ABSTRACTS

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Abstractions

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ATHEROSCLEROSIS


Arguments are presented against the importance of fat and cholesterol in the pathogenesis of atherosclerosis and in support of a biological aging process stressing the importance of trace elements, calcium, and magnesium. Chelation of calcium and other minerals in the human body was attempted in the hope of alleviating the manifestations of occlusive vascular disease. EDTA (disodium ethylene diamine tetraacetic acid) was administered as follows: 3 Gm. in 500 ml. of 5 per cent glucose or normal saline was given intravenously over a 2- to 3-hour period. This was administered on each of five consecutive days each week. There were two series of infusions of 15 each with a rest period of 1 week between them. In addition, pyridoxine, 25 mg. three times daily was also administered during the period of the infusions. Short booster series of five daily infusions were given at intervals from 6 to 12 months. This therapy was given to 76 patients with angina pectoris (some of whom had had myocardial infarction), to 31 patients with intermittent claudication, rest pain, and pre-gangrene; and to 25 patients with cerebrovascular disease (including senility and tinnitus). Spectacular improvement was found in all three groups. With the exception of references to large series in the literature, no controls were utilized. The authors mention that the double-blind test is "far from infallible" and, with this, they dismiss comparative statistical analyses. In addition it was found that this therapy also produced prolonged lowering of the serum cholesterol.

SHEFS


It has been suggested that the development of atherosclerosis may be related to a relative deficiency of polynsaturated fatty acids (PUFA) in the diet. UV-spectrophotometric analyses were made to determine the amounts of PUFA in the serum of 30 normal Caucasian subjects, 6 normal Japanese subjects, and 30 patients with coronary heart disease. There was no significant difference between the average serum level of the different polynsaturated fatty acids expressed as a percentage of total lipids in the coronary group and in the controls. Among the Japanese, however, there was a significantly lower triene level, but otherwise the same amount of PUFA and total lipids as in the normal material. The author suggests that this may be related to a higher proportion of unsaturated fat in the diet of the Japanese. These data do not confirm the hypothesis that deficiency of PUFA in the serum is a factor in the genesis of coronary heart disease. The PUFA level in the serum may be in a dynamic equilibrium and regulated by homeostatic mechanisms.

SHEFS

Forty patients with coronary arteriosclerosis were given 20 ml. per day (total dose 400 ml.) of linotol (a mixture of fatty acids of linseed oil), as a supplement to a basic diet of 2,400 calories containing 55 to 60 Gm. of fat., for 20 days. Serum cholesterol, beta-globulin, and beta-lipoprotein fractions showed a significant lowering, while the phospholipid cholesterol coefficient and albumins showed an increase. The only side effects were loose stools in five patients. These results encourage the prophylactic and therapeutic use of linotol in coronary arteriosclerosis.

LEPESCHKIN


Fifteen male rabbits were used. Five, as controls, were fed only regular Purina rabbit chow. At autopsy these animals showed aortae that were complete free of arterioslerotic change. This finding was confirmed by histologic examination. Atherosclerosis was induced in the other 10 animals by feeding them high-cholesterol rabbit chow for 11 weeks. Then five of the atherosclerotic rabbits received infusions of synthetic L, D. alpha (dimyristoyl) lecithin through cannulated external jugular veins, at the rate of 100 ml. of 0.8 per cent of the emulsion over a 4-hour period. This infusion was repeated at intervals of 4 to 6 days. Two rabbits received five infusions; another received four; and two others, three infusions each. Blood samples before and at intervals after infusion were analyzed for total cholesterol, phospholipid phosphorus, and hematoctrit. After a rest of 6 to 12 days, the 10 rabbits were killed, and their aortae were examined grossly and microscopically to estimate the degree of atherosclerosis. The remaining portions of the aortae were dried and analyzed for cholesterol, phospholipid phosphorus, and total fat content. Typical atherosclerotic plaques covered 50 per cent of the intimal surface of the aortae in five non-infused rabbits, reaching nearly 90 per cent in the arches. No plaques were found in one rabbit that had received five infusions of lecithin and the vessel walls appeared normal. Striking resolution of the plaques occurred in the second rabbit that had five infusions. The other infused rabbits showed some resolution. A gradual rise in plasma cholesterol and phospholipid phosphorus and a significant drop in hematoctrit value were noted after administration of the emulsion. No striking difference was noted between the cholesterol content of lecithin-treated rabbit aortas and atherosclerotic control rabbit aortas.

