HEMORRHAGIC DISEASE


Six cases of purpura were observed during one year. The patients were treated for tuberculous meningitis or miliary tuberculosis with daily doses of streptomycin varying between 1 and 3 Gm. Three purpuras were thrombocytopenic with diffuse hemorrhages. Three were athrombocytopenic. The relationship between tuberculosis and purpura is discussed. In 3 cases the tuberculosis was in an acute phase; in 3 others the tuberculosis was no longer progressive.

The relationship between streptomycinotherapy and purpura was studied: In 3 cases the streptomycin could not be concerned since the treatment had been discontinued eight, five and two months before onset of purpura. In the 3 other cases cure of the purpura was produced with blood transfusions. In other cases recovery was complete without having stopped streptomycin. Thus, there was no apparent relationship between streptomycinotherapy and the mentioned purpuras.

J.P.S.

THROMBOPENIC PURPURA IN TUBERCULOSIS OF THE SPLEEN. R. Lapp (Medical Clinic of the University of Lausanne) Schweiz. med. Wschr. 78: 980-981, 1948.

The author describes 4 cases in which tuberculosis of the spleen was followed by thrombopenia. Increased number of megakaryocytes are found in the bone marrow. Splenectomy is recommended, with protective streptomycin therapy.

C.M.

RESISTANCE OF THE BLOOD CLOT IN HEMOPHILIA. J. Král. From the 1st Medical Clinic, Charles University, Prague, Czechoslovakia. Cesk. lék. listy 6: 401, 1948.

Resistance of the blood clot is undoubtedly one of the best diagnostic signs in hemophilia, being very low and even equal to zero in this disease. In 2 patients suffering from hemophilia, the author obtained a definite rise of the zero resistance by injecting 1 cc. of rabbit serum. This rise continued for several hours after the injection and was accompanied by an increase of red blood cells and blood platelets, by eosinophilia and by a reduction of the clotting time. The subcutaneous injection of the rabbit serum did not seem to convey any factor lacking in the hemophilic blood; it probably developed some unknown mechanism affecting the resistance of the blood clot.

M.N.

PSEUDOHESI0PHILIA OR CHRONIC THROMBASTHENIA. C. W. McLaughlin, Jr. From the Department of Surgery, University of Nebraska Medical College, Omaha, Nebraska. Arch. Surg. 63: 633-645, 1949.

Two cases classified as pseudohemophilia are reported and the syndromes of pseudohemophilia (von Willebrand, 1926) and "chronic hereditary hemorrhagic thrombasthenia" (Glanzmann, 1918)
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are discussed. The various means of controlling hemorrhage in pseudohemophilia are mentioned. In pseudohemophilia the bleeding tendency is said to become less marked with advancing years. Surgical treatment is contraindicated unless absolutely required.

W.N.V.

CAPILLARY FRAILITY STUDIES (GÖTHLIN TEST) ON ONE HUNDRED PATIENTS RECEIVING DICUMAROL.


One hundred patients receiving dicumarol were studied to determine if any correlation existed between the occurrence of hemorrhage and increased capillary fragility as measured by the Göthlin test. Six of these patients had received dicumarol continuously; the shortest period was three months and the longest, nineteen months. None of these patients demonstrated a positive Göthlin test. Hemorrhage was observed seven times in 100 patients receiving dicumarol. In none of these was the Göthlin index positive. Seven patients demonstrated a positive Göthlin test and gave no clinical evidence of hemorrhage.

G.E.C.


The decrease in capillary resistance produced by antiplatelet serum as measured by a skin suction test in rats was found to be prevented in part by flavonoid materials and also by certain hydroxy-substituted compounds and quinones not obviously related to vitamin P. The test was therefore not specific for "vitamin P"-like materials. Rutin was found much less effective per weight of dose than certain other materials with "vitamin P" activity. Ascorbic acid and a tocopherol phosphate were inactive in preventing the fall in capillary resistance produced by antiserum.

W.N.V.

EFFECTIVENESS OF DICUMAROL PROPHYLAXIS AGAINST THROMBOEMBOLIC COMPLICATIONS FOLLOWING MAJOR SURGERY. A FOUR YEAR SURVEY: 3,304 CASES. W. D. Wise, F. F. Loker and C. E. Brambel. From the Department of Surgery and the Department of Clinical Biochemistry, Mercy Hospital and the University of Maryland School of Medicine, Baltimore, Maryland. Surg., Gynec. & Obst. 88: 486-494, 1949.

This study of a large series of patients following major abdominopelvic surgery adds to the rapidly accumulating data demonstrating a statistically significant reduction in the incidence of postoperative thromboembolic complications with prophylactic anticoagulant therapy in those groups of patients in which the expected incidence is high.

