has been hampered, however, by the lack of a satisfactory method for the production of aneurysms in experimental animals. In performing necropsies upon patients who have been treated by intra-arterial nitrogen mustard for advanced malignancy, it was observed that small aneurysms are sometimes found at the site of injection of the mustard. Following this suggestion, solutions of nitrogen mustard of varying strengths were injected in the walls of dogs’ aortas. It was found that destruction of the media resulted in aneurysmal dilatation of the vessel wall, leading to rupture of the aorta within 4 to 28 days, depending upon the concentration of the necrotizing agent. This method of aneurysm formation has several advantages. The lesions are produced easily within a short period of time. They form with constancy and rupture consistently so that an end point is provided for experimental procedures aimed at their prevention or treatment. The principal disadvantage of the method has been the fact that the degree of dilatation in most instances is not great, since rupture occurs early.

**DENNISON**


On the basis of anatomic studies in cadavers, the author reached some conclusions regarding the arterial blood supply of the muscles in the lower extremities. He found that certain characteristics of this portion of the vascular tree were responsible for the vulnerability of local muscle groups to ischemia. First, the circulation to a muscle was found to
be an isolated unit, the nutrient artery having no substantial connection with vessels of neighboring structures. Secondly, when the muscle arteries were multiple, they frequently entered at one localized site, where injury could readily involve all of them. Furthermore, no anastomoses were present external to the muscle between a number of arteries supplying it. The lack of significant collaterals for the muscle arteries was considered to be one of the factors responsible for the frequent absence of amelioration of claudication after sympathectomy.

**Abramson**


The clinical picture of persistent left superior vena cava draining the pulmonary veins is described and illustrated by four individuals—an infant, and persons aged 24, 24, and 13 years respectively. The general development of the patient may not be affected. Dyspnea may be the only important symptom. Physical examination shows a right ventricular cardiac impulse, accentuation of the pulmonary second sound with expansile pulsation and a diastolic shock palpable over the pulmonary artery. A systolic murmur is present to the left of the sternum and, at times, so too is a diastolic. A mitral systolic murmur may also be heard. The electrocardiogram shows right bundle branch block. X-ray shows a large ovoid shadow in the superior mediastinum enveloping the aorta and pulmonary artery. Angiocardiography may demonstrate the abnormal course of circulation and catheterization, and the highly oxygenated blood in the left innominate vein and right superior vena cava. Prognosis depends upon the amount of blood diverted to the right atrium.

The only radical treatment is anastomosis of the left superior vena cava or of the innominate vein to the left atrium or its appendage.

**Soloff**


The author studied the peripheral vascular system by means of injected radio-active iodinated albumin and a scintillation counter. The changes in the scintillation count in the extremities of an individual after the smoking of cigarettes was used as a direct indicator of volumetric change in the extremity. The author reaches the conclusion that men and women are not equally sensitive to tobacco smoke, and approximately one out of every five persons does not receive sufficient nicotine to effect the peripheral circulation in the standard test period (the smoking of one cigarette over a period of four minutes). It was felt that some persons tested did not inhale and that possibly it is the method of smoking rather than the effect of smoking that causes a lack of change in some individuals. Vaso-

**Kitchell**


The author reports on the use of 6 or 10 per cent aqueous phenol for sympathetic block in 400 cases of circulatory disorders in the extremities. Lasting effects are achieved because the phenol produces a destruction of the ganglion cells. The technic of lumbar and thoracic injections are described in detail. Although the method is not as reliable as open operation in securing sympathetic denervation, a very complete sympathetic interruption is obtained in two-thirds of the cases. Injection of phenol is indicated particularly in patients in whom the local lesion would benefit from a sympathectomy but in whom a poor general condition precludes surgery. Injections of phenol have been of benefit in arterio-sclerotic ischemia of the foot, intermittent claudication, erythrocytosis, Raynaud's disease, acute thrombophlebitis, postphlebitic syndrome and hyperhidrosis. About 10 per cent of patients develop hyperesthesia in the groin after lumbar injection from irritation of the genito-femoral nerve. About 20 per cent of patients develop intercostal neuritis after cervicothoracic injection though the neuritis is usually mild and of less than two months' duration.

