ERYTHROCYTES


In this study, a successful effort was made to salvage outdated bank blood by first adding a rejuvenating solution and then freezing it with glycerol. After 21–34 days of storage at 4°C with acid citrate dextrose (ACD), whole blood or red cells were incubated for 60 min at 37°C with a 50 ml volume of a rejuvenating solution added to each unit. The solution contained per liter 9 g of sodium chloride and one of the following mixtures: 50 mmoles of pyruvate, 50 mmoles of inosine, 100 mmoles of glucose, and 50 mmoles of phosphate (PIGP solution); or, in addition, 5 mmoles of adenine (PIGPA solution). In both solutions, the pH was adjusted to 7.2. Red cells incubated without the rejuvenating solution served as control. After rejuvenation, the red cells were frozen with 40% w/v of glycerol and were stored at —80°C for up to 12 mo. After rapid thawing and one washing by continuous-flow centrifugation with a buffered sodium chloride solution, the recovery in vitro, survival in vivo, and the oxygen-transport function were measured. When the PIGPA-rejuvenating solution was used, the red cells had a normal oxygen-transport function and a 24-hr post-transfusion survival of about 80%. With the PIGP solution, the red cells had a normal oxygen-transport function and a 24-hr post-transfusion survival of about 75%. Without use of the rejuvenating solution, the oxygen-transport function was sharply reduced, and the 24-hr post-transfusion survival was about 66%. Rejuvenation of outdated human blood permits indefinite preservation of red cells by freezing with maintenance of optimal survival and function.—M.G.B.
Compensated hemolysis is a syndrome observed in patients with hemolytic diseases and is characterized by an accelerated rate of red cell production, despite normal or near normal hemoglobin concentration. This syndrome has been observed primarily in patients with hereditary spherocytosis (HS), but it has also been described in occasional patients with other types of hemolytic anemia. Since tissue hypoxia is the usual driving force for red cell production, it has been proposed that the oxygen affinity of red cells is high in patients with this syndrome, causing tissue hypoxia despite a normal hemoglobin. To test this hypothesis, a study was made of 14 patients with compensated hemolysis associated with untreated HS. The patients had a mean hemoglobin value of 12.7 g/100 ml, mean reticulocyte count of 9.9%, and a MCHC of 37.6%. Control studies were done in patients with HS postsplenectomy and, also, in normal subjects. Determination of the mean 2,3-diphosphoglycerate (2,3-DPG) content of the red cells in these three groups revealed half as much 2,3-DPG in the red cells of patients with compensated hemolysis as in the postsplenectomy patients and in the normal control subjects. However, the low 2,3-DPG was not reflected in the mean P50 value, since the mean P50 of the group with compensated hemolysis was 28.4 mm Hg, as compared with the postsplenectomy group with a mean P50 of 30.2 mm Hg and the normal control group of P50 27.6 mm Hg. Because of the high MCHC in the two groups with HS, it is possible that the effect of the 2,3-DPG and the P50 was canceled out. In any case, it appears that compensated hemolysis cannot be explained on a high oxygen affinity of red cells in circulating blood. However, it is possible that the oxygen affinity of red cells in patients with compensated hemolysis is not normal in that area of the body (presumably the kidney) that acts as an oxygen-sensing device controlling erythropoietin release, and that local pH, temperature, and osmolarity changes may play a role. Attempts to identify the location of this device and to measure the P50 of blood circulating through it may provide a more definitive answer to the riddle of compensated hemolysis.—M.G.B.
ABSTRACTS

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oxygen stimulates in some unrecognized sensitive kidney cells production of a metabolite of reactions that are not directly connected with energy metabolism.—M.G.B.

Phosphorus Compounds in the Erythrocytes of Rats With Transplantable Morris Hepatoma. H. Karon and L. Torlinski. Department of Physiological Chemistry, School of Medicine, Poznan, Poland. Patol Pol 23:49–54, 1972

Acid-soluble phosphorus compounds from erythrocytes of buffalo rats with transplantable Morris hepatoma and healthy controls were separated by ion-exchange column chromatography. An increase of AMP, ADP, and 2,3-diphosphoglyceraldehyde and a decreased content of ATP were observed in animals with hepatoma.—M.K.