MAXWELL


The development of coronary artery lesions was observed histologically in groups of rats fed various rations and maintained at 1 to 3 C, or at 22 to 25 C. for periods up to 82 weeks. Coronary lesions were not found in rats consuming a semi-synthetic feed containing 10 per cent fat kept for 76 weeks at room or cold temperature. Lesions consisting principally of intimal lipid deposition were noted in 5 per cent of rats eating a 34 per cent-fat feed in the cold, and in 16 per cent kept at room temperature. When 2 per cent of cholesterol had been added to a high-fat diet, the extent of coronary lipidosis increased and the incidence rose to 21 per cent of rats at room temperature and to 50 per cent of those at 1 to 3 C. In another experiment rats receiving a commercial ration had a coronary lesion incidence of 12 per cent when living at 22 to 25 C. and 59 per cent at 1 to 3 C. Among groups of these animals maintained 6 weeks longer on a high-fat 2-per cent cholesterol feed, the coronary lipidosis rates rose to 61 per cent when warm and 79 per cent when cold. Some of the animals in the latter group had myocardial necrosis, and a few large infarcts with completely occluded coronary arteries were observed. The pathogenesis of some of the more severe coronary lesions was explained by the presence of small dissecting aneurysms containing plasma or whole blood. It had previously been postulated that the higher metabolic rate, indicated by larger food consumption despite less weight gain, among the cold-room rats might have been related to their greater deposition of coronary lipids.

ROGERS


Fifty-six tissue samples from 22 human aortas obtained at necropsy were analyzed to see whether intimal and medial lipids showed any identity with individual lipoprotein fractions, to determine whether chemical changes occurred in the intima and media with lesions of increasing severity, and to determine whether the data suggested a different origin for lipid in different types of lesions. Concentrations of total lipid in normal intima and media were similar, but intima
ABSTRACTS


The pathogenesis and the cause of the increased incidence of atherosclerosis in diabetic patients remain obscure. Experiments were undertaken to determine the effects of exogenous insulin on coronary and aortic atherosclerosis in intact chicks. In control birds transferred from an atherogenic diet to plain mash for a terminal 2-week period, significant regression of coronary atherosclerosis occurred, whereas the aortic lesions showed little change. No such regression was observed in birds that were given insulin and the mash diet during this period. This was true despite a decline in values of plasma lipids in both the control and insulin-treated birds. The failure of atherosclerotic lesions to regress in animals given insulin was not related to underfeeding. Administration of insulin during the induction of atherosclerosis had no effect on the development of the lesions.

Schirger


Blood fats were determined in the same laboratory in 242 clinically healthy, industrial and agricultural workers, from different rural areas of Czechoslovakia, and 108 corresponding persons from Korea and Vietnam. Cholesterol, total lipids, and phospholipids were considerably lower in the Far East than in Czechoslovakia, at all ages and in both sexes, while the percentage of alpha and beta lipoproteins was slightly lower. In 10 Korean students who had lived in Czechoslovakia for 2 years, total lipids were significantly elevated, in comparison with Korean values, while cholesterol and phospholipids were not significantly increased. The average food intake was 3000 calories in Czechoslovakia, with 32 per cent derived from fat (nearly all of animal origin) while in the Far East this intake was 2100 calories, with 5 per cent derived from fat intake (nearly all of vegetable origin). Of 614 autopsies performed in Korea in 1957, only 1 per cent showed systemic and 0.4 per cent coronary arteriosclerosis. In Czechoslovakian agricultural areas mortality due to arteriosclerosis was 1.8 per cent of 5625 hospitalized patients, while the overall mortality in Czechoslovakia was 7.7 per cent, and the rate due to coronary disease was 0.22 per cent of the entire population. This mortality rate was between Switzerland and The Netherlands, where the daily fat consumption is about 20 per cent higher. These discrepancies can be explained by more intense physical work in Czechoslovakian rural areas. In addition to nutritional factors, those of environment and especially occupation must therefore be considered in any study of the etiology of arteriosclerosis.

Lepeschkin

BLOOD COAGULATION AND THROMBOEMBOLISM


This study was performed on adult mongrel dogs. Polybrene and protamine sulfate were compared in regard to heparin neutralization and neutralizing dosage levels. The anticoagulant effect of each drug in vitro was also compared at dosage levels commonly employed clinically. Twenty animals each with protamine and polybrene were studied. No significant difference between these two drugs was noted in the incidence of inhibition of coagulation. The coagulation time appeared to be slightly more prolonged with Polybrene than with protamine in several instances. Complete neutralization of the heparin with restoration of clotting time to normal occurred with each drug in doses of 75 per cent or more by weight of the original heparin doses. It appears from these experiments that the commonly used neutralizing dosages of 100 per cent to 200 per cent by weight of the heparin given are unnecessarily large. In fact it may be haz-
ardous through protamine or Polybrene inhibition of clotting. There was no superiority of either drug in the effects studied here.