The authors discuss the advantages of chemoprophylaxis over venous ligation, the advantages realized by a conservative rather than drastic reduction of prothrombin activity, and the necessity for rigid standardization of laboratory procedures.

H.W.B.

LEUKOCYTE MORPHOLOGY AND PHYSIOLOGY


An exhaustive study of blood cells is made with the phase microscope, illustrated by 176 microphotographs.

Successively, the erythrocytes, the granulocytes, the lymphocytes, the thrombocytes and the megakaryocytes, are studied. The structure of the megakaryocytes and thrombocytes seems to be identical,
thus confirming the relationship between these cells. The technic and the interpretation of the preparations are discussed. The normal mononuclears spread out well on plexiglass form, but leukemic granulocytes do not spread as well. Polynuclears seen in severe infections, spread out especially well on these artificial areas.

The structure of the spread out polynuclears is studied with the electron microscope. It appears identical to that described for the hyaloplasm of thrombocytes.

In leukemic cells, "Auer corpuscles" are very easily detected. In one case they were so numerous that it was possible to separate them by mechanical destruction of the cells.

The cells of myeloid and lymphoid leukemias, and of myelomas are successively studied.

J.P.S.


The development of a reflecting microscope by Burch has widened the whole field of microscopy. An important extension of its use to include infrared spectroscopy is now reported. Among the examples given of the application of this technic is the spectrum of a crystal of anti pernicious anemia factor isolated by Lester Smith. As a whole the spectrum did not show the general features of a polyamide. If it eventually proves to be so, the spectrum must be masked by other parts of the molecular structure. Another line of work which may prove of great hematologic interest is the study of infra-red spectral absorption of biologic cells. There seems every reason to hope that still greater powers of resolution may be obtained with further development of reflecting microscopes so that individual parts of cells may be studied.

S.C.

THE HYPERSEGMENTATION OF NEUTROPHIL LEUKOCYTES. J. Kidero. From the Institute of General and Experimental Pathology and the 3rd Medical Department, Masaryk University, Brno. Čas. lék. čes. 87: 919, 1948.

Among 1000 cases of pathologic individuals, 48 had hypersegmentation of neutrophils in their blood smears. Besides the commonly known occurrence of these cells in pernicious anemia and other diseases mentioned in the literature, the author calls attention to their very frequent presence in gastric neoplasms. After splenectomy, a considerable hypersegmentation appeared as a temporary phenomenon which disappeared after a certain time.

M.N.


Hyperesinophilia of a local or general character is the most constant feature in allergic conditions and therefore the eosinophil may play an important role in antigen-antibody interaction. Eosinophils were recovered from guinea pigs after an anaphylactic peritonitis had been produced by the injection of horse serum and egg white. The dosage of antigen was estimated from total protein nitrogen values. Various sera, eosinophilic and leukocytic antigens were tested for activity on sensitized guinea pig uteri (Schulte-Dale Test). Evidence has been presented to support the contention that the contraction of the sensitized uterus was precipitated by a specific agent carried by the eosinophil. Other leukocytes do not have this property. The author suggested that eosinophils may transport the antigen to the site of interaction between antigen and antibody.

O.P.J.


The administration of 100 Gm. of glucose in the form of a glucose tolerance test was given to the
following patients: 14 nondiabetics, 15 diabetics, 1 with Addison's disease, 1 with Cushing's syndrome, and 1 with Simmond's disease. The effects on the absolute lymphocyte count were determined. The normal patients and the three with Addison's disease, Cushing's syndrome, and Simmond's disease all reacted similarly with an 18.3 per cent drop in lymphocytes. The diabetic patients showed a 43.2 per cent drop in lymphocytes. The authors found no correlation with the sugar curves. The only exceptions to the above findings were two psychoneurotic cases.

R.C.C.


The purpose of this work was to determine whether there was any correlation between the amount of ascorbic acid in the adrenals and the number of circulating neutrophils. Sprague-Dawley rats were used. In the normal rats the number of neutrophils decreased as the amount of ascorbic acid increased; thus, a negative correlation. The lymphocytes showed no such correlation. Injections of adrenalin decreased the ascorbic acid content of the adrenals but did not influence the neutrophils or the lymphocytes in a similar way. Twenty hours after the adrenalin injection the correlation already mentioned for the normal animal was re-established. Urethane induced a lymphopenia but did not alter the circulating neutrophils or the ascorbic acid content of the adrenals. The authors suggest that the adrenal cortex regulates the number of circulating neutrophils to some extent.

R.C.C.

THE ADMINISTRATION OF ADRENOCORTICOTROPHIC HORMONE TO NORMAL HUMAN SUBJECTS. THE EFFECT ON THE LEUCOCYTES IN THE BLOOD AND ON CIRCULATING ANTIBODY LEVELS. P. H. Herbert and J. A. de Vries. From the McGill University Clinic, Royal Victoria Hospital, and the Department of Bacteriology, McGill University, Montreal, Canada. Endocrinology 44: 559-573, 1949.