Influence of Transplantable Morris Hepatoma on Glycolysis of Rat Erythrocytes. L. Torlinski and H. Karon. Department of Physiological Chemistry, School of Medicine, Poznan, Poland. Patol Pol 23:61–67, 1972

In erythrocytes of rats with hepatoma, consumption of glucose was found to be higher (5.8 μM/ml/hr) and lactate production was lower (5.4 μM/ml/hr) than in controls (4.5 μM/ml/hr and 7 μM/ml/hr, respectively). The increased content of 2,3-diphosphoglyceraldehyde in erythrocytes of rats with hepatoma (described in a preceding paper) suggests that the lowered diphosphoglyceride phosphatase activity is the probable defect accounting for the abnormal glucose metabolism in erythrocytes from animals with hepatoma.—M.K.


Sideroblast and siderocyte counts, as well as iron deposits in the bone marrow, were determined in 13 healthy subjects and 121 patients with various hematologic syndromes. The serum iron level, serum latent iron-binding capacity, and erythroblast counts in the bone marrow were also examined. In the control group, sideroblasts ranged from 18% to 52%. The cells containing more than four iron granules constituted less than 5%. No ring forms were found. The percentage of sideroblasts was very low in iron deficiency and posthemorrhagic anemias (0%–17%). In four cases of typical acquired sideroblastic anemia, the percentage of sideroblasts ranged from 86% to 100%, and the ring forms were 22%–81%. In other hematological disorders, the individual variation of sideroblast counts was very large. The number of cells containing more than four iron granules, as well as abundance of extracellular iron deposits, showed a correlation with the percentage of sideroblasts. In eight cases of pancytopenia with hyperregenerative bone marrow, resembling the clinical picture of sideroblastic anemia, a high percentage of sideroblasts but no ring forms were found in the bone marrow.—M.K.


The detection of inhibitors to the enzyme that removes glutamic acid peptide chains from folate polyglutamates is described. The test system is based on the reaction between plasma conjugase and the folate polyglutamate in red blood cell hemolysate. The conjugase enzymes, it is suggested, do not function significantly in the gut lumen. The absorption of either mono- or polyglutamate forms of folate was not affected by diphenylhydantoin or bicarbonate.—J.M.B.


In nine normal subjects, the effect of phenytoin on the absorption of synthetic pteroyltriglutamate was measured. Phenytoin did not affect the absorption of the folate polyglutamate.—J.M.B.
LEUKOCYTES


Several investigators have suggested that acute leukemia blast cells have neoantigens not found on normal cells. Evidence for this hypothesis has been either direct, with the use of a variety of antibody assays, or indirect, with cell-mediated assay systems. The ten patients studied were admitted to the Leukemia Service of the National Cancer Institute without prior therapy. Antiserums to purified cell membrane components from the tissue-culture cell line RAJI, produced in rabbits, were cytotoxic to leukocytes from the patients with acute leukemia but not to leukocytes from normal control subjects. This cytotoxic effect of the antiserum was found in all ten patients with acute leukemia studied, but nine of the ten lost this reactivity as they achieved bone marrow remission. One patient who did not enter remission did not lose the reactivity. These antiserums appear, therefore, to be capable of detecting an antigen associated with acute leukemia in relapse. It is apparent from this study that the RAJI cell membrane component used caused the development of antiserums in rabbits that recognized an antigen that appears on the surface of tissue-culture lymphoblasts and peripheral leukocytes from patients with acute leukemia. Furthermore, the level of reactivity of these antiserums to the peripheral blood leukocytes was related to the amount of tumor in the bone marrow. Thus, these antiserums may be clinically useful in diagnosis and in follow-up observation of the course and effectiveness of therapy. The nature of the antigenic determinants, however, is still unclear.—M.C.B.