**Wessler**

**OTHER SUBJECTS**


Dehydration is a common finding in two otherwise distinctly different syndromes. The water depletion syndrome is recognized from its signs of thirst and oliguria. The dehydration incident to salt depletion is not readily recognized because of the absence of signs and symptoms commonly accepted as being typical of dehydration. The mixed type of dehydration evokes the signs and symptoms of a water depletion syndrome and not those of a low salt syndrome.

Sodium concentration of the blood is an exceedingly poor indicator of the severity or even the presence of dehydration. Urine volume together with
its salt can be utilized to exclude dehydrated states as well as to indicate the possibility of their presence.

**Bernstein**


After measuring the myocardial extraction and usage of glucose, lactate and pyruvate in 53 patients with and without cardiac failure and then estimating the relative contribution of their catabolism to the oxidative metabolism of the heart (the oxygen extraction ratio) and the conversion of oxidative energy from these carbohydrates into cardiac work (the energy conversion factor), the investigators found that the total aerobic metabolism of these carbohydrates fell short of the total oxygen consumption of the heart. These data indicate that the heart, for provision of energy, uses either heart muscle glycogen or noncarbohydrate substances, the latter being more likely. Spontaneous rises in arterial glucose and lactate concentration were followed by an increase in their myocardial extraction and usage. At glucose blood concentrations above 110 mg. per cent no further uptake of glucose by the myocardium was noticeable. When the arterial blood glucose concentration was suddenly raised, as the result of infusion, an upper limit of glucose extraction appeared to be absent. This might have resulted from glycogenesis as well as increased oxidation of glucose. Pyruvate was utilized by the human heart.

In low and high output failure, myocardial glucose and lactate extractions and the glucose and lactate oxygen extraction ratios were elevated; the glucose and lactate energy conversion factors were lowered. This indicates that the hyper- and hypokinetic heart in failure has become deficient in converting the energy derived from the aerobic breakdown of glucose and lactate into mechanical work.

**Harris**


Two cases of long standing and massive pericardial effusion, proved by pericardial paracentesis, and belatedly recognized to be due to myxedema are described. Three years prior to admission to the hospital the patient had been given a six weeks' course of streptomycin therapy on the presumption that she might have had tuberculous pericarditis. For two years prior to admission the patient had noted some mental slowness and memory defect. Dryness of the skin had been present for three or four years. Physical examination revealed findings consistent with pericardial effusion; no murmurs were heard; the liver was slightly enlarged; there was no ascites; moderate bilateral pitting pretibial edema was present. The roentgenogram of the chest revealed an enlarged cardiac shadow consistent with pericardial effusion. The cardiac pulsations were diminished in the fluoroscope. The T waves were of low voltage in most of the leads. The basal metabolic rate was minus 48 per cent. Radioactive iodine uptake was 7 per cent over the thyroid gland after 24 hours. The serum cholesterol was only 271 mg. per 100 cc. After the relationship of myxedema to the pericardial effusion was recognized, therapy with thyroid extract was instituted, following which the patient made a progressive recovery. The second case was that of a 54 year old Negro female who had developed progressive weight gain, increased sensitivity to cold and progressive dyspnea on effort. Her basal metabolic rate was minus 28 per cent and x-ray of the chest revealed enlargement of the cardiac shadows suggestive of pericardial effusion. An elevated arterial blood pressure was also observed. Mercuhydrin injections for increasing dyspnea failed to effect a diuresis. The serum cholesterol was 290 mg. per 100 cc. with 70 per cent esters. Radioactive iodine uptake with 40 microcuries of radioactive iodine was 3 per cent uptake over the thyroid region in 24 hours. Protein bound iodine was 1.2 gamma per cent, the normal being 3.5 to 7.5. Thyroid therapy was instituted, following which the patient became brighter and more active and her weight fell 15 pounds. A chest film taken eight weeks after thyroxin therapy was begun showed a reduction of 3.2 cm. in the transverse diameter of the heart. Subsequently thyroid extract was substituted and eventually all evidences of congestive failure disappeared and the cardiac shadow became normal in size. Prior to treatment with thyroid extract a pericardial paracentesis had been performed; 250 cc. of straw-colored fluid had been removed, thus substantiating the diagnosis of pericardial effusion.

**Wendkos**