Circulating antibody levels in normal human subjects were not increased following the administration of 40-400 mg. of adrenocorticotropic hormone. The findings of other workers, that the lymphocyte and eosinophil counts would decrease under such stimulation, were confirmed.

R.C.C.


A cell system is described which develops from inactive stages of adventitial histiocytes in the medium sized vessels of the lungs under the influence of the irritating action of virus pneumonia. The cells are histiocytic monocytes characterized by the capacity of storing trypan blue in the living state, and by a peculiar arrangement and form within the granulation tissue. Pathologic forms of monocytes and segmented leukocytes in the peripheral blood are described. The vital staining reaction of this cell system is differentiated from the known properties of the reticulo-endothelial system of the liver.

C.M.

PHYSIOLOGY OF COAGULATION


Daily determinations were made of the concentrations of prothrombin and Ac-globulin in stored citrated plasma and stored citrated whole blood. Prothrombin analysis was carried out by both the two-stage method and a modified two-stage method in which an optimum amount of Ac-globulin is provided in the first stage.

The prothrombin content of citrated plasma stored at 5 C. remained constant for at least three weeks as determined by the modified method, whereas plasma Ac-globulin concentration remained constant for seven days and then gradually decreased to about a third of the initial level by the third week. This
decrease in plasma Ac-globulin approximated the apparent decrease in prothrombin level as determined by the unmodified two-stage method. The stability of prothrombin was unaffected by the presence of cellular elements but Ac-globulin was found to be somewhat less stable in whole blood than in centrifuged plasma.

It would appear, therefore, that blood obtained from hospital blood banks contains its original concentration of prothrombin and that for ordinary use the decrease in Ac-globulin is not sufficiently great to be of clinical significance.

H.W.B.

A SIMPLIFIED TECHNIQUE FOR THE DETERMINATION OF PROTHROMBIN TIMES. P. G. Schuwafer and L. B. Jaques. From the Saskatoon City Hospital and the Department of Physiology, University of Saskatchewan, Saskatoon, Saskatchewan. Canad. M. A. J. 64: 258-261, 1949.

A simple method for determination of prothrombin time, which has been found satisfactory in the regulation of patients on dicumarol therapy during a two year period is described. In this procedure, whole blood is added, at the time it is drawn, to thromboplastin. The method was standardized in terms of per cent of prothrombin by taking blood in silicone and preparing a series of red cell-plasma mixtures containing varying dilutions of plasma. (The plasma diluent is not stated.) Preparation of thromboplastin for the individual determinations is described.

This method is recommended for use in office practice and smaller hospitals. In view of the limitations of prothrombin determination as done by generally accepted methods, however, the advantages of simplicity, rapidity and elimination of the necessity for recalcification in this test would appear to warrant its further investigation in dicumarol-treated patients.

H.W.B.


Estimations of prothrombin in dicumarin plasma have been compared, using the two-stage procedure of Warner, Brinkhous and Smith (modification of Herbert), the one-stage method of Quick, and a one-stage method in which Russell viper venom and lecithin were used as the thromboplastin. The two-stage method gave results in fair agreement with those obtained with the one-stage viper-venom method. When rabbit brain or ox lung was used, the prothrombin concentration was found to be lower than that given by the other two methods. Using the venom-lecithin method, the authors found that hemorrhage was unlikely if the plasma prothrombin was kept above 30 per cent of the normal value.

G.E.C.

ENZYME STUDIES ON HUMAN BLOOD. III. EFFECT OF PLASMA PROTEINS ON COAGULATION. G. Y. Shinowara. From the Department of Pathology, College of Medicine, The Ohio State University, Columbus, Ohio. J. Lab. & Clin. Med. 34: 477-481, 1949.

In a previous publication the author demonstrated that the clotting time of a thrombin-fibrinogen system became elevated as the purity of the fibrinogen preparation increased. This observation prompted the author to study the effect of albumin, fraction II-III, fraction IV-1, fraction IV-4 and hemoglobin on the thrombin-fibrinogen reaction time. It was found that albumin definitely lowers, fractions II-III and IV-1 elevate, and fraction IV-4 and hemoglobin slightly depress the clotting time in a system of fibrinogen fractions in citrate-phosphate buffer.

G.E.C.

ENZYME STUDIES ON HUMAN BLOOD. IV. INTERRELATION OF HEPARIN AND FIBROGEN FRACTIONS. G. Y. Shinowara. From the Department of Pathology, Ohio State University College of Medicine, Columbus, Ohio. Am. J. Physiol. 156: 458-464, 1949.