Granulopoietic Stem Cell Regulators in Murine Urine: Alterations in Activity After Methotrexate. W. R. Vogler, E. S. Minglolfi, F. A. Garwood, and B. A. Smith. Division of Hematology and Medical Oncology, Department of Medicine, Emory University School of Medicine, Atlanta, Ga. J Lab Clin Med 79:379-387, 1972

By the use of the agar cloning technique, the effect of perturbations of granulopoiesis by the cytotoxic drug methotrexate on the committed granulocytic stem cells in C57Bl mice was studied. Methotrexate administered to the mice resulted in a depletion of granulocytic compartments in marrow and blood and a relative increase in marrow cells capable of forming granulocytic colonies in soft agar medium. The cells are considered to be committed granulocyte stem cells. The mean number of colonies formed per $10^5$ marrow cells increased from $328 \pm 5$ to $692 \pm 123$ days after subcutaneous administration of $120 \text{ mg/kg}$ of methotrexate. Urine collected and pooled daily was tested after Sephadex G-25 filtration for colony-stimulating activity. Control urine contained an inhibitor that disappeared 2 days after methotrexate administration. By filtration through Sephadex G-75, a colony-stimulating factor was found on day 2 in the eluate, and the inhibitor was retained on the colon. The results suggest that granulocyte levels are subject to regulation by humoral factors that, following perturbation of the marrow, activate and subsequently inhibit granulocytic stem cell proliferation. —M.C.B.


In 3-day cultures of PHA-stimulated lymphocytes, the mean index of blastic transformation (BI) was $72.5\% \pm 10.5\%$ in a control group of 32 healthy subjects and $9.5\% \pm 2\%$ in 58 cases of chronic lymphocytic leukemia (CLL). Higher values of BI were observed in cases of CLL with a benign course, but no statistical correlation could be demonstrated between BI and severity of clinical symptoms. No influence of previous cytostatic treatments on BI value was detected. There was no difference in the obtained results when PHA-M or -P was used.—M.K.
ABSTRACTS


Vaccination with BCG (scarification method) at weekly intervals was applied to ten patients with acute leukemia in full clinical and hematologic remission, achieved by long-term treatment with corticosteroids and cytostatic agents. In five cases, relapse occurred after 2, 4, or 6 mo from vaccination. The remaining five cases are still under observation and are in complete remission up to 14 mo after vaccination. —M.K.


Lymphocytes were isolated from the leukocyte-rich plasma of 20 healthy subjects by filtration through glass columns filled with nylon strips. Differential counts of isolated lymphocytes were examined, as well as their viability by trypan blue uptake. It was found that a higher percentage (93%) of viable, trypan blue-negative lymphocytes was obtained when 1% polyvinyl alcohol in saline was used for erythrocyte sedimentation, instead of 6% high molecular dextran (83%). Differential counts of the cells obtained by column filtration showed, on the average, 0.8% (0.05%–1.1%) granulocytes and 99.2% lymphocytes. Large lymphocytes contributed for 5.2% (3.2%–7.2%) and small lymphocytes contributed for 94.8% (92.8%–96.8%) to the whole number of isolated lymphocytes. Numbers and ratios of the various forms of lymphocytes were equal when the whole procedure was performed in either sterile or nonsterile conditions. The isolated lymphocytes were rather resistant to hypotonicity of the suspending medium. Three-hour incubation in distilled water had no significant effect on viability of the cells. —M.K.


In a group of 46 patients with various forms of granulocytopenia and agranulocytosis, the therapeutic effects of adenine preparations (vitamin B4, i.e., Leuko-4) were evaluated. The white cell counts attained normal values in 14 cases. Seven of these patients received, besides Leuko-4, prednisone and other forms of treatment (testosterone, folic acid, others). In these cases, a moderate increase in white cell counts was observed. Twenty-nine cases were refractory to the treatment with Leuko-4. No adverse effects were noticed. Leuko-4 added to cultures of normal lymphocytes did not change their ability for blast transformation, as measured by incorporation of ³H-thymidine.—M.K.

HEMOSTASIS

In Vivo Role of Factor XII (Hageman factor) in Hypercoagulability and Fibrinolysis. R. Herold and P. W. Straub. Department of Internal Medicine, Kantansspital, University of Zürich, Zürich, Switzerland. J Lab Clin Med 79:397–412, 1972