LEVINSON


Comparison of data from hospital charts of 20 patients in a fibrinolysin-treated series and in a group of 22 patients showed that fibrinolysin in conjunction with anticoagulant therapy decreased morbidity in patients with thrombophlebitis. While this decrease in morbidity is noted, there is still need of more exact methods of diagnosis and criteria of effectiveness. The authors review theories of clot lysis with the realization that a final answer has not yet been determined.

KITCHELL


The buccal administration of streptokinase-streptodornase was tried in the treatment of 52 patients who had superficial thrombophlebitis as a complication after venolysis. Twenty-two similar cases were observed as controls for the same period. This latter group received only general treatment without specific drugs or placebo. Evaluation was done by an investigator who did not know, in most instances, whether the patient was in the treated or the control group. Under these conditions no difference between the two groups was found and no evidence of therapeutic or prophylactic action was noted.

KITCHELL


Three cases are presented in which progression of thrombosis (one arterial and two venous) occurred while patients were well anticoagulated with phenindione. Moreover, two patients bled spontaneously while thrombosis was taking place. The authors allude to the distinction between the antithrombotic and the anticoagulant effects of this group of drugs.

SHEPS


The effect of beer and other alcoholic drinks on blood fibrinolytic activity was investigated. Initial studies revealed that the lysis-times of two subjects were greatly prolonged on days in which beer, cider, and white wine were taken, but not after gin, whiskey, or absolute alcohol. Reduction of fibrinolytic activity which reached 300 per cent was maximal after two hours. These findings were confirmed in 10 of 14 other subjects. Whiskey containing the same amount of alcohol had no effect on fibrinolysis. Absolute alcohol yielded inconclusive results. The evidence suggests that some fermentation product other than ethyl alcohol is responsible for the change. No change in the social amenities was recommended.

KURLAND


Platelet-rich and platelet-poor plasma was obtained from each of 10 normal subjects, and the lysis rates were compared. After 1 hour, there was more lysis in the platelet-poor plasma. The addition of washed platelets inhibited the fibrinolytic activity of platelet-poor plasma. The addition of cephalin to platelet-poor plasma had no significant effect on lysis. No difference in lysis could be shown after fatty and non-fatty meals. There was a normal diurnal fluctuation in lysis rate and a significant fluctuation from day to day. There was no significant correlation between cholesterol level and fibrinolytic potentiality.

KURLAND


A possible correlation between ingestion of high-fat meals and accelerated coagulation of blood was studied. A high-fat breakfast was fed to 10 patients suffering from hemophilia A (AHF deficiency) and six subjects with hemophilia B (PTC deficiency, Christmas disease). In addition, 7 normal subjects were used as controls. Blood samples were taken after 12- to 15-hour fasting states and 3 hours following the high-fat meal. Clotting times, prothrombin times, and consumption activity, platelet counts, and proconvertin and proaccelerin activity, as well as AHF and PTC activity, were performed on all specimens. Results revealed no differences in clot-accelerating activity between normal and hemophilic blood. In vitro studies, in which fat was added, also revealed no differences, except for an acceleration of the Russell viper-venom time in normal subjects.

Whole blood coagulation time was significantly accelerated by the oral administration of 10 mg. of prednisone in 24 patients who had previously received Dicumarol for several days. The mean silicone coagulation time in these patients was 28.10 ± 2.59 minutes before the administration of prednisone. Two hours after administration it was 23.90 ± 2.23 minutes, and 4 hours after administration, it was 22.00 ± 1.85 minutes. In control patients without anticoagulant treatment, the mean silicone coagulation time had been previously determined as 16.22 ± 0.542 minutes. No conclusions could be drawn as to which clotting factors were influenced by the administration of prednisone, but the authors assumed that prednisone mobilized or replaced convertin activity, as ACTH and cortisone have been observed to do.

**Maxwell**


A special coagulation laboratory was set up at the North Shore Hospital, Manhasset, New York, to evaluate the criticisms of the one-stage prothrombin test as a guide to anticoagulant therapy. Contrary to popular thinking by some laboratory workers, the one-stage prothrombin test can be accurately reproduced. Blood specimens from three normal subjects and five patients on anticoagulant therapy were divided into 40 tubes and code-labeled. The results were almost identical in every instance. Studies were made to determine the value of citrated plasma versus oxalated plasma stored at the same temperatures for the same periods of time. Citrated plasma was less labile and when mixed with the calcium thromboplastin reagent, less clouding occurred than when using oxalated plasma. This allowed for sharper observation of the coagulation end point. Storage temperatures were not critical factors as long as the tests were done within 6 hours after collection of the blood specimens. Further study indicated the value of review of laboratory procedures when incidence of either bleeding or thromboembolism was high. In all such instances the technic was most important and small deviations in the method produced differences in test results between the general laboratories and the special laboratory. In each instance under supervision the general laboratory technician was able to reproduce the same results as the special laboratory technician. The authors feel that the one-stage prothrombin test is still the best provided that it is accurately performed and properly interpreted.