The effect of heparin on fibrinogen fractions, prepared by low salt-low temperature-ethanol procedure, was studied. As small an amount of heparin as 0.01 mg., without added cofactor, had a measurable anti-coagulant effect on 100 cc. of Seitz-filtered fibrinogen fraction. On fibrinogen fraction solutions which were not filtered, variable but reproducible effects were obtained. These varied with the concentration
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of added heparin. The author concludes that this phenomenon suggests the presence of another factor (P) which is necessary for the production of coagulant effects of heparin in fibrinogen fractions.

R.C.C.

A Protamine Titration as an Indication of a Clotting Defect in Certain Hemorrhagic States.

A method for the determination of heparin-like substances in blood is described in detail. This method is based on the fact that when heparin is added to blood and the clotting time begins to increase, very small increments of heparin then markedly prolong the clotting time, and when these increments are plotted against the clotting times the curve obtained for normal blood is a typical first order curve. Thus, in order to make use of the more sensitive portion of the curve, blood specimens were made incoagulable by the addition of a standard amount of heparin and then back-titrated with a standard solution of protamine sulfate to a clotting end point. Theoretically, the amount of protamine sulfate required in such a system to re-establish coagulation would vary in accordance with the concentration of the native "heparins and antiheparins" of the sample, other factors being normal. The protamine requirement under standard conditions was found remarkably constant in both man and dog. Sources of error and the limitations of the method are discussed. In a future publication the authors plan to present their results in certain hemorrhagic states using this method.

G.E.C.

LEUKEMIA

Chronic Lymphatic Leukemia. A Study of 100 Patients Treated with Radioactive Phosphorus.
J. H. Lawrence, B. V. A. Law-Beer and J. W. J. Carpenter. From the Radiation Laboratory and Divisions of Medical Physics (Donner Laboratory and the Department of Physics) and Radiology, University of California, Berkeley, Calif. J. A. M. A. 132: 585-588, 1949.

The authors are impressed with the ease and satisfactory, perhaps encouraging, results of the treatment of patients with chronic lymphatic leukemia, by means of internal irradiation with P32. The dosage used was 1 to 4 millicuries per week for from four to eight weeks, repeated subsequently whenever the disease relapsed. There was a small increase in the average duration of life under this treatment, as compared with the use of x-ray alone.

S.E.


The authors collect 11 cases of spontaneous remission of acute leukemia in the literature, of which 4 were in children (all females), 5 in adult males, and 4 in adult females. The duration of remission ranged from 2 to 11 months (authors' patient). One case showed two separate remissions. In all cases, as well as the authors', the eventual outcome was death.

The authors detail the story of the eleventh case, a woman of 33 who developed acute leukemia in the seventh month of pregnancy, and who, at the same time, developed eclampsia. One month after the delivery of a stillborn baby, the patient had spontaneously improved to a point at which there was complete normality of physical examination, blood count, and bone marrow smears. She was well for the following twenty-one months, when she rather suddenly relapsed and, within three weeks, died, despite treatment. Autopsy showed leukemic involvement of bone marrow and spleen.

S.E.


Deposition of crystals in the cornea occurred during urethane medication of myeloma. As formation of crystals may be found in different organs in myeloma, the author asks whether these crystals are so-called myeloma crystals or urethane crystals. The fact that they disappeared when the urethane medication ceased seems to speak in favor of the latter.

C.M.

Banti's syndrome is reviewed in terms of history, laboratory data, pathogenesis, splenic pathology, clinical course and therapy. One hundred and thirty-three references to the literature are included. The author concludes that, although splenic vein hypertension has been frequently seen in this condition and may be associated with a variety of abnormalities in the splenic and portal vasculature, the role such hypertension plays other than leading to the formation of gastrointestinal varices and subsequent blood loss is unexplained. The evidence for the two most commonly suggested roles of the spleen—namely (1) indiscriminate phagocytosis and (2) humoral inhibition of marrow hemopoiesis is reviewed. Therapy is discussed from both the medical and surgical aspects. No detailed comparison of results of portal shunt procedure with the procedure of simple splenectomy is made.

W. N. V.


Seven patients with splenomegaly, hyperplastic bone marrow, neutropenia, anemia and thrombocytopenia were studied before and after splenectomy. Evidence that the anemia was clearly hemolytic in nature was lacking. With the exception of one patient who died soon after splenectomy from other causes, all showed marked, although in most instances gradual, improvement following splenectomy. Examination of the spleens revealed varying degrees of follicular hyperplasia. Splenic phagocytic activity of any significance could not be demonstrated in supravital, Wright stained, or fixed tissue preparations.

The authors believe that the findings in primary splenic panhematopenia are best explained by the theory that the spleen has some regulatory action on the bone marrow. Doubt is cast on the concept that congenital hemolytic anemia and idiopathic thrombocytopenic purpura are members of this syndrome.

H. W. B.