Coagulation and fibrinolysis changes were measured in six normal volunteer subjects and four subjects with congenital factor XII deficiency (below 1% of normal) after exhausting physical exercise and a short urokinase infusion, both of which have been reported to induce hypercoagulability and increased fibrinolytic activity in normal subjects. Similar degrees of hypercoagulability, as manifested mainly by a shortening of clotting and recalcification times and by a similar increase of fibrinolysis, were found in both groups. Furthermore, exercise led to a more pronounced increase of factor VIII in the normal subjects than in the factor XII-deficient group. After urokinase, no significant changes in factor VIII were observed in either group, although degree of hypercoagulability was similar to that after exercise. These findings suggest that, under the above circumstances, factor XII is not
of crucial importance for the in vivo activation of coagulation and fibrinolysis. In fact, factor XII did not play a key role in the pathogenesis of hypercoagulability and fibrinolysis in the experimental conditions of the authors. It may possibly be involved in some processes, as suggested by the increase of its activity following physical exercise. In most impressive in vivo changes occurred despite its congenital depression to less than 1% in patients, and these changes were mediated by an as yet unknown mechanism. Either some steps of the intrinsic coagulation system are by-passed or the intrinsic system may be involved, or neither of the two. From a clinical standpoint, the fact that the coagulation system could be activated in vivo despite the absence of factor XII could explain why the risk of bleeding is minute and why thrombosis may well occur in factor XII-deficient individuals.---M.G.B.


In some members of two Polish families, a slight bleeding tendency was found to be associated with a partial factor XII deficiency. Simultaneously with the low factor XII level, the surface activation rate of proconvertin in the plasma was significantly decreased. Factor XII deficiency associated with hemorrhages seems to represent a type of molecular abnormality differing from that in the ordinary Hageman trait. The disorder is transmitted as an autosomal intermediate dominant trait.---M.K.

Paracoagulation Reactions in the Experimental Syndrome of Intravascular Coagulation. K. Zawilska, L. Owczarek, J. Formaniuk, B. Prazmowska, and J. Sowiér. Second Department of Surgery, School of Medicine, Poznan, Poland. Przegl Lek 1972

The syndrome of intravascular coagulation (ICS) was experimentally produced in rabbits by intravenous administration of brain thromboplastin. The following changes were observed: diminished thrombocyte number, diminished fibrinogen level, prolonged recalcification and thrombin time, prolonged "r" and "k," and diminished "mE" in the thromboelastogram. Rapid loss of radioactivity following administration of 131I-labeled fibrinogen was also observed. Protamine sulfate paracoagulation tests (qualitative and quantitative) were simultaneously carried out. The qualitative test was found to be particularly valuable for the diagnosis of ICS. The result of this test gave positive results in 90% of rabbits with experimental ICS.---M.K.

Studies of Glycosidases in Fresh and Stored Human Platelets. M. Schmunker and P. D. Zieve. Section on Enzymology and Drug Metabolism, Laboratory of Pharmacology, Baltimore Cancer Research Center, National Cancer Institute, and Department of Medicine, Baltimore, City Hospitals and Johns Hopkins University, Baltimore, Md. J Lab Clin Med 80:635-643, 1972

Platelets contain a number of acid hydrolases, presumably lysosomal, that are released on incubation with thrombin, while at the same time cytoplasmic enzymes are retained. This investigation deals with the release of five glycosidases: α-galactosidase, α-mannosidase, N-acetyl-α-glucosaminidase, β-glucuronidase, and N-acetyl-β-galactosaminidase. Based on their release from platelets by thrombin, two groups of enzymes could be distinguished. While 26.6% of the original content of the N-acetyl hexosaminidases were released, only 15.6%-17.9% of the other three glycosidases were released. After storage for 24 hr at 22°C, there was a significant decrease in the release of these enzymes. Similarly, platelets stored for 24 hr at 4°C showed a release significantly less than in fresh platelets but greater than from platelets stored at 22°C. Addition of glucose stimulated the release of the glycosidases by thrombin from both fresh and stored (24 hr at 22°C) platelets, but acetate and pyruvate had no effect. Except for α-mannosidase which decreased markedly, levels of the other enzymes remained unchanged in platelets stored for up to 3 days at 22°C. These enzymes, however, increased in the plasma in which the platelets were stored. Inhibitors of platelet aggregation...
(such as ADP, ATP, and other nucleotides, as well as prostaglandin in E2) inhibited the release by thrombin of all glycosidases except α-mannosidase. ADP and ATP were also found to inhibit noncompetitively β-galactosidase, while ATP, CTP, and GTP inhibited β-glucuronidase activity. These observations suggest that α-mannosidase is in a different location from the other glycosidases studied and that this enzyme may in some way be related to the viability of platelets.—M.S.