**Krause**


Normal individuals without known involvement of the hematopoietic system were the subjects of this study. Blood samples were obtained by the use of an indwelling polyethylene catheter in an arm vein. The parameters of blood clotting, which were measured during waking, sound sleep, and intermediate states, at hourly intervals throughout the night were: Quick prothrombin, prothrombin-proconvertin (Owren), proaccelerin, Russell’s viper-venom time, partial thromboplastin time, fibrinogen, platelet count, euglobulin, lysis time, and thromboplastin generation test. No significant differences in blood coagulability were found between the normal person in the waking state and the normal person sleeping without sedative drugs.

**Maxwell**


Observations over a 4-year period of 52 patients with phlebothrombosis were described. Ages ranged from 18 to 60 years, and 83 per cent were women. The duration of the disorder varied from 2 weeks to 7 months in all except one case of 18 months’ standing. In 48 instances the process was unilateral, involving the left leg in 21, the left thigh in 14, the right leg in 12, and the right thigh in eight. The diagnosis was based on the presence of local discomfort, edema, and the results of tests, including limb measurements, thermometry, Homans’, Buerger’s, and Collens-Willensky’s tests, the calf pressure test, and the femoro-digital arterial circulatory time. Treatment consisted of prothrombin depressants, phenylbutazone, 600 mg. daily, and chlorothiazide 1 to 2 tablets daily—all for a minimum of 3 weeks. Elastic bandages during the day were ordered for a 6-month period, dorsolumbar heat was prescribed when there was evidence of arterial spasm, and all patients were ambulatory. The results were excellent and included a return to normal of limb measurements in an average of 3.2 day, of Homans’ test in 5.7 days, of calf
pressure test in 11.5 days, of leukocyte count in 16.3 days, and of erythrocyte sedimentation rate in 18.5 days. The incidence of embolization was not mentioned. The importance of considering the possible presence of phlebothrombosis in patients having dysmenorrhea with edema or atypical signs of appendicitis was noted.

Rogers


\( \Sigma \)-aminocaproic acid (ACA) is a plasmin inhibitor in vitro which is useful in inhibiting proteolytic enzymes in vivo. The effect of ACA on the blood fibrinolytic system was studied in two patients who had pronounced fibrinolysis and one with increased plasminogen activators. The rate of its disappearance from plasma and the amount excreted in the urine were also measured in four subjects. ACA temporarily abolished pathologic fibrinolysis in two patients, and one showed clinical evidence of a therapeutic response during maintenance therapy. In the third, a great increase in plasminogen activator gave clear evidence of the inhibitory action of ACA on plasminogen activator in vivo. The drug was effective by the intravenous route or was efficiently absorbed after oral administration, but large doses were necessary for an effective level, and rapid urinary excretion necessitated therapy every 4 to 6 hours. Postmortem examination in three patients showed no apparent toxic effects of the drug, but renal function should be watched closely when ACA is given in large dosage.

Kurland


Storage of serum reduces the effect of heparin on the clotting time of normal serum and on serum from patients with Christmas disease (factor IX deficiency), and also in serum with factor VII deficiency and serum from patients treated with phenindione. The antiheparin agent is distinct from factor VII and Christmas factor since it did not appear to be appreciably reduced by treatment with phenindione. It resembles these two factors, however, by being in the serum in excessive amounts and by being observed and subsequently eluted from aluminia. It was suggested that heparin "resistance" might have a part in predisposing to thrombosis, but the possibility also remained that it might be a secondary effect that was due to the release of serum products from the thrombus into the circulation. The possibility was also suggested that antiheparin activity of the serum may have a part in the production of intravascular clotting, perhaps by furthering a pre-existent clotting tendency. It was suggested that the coagulant factor of serum demonstrated by Wessler may be related to the antiheparin agent of the serum demonstrated by the author. The importance of this in the pathogenesis of thrombosis is uncertain as yet, but it may play a role in bringing about increased coagulability associated with recent thrombus formation.