Studies on Thrombosthenin A, the Actin-like Moiety of the Contractile Protein From Blood Platelets. I. Isolation, Characterization and Evidence for Two Forms of Thrombosthenin A. E. Probst and F. Luscher. The Theodore Kocher Institute, University of Berne, Berne, Switzerland. Biochim Biophys Acta 278:577-584, 1972

Thrombosthenin, a protein that confers contractile properties to blood platelets, has great similarities to actomyosin from striated muscle in showing Ca²⁺- and Mg²⁺-dependent ATPase activity. At high ionic strength, this protein dissociates in the presence of ATP into its components that, in analogy to actin and myosin of muscular origin, have been termed thrombosthenin A and thromosthenin M. Purification by gel filtration allowed separation of two fractions of thrombosthenin A. Both apparently contain actin like protein, since either one potentiates Mg²⁺ ATPase activity of rabbit myosin and in combination with myosin gives supraprecipitation. The protein of peak I was thought to represent the polymeric form of thrombosthenin A, whereas peak II, in part, showed typical properties of monomeric actin. It has a calculated molecular weight of 44,000 on acrylamide gel electrophoresis with dodecyl sulfate (SDS). Fraction II contained another major component that did polymerize under appropriate circumstances and could, therefore, be easily separated from the remainder. This material was capable of activating myosin ATPase and migrated at the same speed as thrombosthenin A on SDS gel electrophoresis. The ATPase activity of the complex of this particular protein with myosin is stimulated by Ca²⁺ to a greater degree than the one of thrombosthenin A and myosin. Whether this protein represents the tropomysin-troponin system is not clear at this time. The authors speculate that this material could possibly represent the actin like component of microtubules.—M.S.

Platelet Adhesiveness in Patients With the History of Past Myocardial Infarction. M. Mysliwiec, A. Perzanowski, and M. Bieławiecz. Department of Hematology, School of Medicine, Białystok, Poland. Pol Tyg Lek 27:1034-1036, 1972

Adhesiveness of blood platelets to glass beads was examined in 37 patients with the history of myocardial infarction and in a control group of 50 healthy subjects of similar age. The time interval between myocardial infarction and examinations was in all cases longer than 6 mo. The mean number of adhesive platelets was significantly higher in the patients (53%) than in the controls (44%). Increased platelet adhesiveness was twice as frequent in elderly patients (over 60 yr of age) than in younger patients. The authors conclude that drugs inhibiting platelet adhesiveness should be given particularly to elderly patients after myocardial infarction.—M.K.

IMMUNOHEMATOLOGY


The appearance of circulating atypical lymphocytes in the blood of some patients 3–6 wk after extensive blood replacement has been shown by many investigators to be related to viral infection of the blood recipient. The present investigation, however, demonstrates an earlier wave of atypical lymphocytes in patients 1 wk after transfusion. In 15 of 17 patients who received fresh or stored blood, as whole blood or packed cells, a five fold or greater rise in atypical lymphocytes or in vitro 3H-thymidine incorporation by blood leukocytes (or
both) occurred 1 wk after transfusion. These values declined to pretransfusion levels by the third week. The mean leukocyte $^{3}H$-thymidine incorporation at 1 wk in these 17 patients was significantly greater than that found in five patients undergoing surgery without transfusion or with an autotransfusion, or in three patients receiving frozen-thawed leukocyte-depleted blood. Lymphocytotoxic reactivity was also detected in the serum of 6 of 12 patients. The conclusion is drawn that the phenomenon is caused by an immunologic response to HL-A antigens present on the transfused leukocytes and platelets. Thus, further evaluation of frozen-thawed, leukocyte-depleted red cells or HL-A-matched blood, especially in transfusion therapy of potential allograft recipients, appears warranted. These findings are also relevant to blood transfusion therapy in general.—M.G.B.