Schirger


Effects of the oral administration of a new water-soluble salt of vitamin K\(_1\) (dihydrovitamin K\(_1\) biphosphate) are described when it was tested clinically as an antidote in 41 adult hospitalized patients. These patients had been under Dicumarol therapy, usually for weeks, until levels of hypoprothrombinemia had been stabilized. This watersoluble vitamin was found to be ineffective as an antidote in oral doses ranging from 5 to 50 mg, over a 24-hour period. It was also ineffective in doses smaller than 50 mg, when given intravenously or subcutaneously, as well as in intramuscular doses of 50 mg. Since initial favorable reports on the water-soluble drug were limited to experiments on dogs, the authors conclude that it is not warranted to replace the oil-soluble vitamin K\(_1\) now in use, except for specific investigative purposes.

Maxwell


The authors have devised an automatic time-recording apparatus that can be used for measuring the clotting time of plasma such as the recalcified plasma clotting time, Quick's one-stage technic, Owren's original "P and P" method, and the more recent thrombotest using plasma. This apparatus has a time recording switch, aperture, galvanometer sensitivity control, and a clock. All these tests are carried out in the usual manner except for glass tubes of special size to fit the apparatus. It is also important to use sodium citrate instead of oxalate in collecting blood samples. As soon as the calcium is added the time recorder is started. The tube is inverted to mix the contents and then inserted in the aperture. By turning the galvanometer control, the ga-
vanometer needle is adjusted midway between the two marks on the galvanometer scale. Several seconds are allowed to permit any drift of the needle. Once the needle is steady for a few seconds, the time-recording switch is moved in the opposite direction than previously and this brings into action an automatic cut-out switch. When clotting starts, a turbidity develops in the plasma. The turbidity causes the galvanometer needle to shift, and this causes the cut-out switch to operate and stops the time-recording apparatus. The test can then be read. Once the automatic timer is activated no further attention is needed. The operator may leave the laboratory and return at any time and read the results of the test. It also allows duplicate tests to be carried out at the same time. This apparatus not only saves time but allows for standardization in reading results and does away with discrepancies in interpreting time.

Krause


Coumarin type anticoagulants decrease the activity of factor VII, prothrombin, Stuart-Prower factor, and factor IX (Christmas factor). The commonly used one-stage prothrombin time of Quick does not reflect changes in the latter factor. Moreover, changes in the concentration of factor VII give erratic results, depending on the type of tissue thromboplastin used in the Quick test. To assess which of the various tests of coagulability more accurately reflected the effect of the Coumarin drugs, the following tests were carried out and compared with the one-stage prothrombin time: bleeding time, clotting time, recaleification time, heparin tolerance test, sodium chloride tolerance test, thromboplastin generation test, modified thromboplastin generation test, and the P. and P. test of Owren. Thromboelastographic procedures were also discussed. The authors discuss these tests in detail and conclude that the P. and P. method of Owren is the most reliable guide to long-term anticoagulant therapy. This test reflects the changes in the concentration of factor VII at the beginning of therapy and later, when the activity of this factor is low (decreased by coumarin effect and by dilution in the technic), the test becomes an expression of the concentration of factor IX (also reduced by the coumarin drugs). No comment is made regarding the clinical incidence of hemorrhage in relation to these various procedures.

SHEPS

CONGENITAL ANOMALIES


Among 27,000 case histories in a cardiology department in Lima, Peru, 110 instances of patent ductus arteriosus and 32 of coarctation of the aorta were found. It was thought that the patients seen in this medical center were fairly representative of the whole population of Peru where, above 4,000 meters altitude, 3 per cent of the people were born and 2 per cent lived. Twenty per cent of the patent ductus patients were born at levels higher than 4,000 meters, whereas the remainder of this group and the whole of the coarctation group were born at altitudes parallel- ing that of the general population. Considering the experimental evidence that oxygen is an important factor involved in closing the ductus arteriosus, the authors suspected that the lowered atmospheric oxygen tension at high altitudes might have been responsible for this seven-fold increase in the incidence of ductus patency.

Rogers


The authors reviewed the clinical, radiographic, electrocardiographic, and hemodynamic data of six proved cases of congenital aortic stenosis, five of which were associated with varying degrees of commissural fusion. One patient with a normal roentgenogram and electrocardiogram showed no systolic gradient across the aortic valve and no evidence of commissural fusion. The other patients with varying degrees of commis- sural fusion showed slight to moderate systolic gradients not exceeding 43 mm. Hg with left axis deviation or left ventricular hypertrophy by electrocardiogram. One patient had an aneu- rysm of the sinus of Valsalva of the right coronary cusp, which was thought to be secondary to the jet of blood on the aortic wall. The one patient without evidence of a systolic gradient across the aortic valve had evidence of a systolic murmur at the aortic area transmitted to the neck, and dilatation of the aorta. None of the patients had decreased intensity of the aortic second sound in contrast to patients with acquired aortic stenosis. The authors believe that congenital bicuspid aortic stenosis plays a more important role in the group with congenital aortic stenosis than has been recognized.

Kalmansohn

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ABSTRACTS


This report was based on the necropsy data of five hospitals of all the patients with mongolism. Seventy-nine patients with cardiac malformations were compared with 300 control patients. It was emphasized that the varying incidence of cardiac malformations in different series of patients with mongolism is due to the different age ranges or methods and criteria upon which the diagnosis of congenital heart disease is made. On a qualitative basis, the concept of a "mongol" heart did not appear to be justified as the variety of cardiac malformation was as wide in the mongol group as in the control group. However, persistent ostium primum and varieties thereof as well as atrial septal defects of the ostium secundum type were more frequently noted in the patients with mongolism. Fallot's tetralogy, Eisenmenger's complex, persistent truncus arteriosus, left superior vena cava, coarctation of the aorta of the adult type, anomalies of the aortic and pulmonic valves, and fibroelastosis were less frequently noted in the cases of mongolism. Ventricular septal defect, patent ductus arteriosus, and idiopathic cardiac hypertrophy were noted equally in both groups.

KALMANSOHN


The tolerance of the heart to the malformation was evaluated in 117 women with congenital heart disease prior to and during pregnancy. The following conclusions were reached. In heart disease characterized by an arteriovenous shunt, perhaps the most important factor responsible for the overload of the heart is volumetric overloading, represented by the increased flow through the lungs. Often, if this factor is complicated by the increased mechanical work represented by elevation of the pressure within the cardiac chambers, the summation of adverse effects will probably lead to heart failure. In venous-arterial shunts tolerance of the heart to pregnancy appeared related to the degree of anoxemia pertaining to the malformation. In congenital heart disease with an obstacle to the ejection of one of the ventricles, the most important factor in prognosis was the hypertension of the overloaded ventricle. In aortic coarctation the dangers appeared to derive principally from the effects on the vessels (rupture of the aorta, dissecting aneurysm, cerebral aneurysm), rather than to a direct effect on the myocardium. There is no formal contraindication to surgical correction of the malformation during the first trimester of pregnancy, nor does the procedure seem to entail any danger to the child. It may be a perfectly warranted indication if the pregnancy is poorly tolerated. Cesarean operations have a very limited indication in these women and should perhaps be limited to the treatment of gyneco-obstetric problems. The tolerance of the patient to her malformation prior to pregnancy is a useful guide, as a rule, in the prognosis of the tolerance to the pregnancy.

BRACHFELD


The case of a rare association of several congenital heart malformations (complete A-V block, endocardial fibroelastosis, and a patent ductus arteriosus) is reported. The complete atrioventricular block was suspected during pregnancy due to the low heart rate of the fetus. It was confirmed on the first day of life with the electrocardiogram. The heart rate was extremely low, with a ventricular rate of 25 beats per minute. Endocardial fibroelastosis was confirmed by macroscopic and microscopic examination. Both ventricles and the left atrium were involved. It was more marked over the left ventricle. The heart was four times the normal size; its weight was increased. The myocardium of the left ventricle was twice as thick as normal and its endocardium 10 times as thick as normal. The ductus arteriosus was patent. The child, born prematurely, died after 36 days of extreme dehydration.

BRACHFELD


In 20 of 33 patients with isolated ventricular septal defect the total area of the defect was less than 1 cm.² Electrocardiograms without definite abnormalities were found in only seven patients. Disturbances of conduction resulting in an enlarged area of QRS vector loops (with corresponding changes in the electrocardiogram) were only to a limited extent related to the size of the defect. The functional significance of the defects depended on their size and localization.

The authors review 108 cases of aortic coarctation diagnosed in the first year of life during the period of 1947 to 1959. Associated major cardiac anomalies included patent ductus arteriosus (65 per cent), intraventricular septal defect (33 per cent), transposition of the great vessels (10 per cent), and interatrial septal defects (6 per cent). Infantile (preductal) coarctation accounted for 90 per cent of the infant fatalities. Operative mortality in the entire first year of life was 41 per cent while after 1 year of life it was only 29 per cent. Death occurred in 87 per cent of patients with cardiac decompensation during the neonatal period, whereas it occurred in only 50 per cent of the nonsurgical patients during the first year of life. The authors emphasized that aortography should be performed on all diagnostic problems, that surgery should be performed on symptomatic babies less than 1 month old unless they show a dramatic response to digitalis therapy within 12 hours, and that those babies that respond to digitalis should continue to be medicated until the optimum age for surgery is reached.