Collection and Selection of Anti-Leukocytic, Anti HL-A Sera. G. Turowski and J. Kołodziej. Laboratory for Transplantation Immunology of Third Department of surgery and Faculty of Forensic Medicine, School of Medicine, Krakow, Poland. Przegl Lek 29:689-694, 1972

Preliminary results of studies on the collection and selection of sera containing cytotoxic anti-HL-A antibodies have been presented. The studies included sera from pregnant women, multiple blood recipients, and patients with hematologic diseases (mostly anemias, pancytopenia, and hemorrhagic diatheses). Cytotoxic antibodies were present in the sera of 221 of 640 pregnant women studied (36%). A high level of anti-HL-A antibodies was found in sera of 82 patients (12%). These sera were, thus, suitable for further serologic studies. In the case of multiple blood recipients (103 sera), the frequency of isoimmunization with leukocyte antigens was very high and amounted to 59.3%. The specificity of the collected sera with positive reaction and their value for diagnostic purposes were analyzed. In 22.8% of sera, antibodies for one, two, or three antigens were found. The remaining sera were multivalent or could not be identified.—M.K.

Incidence of Antileukocyte Antibodies in Human Milk. B. Maczynska-Ruslnlak.

Department of Serology, Institute of Hematology, Warsaw, Poland. Pol Tyg Lek 27:1257, 1972

Antileukocyte antibodies were investigated in the milk of 52 women between the third and the fifth day after delivery. The titers of leukoagglutinins and cytotoxic antibodies were determined. The antibodies could be detected in the milk in 42 women having leukocyte antibodies in the serum; leukoagglutinins in the milk appeared in all cases, while cytotoxic antibodies were found much less frequently in the milk than in the serum. Differences in spectra of activity and in titers of milk and serum antibodies are presented. No antibodies were detected in the milk of ten women with absence of leukocyte antibodies in the serum. Neither pasteurization nor heating at 56°C inactivated the antileukocyte milk antibodies.—M.K.


Peripheral blood lymphocytes from 12 iron-deficient subjects showed impaired lymphocyte transformation, as indicated by decreased thymidine uptake into DNA. In the same iron-deficient subjects, migration inhibition factor production was significantly less than that of a control group. In both tests, PPD and Candida were used as antigens. Intradermal injection of these antigens showed a delayed hypersensitivity skin reaction only in a minority of the 12 iron-deficient subjects. The authors suggest that iron deficiency may be a factor in the production or potentiation of immunodeficient states.—J.A.W.

Australia Antigen (Hepatitis B Antigen): A Conformational Antigen Dependent on Disulfide Bonds. G. N. Vyas, K. R. Rao, and A. B. Ibrahim. Department of Clinical Pathology and Laboratory Medicine, University of California School of Medicine, San Francisco, Calif. Science 178: 1300-1301, 1972
Reduction and alkylation of purified, hepatitis-associated Australia antigen resulted in complete loss of serologic activity. The reduced alkylated protein formed a single band with a sedimentation coefficient of 31S on analytical ultracentrifugation. Although this preparation induced a delayed hypersensitivity response when injected into guinea pigs, it failed to stimulate humoral antibody formation. The results suggest that the hepatitis B antigen is a conforma-
tional antigen critically dependent on the disulfide bonds of the protein moiety.—M.S.


In 272 patients, the occurrence of intestinal metaplasia of the stomach was determined. Analysis of ABO blood groups and rhesus factor revealed no association with the presence of metaplasia.—J.M.B.


Comparative investigations were carried out on the presence of H component in the erythrocytes (A₂B₂)h and (A₁B₂)h and on the activity of anti-H antibodies detected in these patients. It was established that the erythrocytes (A₂B₂)h possess a serologically active H substance that may be detected only by the method of absorption. Anti-H isoantibodies have a more narrow range of activity than antibodies found in (A₁B₂)h subjects. The phenotype (A₂B₂)h is closest to group A₁B with isoantibodies anti-H. The only difference between the type (A₁B₂)h and the classical phenotype “Bombay” is a weak expression of antigen Le₄ and agglutination of these erythrocytes by certain sera containing anti-H antibodies. It is suggested that this reaction may be caused by antibodies against determinants of the pre-

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cursor in erythrocytes (A₂B₂)h incompletely masked by antigen Le₄.—M.K.