Karpman


The first patient, a 6-year-old girl, showed aortic configuration of the heart with a narrow vascular shadow, a typical diamond-shaped systolic murmur transmitted to the neck, and right axis deviation with deep S waves in V1 to V2 in the electrocardiogram. Direct left ventricular puncture with dye injection showed a systolic pressure gradient of 60 mm Hg between left ventricle and femoral artery and an abrupt marked narrowing of the aorta 1 cm above the valves, extending to the entire thoracic and abdominal aorta. The second patient, a 25-year-old man, showed a similar cardiac configuration but only a soft systolic murmur, and dominant S waves in leads I to III and V2 to V6 with inverted T waves in leads I and II. Right heart catheterization and angiocardiography showed a slit-like narrowing of the right ventricle with a systolic gradient of 46 mm Hg. Direct puncture of the left ventricle with dye injection showed an abrupt narrowing of the aorta above the coronary arteries, extending to the entire thoracic aorta, and marked hypertrophy of the left ventricular wall. The right ventricular narrowing in this case was accordingly part of the Bernheim syndrome. Since aortic hypoplasia cannot at present be successfully treated by surgery, its differentiation from localized aortic stenosis is important; this can be suggested by the narrow vascular shadow and electrocardiographic findings, but proved only by means of direct left ventricular injection of contrast medium. A congenital origin of this malformation is certain.

Lepeschkin

VALVULAR HEART DISEASE


The results of surgery in 13 infants with congenital pulmonic stenosis is reported. Three infants were operated on using the transventricular operation. The remainder were performed by direct vision, transarterial, pulmonary valvulotomy by means of hypothermia with inflow occlusion. The patients were followed for periods ranging from 2 weeks to 6 years. Of the 11 cyanotic infants who survived operation, 9 have had complete or at least significant reduction in the intensity of cyanosis. One child has slight residual cyanosis at rest which becomes marked on crying and another had early improvement which gradually deteriorated and required re-operation 6 years later. The changes in the murmurs post-operatively were not dramatic—the intensity remained the same or was slightly decreased. In 1 child it disappeared altogether. Over the age of 5 weeks, right ventricular hypertrophy was invariably found on electrocardiography. The majority of satisfactory surgical procedures were followed by a reduction in voltage of the R wave in V1 and other signs of lessening of right ventricular hypertrophy for at least 6 months. There were 2 deaths. One of these was in an infant operated on at the age of 9 months. She died at operation following completion of a transventricular valvulotomy. Necropsy revealed valvular and infundibular stenosis to be present, and in addition it was noted that the knife had missed the valve completely and had cut into the mediastinum instead. The other fatality was of a male infant who underwent transventricular valvulotomy at the age of 3 months. There was only moderate clinical improvement but because of progressive unrelated neurologic disease, further surgery was not performed. He later succumbed to the latter conditions. The clinical picture is described and the use of selective angiocardiography is emphasized in differentiating pulmonic atresia or pulmonic stenosis with normal aortic root. Angiography, moreover, permitted determination of right ventricular cham-
ABSTRACTS


In a series of 67 patients with mitral stenosis it was shown that the occurrence of more advanced circulatory abnormalities in patients with atrial fibrillation was related primarily to the more common occurrence of this rhythm in the advanced cases of mitral stenosis. The effect of atrial fibrillation on the circulatory dynamics of patients with mitral stenosis was evaluated by hemodynamic measurements in 3 patients studied once while in sinus rhythm and again when in atrial fibrillation and in 15 pairs of patients matched in all respects except for cardiac rhythm. There was no significant difference in the level of pulmonary arterial pressures and the pulmonary vascular resistance between those patients in sinus rhythm and those in atrial fibrillation. The cardiac output, both at rest and during exercise, however, was found to be consistently higher in patients with sinus rhythm than in those with atrial fibrillation. The left atrial pressure also was significantly lower in the fibrillators, but this was considered to be a secondary response to lowered cardiac output. The reduction of cardiac output which develops when atrial fibrillation, even under optimal digitalis control, complicates mitral stenosis is postulated as a factor possibly accentuating clinical disability in some patients.

VASCULAR DISEASE


The recurrence of varicose veins following “high ligation” of the long saphenous system among 97 patients was reviewed. Eighteen of these patients had bilateral recurrences. The average time interval that elapsed before recurrence became evident was 7 years. The groin was explored because of incompetence at the saphenofemoral junction in 98 limbs. The cause of the reflux was found to be an inadequate operation leaving 1 or more tributaries intact. The deep external pudendal branch joining the medial aspect of the long saphenous vein was the channel most liable to be overlooked. In 37 legs, incompetent communicating veins were found; these were the sole cause of recurrence in 10 of these limbs. Incompetent communicating veins were usually found in the middle and lower third of the thigh. These incompetent communicating veins must be dealt with at the initial procedure to prevent recurrence. In 11 limbs there were venous ulcers. These were all associated with saphenofemoral incompetence. In addition there was an incompetent communicating vein in the lower third of the thigh in 2 limbs. In 4 of these limbs ulceration was present prior to the initial “high ligation.” These broke down again from 1 to 6 years following the initial ligation. The short saphenous system played a minor role in this series.


The literature concerning the surgical treatment of septic thrombophlebitis is reviewed and 3 cases of septic thrombophlebitis treated by proximal venous interruption are presented. It is pointed out that septic thrombophlebitis often feeds a septicemia and that inlying intravenous catheters often are the source of such sepsis, especially in already septic debilitated patients. The author summarized intravenous catheter management as follows: an arm vein should always be used if possible; the catheter should be removed in 48 hours; the tip of the catheter should be cultured; and the local use of heparin should be considered in each case.


This study reports measurements of blood flow by venous occlusion plethysmography in the 61 available surviving non-amputated limbs of a consecutive series of 100 patients sympathectomized between 1 and 7 years previously for obliterative vascular disease. In 38 of 46 patients who had had a unilateral sympathectomy, the resting blood flow in the sympathectomized foot exceeded that in the non-sympathectomized foot, the average flow being nearly twice as great. This figure probably underestimates the effect of the procedure. There was no evidence that the effect of sympathectomy on blood flow in the foot diminished with the passage of time between 1 and 7 years after operation. Recovery of sympathetic vasomotor activity was measured by the body heating test. In only 11 per cent of limbs was there evidence of late partial recovery of sympathetic control. Even where there was some recovery of sympathetic activity, the increase in flow on heating seldom exceeded 50 per cent, and the resting flow was always higher in the operated limb. It is suggested that lumbar
sympathectomy is a good operation for promoting the healing of existing ischemic skin lesions and the prevention of further ones.

KURLAND


Study of the records of 57 patients with occlusive disease of the carotid artery (established either by angiography or by surgical exploration) revealed certain features of bedside diagnostic significance. Important clues in the history were repeated transient ischemic attacks, particularly ipsilateral visual disturbance with contralateral motor or sensory deficit, and somnolence. Physical findings of help in diagnosis were Horner's syndrome, cervical and ocular bruits and absent carotid artery pulsations in the pharynx. The most reliable diagnostic measure was ophthalmodynamometry, for in 77 per cent of the patients in this series a reduced retinal artery pressure was found on the side of the proved occlusion. By the use of such readily performed maneuvers as ophthalmodynamometry and palpation of the internal carotid artery in the posterior pharynx in every patient who has experienced a stroke, it should be possible to uncover patients with occlusive carotid artery disease who would otherwise be diagnosed as having had thrombosis of the middle cerebral artery.

SAGALL


It is justifiable to resect the symptomless abdominal aortic aneurysm before rupture and to reconstruct the aorta with a homograft or plastic prosthesis, but since many cases are not seen until after rupture has occurred, it becomes imperative to make the diagnosis early and to operate immediately. Four patients are described. One lived 3 months. Another, in whom the duration of rupture was only 10 hours and in whom surgery was performed within 1 1/2 hours of collapse, recovered completely. Various points in anesthetic and operative management, including the amounts of blood generally required at each stage of the operation, are discussed. The tendency to overtransfuse after application of the aortic clamp is mentioned, as well as the advisability of reserving at least 2 pints of blood for use on release of the aortic clamps, if hemorrhage is excessive. The advantages of a homograft over a prosthesis are described. It is important to use heparin locally in all anastomoses and to inject it distally in a considerable volume of saline into the femoral arteries.

MAXWELL


Ten patients with intermittent claudication received 5 mg. of nylidrin hydrochloride intra muscularly, and 3 subsequently received this dose intrarterially. During the hour thereafter no significant change was observed in the temperature of the skin of the fingers, toes, and calf or in that of the gastrocnemius muscle, nor did the tolerance for walking change. It was concluded that vasodilatation did not occur in these areas, and the question was raised whether any drug could have produced vasodilatation of the leg arteries in these patients.

ROGERS

REVIEWS IN CARDIOVASCULAR DISEASE


ABSTRACTS

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