MISCELLANEOUS

The Wiskott-Aldrich Syndrome. Results of Transfer Factor Therapy. L. E. Spitter, A. S. Levin, D. P. Sittes, H. H. Fudenberg, B. Pirofsky, C. A. August, E. R. Stiehm, W. H. Hitzig, and R. R. Gatti. Section of Immunology and Hematology, Department of Medicine, and the Department of Pediatrics, School of Medicine, University of California, San Francisco, Calif.; the Department of Pediatrics, Kaiser-Permanente Medical Group, San Francisco, Calif.; the Division of Immunology and Allergy, University of Oregon Medical Center, Portland, Ore.; the Department of Pediatrics, University of Colorado, Denver, Col.; the Department of Pediatrics; University of California at Los Angeles, Los Angeles, Calif.; the Department of Pediatrics, Kinderspital Zurich, Universitat Kinderklinik, Zurich, Switzerland; and the Department of Pediatrics, University of Minnesota, Minneapolis, Minn. J Clin Invest 51:3216-3224, 1972

Twelve patients with Wiskott-Aldrich syndrome were treated with therapeutic dosages of transfer factor in an attempt to induce cellular immunity. The Wiskott-Aldrich syndrome (WAS) is an hereditary sex-linked disease of boys characterized by recurrent pyogenic infections, eczema, and thrombocytopenia. Patients with this syndrome lack delayed hypersensitivity, as assayed by skin tests, and have lymphocytes that are defective in vitro in response to phytohemagglutinin and to specific antigens, as measured by radioactive thymidine incorporation into DNA. These patients may also have a subnormal antibody response to carbohydrate, but not to protein antigens. Most affected children die in infancy or early childhood. The most common causes of death are severe infections and hemorrhage. Transfer factor is a nonimmunogenic dialysate of peripheral blood leukocytes from tuberculin-positive donors that results in positive tuberculin skin tests in recipients who were previously negative. By the
injection of transfer factor, clinical improvement was noted in 7 of the 12 patients treated. The observed improvement could not necessarily be attributed to the transfer factor, although in two patients repeated remissions followed transfer factor administration on repeated occasions. The remissions included freedom from infection, regression of splenomegaly, and improvement of eczema. An unexpected finding was a decrease in bleeding in three of the ten patients who had bleeding, although the platelet count did not increase significantly. The study also shows that those patients who had defective monocyte IgG-receptors responded to transfer factor, whereas only one patient with normal receptors showed any response. Abstractor's comment: We can confirm these results that we have obtained in four children with Wiskott-Aldrich syndrome treated with transfer factor, although in our patients no effect on the bleeding tendency and on the platelet count was observed.—M.G.B.

Anabolic Steroids and Bone Marrow Toxicity During Therapy With Methotrexate. R. G. Rawbone and K. O. Bagshawe.
Department of Medical Oncology, Charing Cross Hospital, London, England. Br J Cancer 26:395, 1972

The effect of anabolic steroids (nandrolone decanoate and oxymetholone) on the peripheral blood counts in women receiving standardized chemotherapy for choriocarcinoma was determined. No protection effect on bone marrow suppression was discerned, but the interval between the nadir leukocyte count and the return to pretreatment level was shorter in those patients receiving the steroids.—J.M.B.


Host response to endotoxin was determined in splenectomized and sham-operated animals. The clearance rates of carbon and of endotoxin were normal after splenectomy and increased in conjunction with RES activation associated with endotoxin tolerance, both in splenectomized and sham-operated groups. Opsonization, phagocytosis, and removal of nonspecific inert particles or biological material were not affected in the splenectomized group.—J.M.B.

BOOK REVIEWS

Cancer Chemotherapy. By Edward Greenwald. New York, Medical Examination, 463 pages, $10.00.

Cancer Chemotherapy provides the reader with a concise outline of the uses and limitations of cancer chemotherapeutic agents. The format is good, with a brief discussion of each drug in the first part of the book and a shorter disease-oriented section comprising the last 100 pages. The section on the use of chemotherapeutic agents in nonneoplastic diseases is particularly well done.

The book has several major weak spots. Most of the chapters begin with “first principles” too superficial for any reader; e.g., “Under no circumstances should a drug be used . . . where the side effects will outweigh the results.” Several statements are inaccurate or, at the least, debatable; e.g., that the intrapleural instillation of atabrine and nitrogen mustard should be avoided because “not only do they add