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ERYTHROCYTES

Stabilization of the Erythrocyte Cell Membrane by General Anesthetics Demonstrated by the Autohemolysis Test. B. A. Waldron, Department of Anesthesiology, University Hospital of Wales, Cardiff, Wales. Br J Anesth 45:579-585, 1973

Autohemolysis tests were performed on blood taken from patients being anesthetized with a variety of anesthetic agents; the degree of autohemolysis was reduced in those given halothane, nitrous oxide, cyclopropane, diethyl ether, trichloroethylene or methoxyflurane. It is postulated that this reflects on action of the anesthetic agent on the red cell membrane. J.M.B.

Extrarenal Sites of Erythrogenin Production. S. M. Kaplan, S. A. Rothman, A. S. Gordon, I. A. Rappaport, J. F. Comiscoli, and C. Peschle. Laboratory of Experimental Hematology, Department of Biology, Graduate School of Arts and Science, New York University, New York, N.Y., and Institutes of Medical Pathology, Universities of Naples and Rome, Italy. Proc Lab Clin Med 143:310-313, 1973

Attention has been given recently to the phenomenon of extrarenal production of erythropoietin. The erythropoietin response to hypoxia in adult nephrectomized rats has been estimated to be approximately 10% that exhibited by unoperated controls (L. O. Jacobson, E. K. Marks, E. O. Gaston, and E. Goldwasser, Blood 14:635, 1959). In the present investigation the possibility was tested that the liver, implicated as an extrarenal source of erythropoietin, might respond to severe hypoxia by producing erythrogenin. The possible existence of erythrogenin in the spleen was also examined. Exposure of young nephrectomized male rats to severe hypoxia resulted in the appearance of highly significant quantities of erythrogenin in the liver and spleen. The amounts found in the two organs were greater than in the livers and spleens of control animals and were approximately equal to those seen in the kidneys of control non-nephrectomized animals. The conclusion was drawn that nephrectomy would potentiate extrarenal erythrogenin production in response to hypoxia.—M.G.B.

It is now known that the activity of human urinary erythropoietin is easily lost during the separation procedure when sephadex or DEAE-cellulose chromatography are used. In this paper, urine of human anemic patients was processed by a rapid procedure for the purification of erythropoietin. Considerable erythropoietin with a pI of 3.40 ± 0.10 at 2°C was purified from the urine of an anemic patient by precipitation with 80% acetone and by electofocusing. — M. G. B.


Erythropoietin-rich plasma extracts were obtained from blood of rabbits injected with cobalt chloride. The effect of this extract on $^{59}$Fe incorporation into erythrocytes, liver, spleen and bone marrow of BALBc mice of various age was examined. It was found that erythropoietin-rich extract administered orally markedly stimulated erythropoiesis in the suckling animals but not in the adult ones. Oral treatment with erythropoietin is suggested by the authors as a possible aid in the physiological anemia of the newborn. — M. K.

In Vitro Effect of Ultraviolet Radiation on Red Cell Volume and on Electrolyte Shift in the Blood of Pigeons. J. Sysa, A. Hyćczak, A. Sysa, I. Kabat, W. Majewski, and W. Leyko. Faculty of Physiology, Military School of Medicine, Institute of Biochemistry and Biophysics, University of Łódź and First Department of Pediatrics, School of Medicine, Łódź, Poland. Bull Wojsk Akad Med 16:419–424, 1973

The influence of in vitro UV irradiation of pigeon blood on the shifts of Na and K between erythrocytes and plasma as well as on erythrocyte volume was investigated. It was found that UV irradiation of blood was followed by a significant decrease of plasma sodium and an increase of plasma potassium. The reverse changes were detected in Na and K concentrations in erythrocytes. Hematocrit value was found to increase after UV exposure. These observations indicate a UV damaging effect on permeability of erythrocyte membrane. — M. K.


Study of human erythrocyte ghosts has been pursued as a means of exploring characteristics of an accessible plasma membrane. In this study the relationship between endocytic vacuole formation, energy requirement and magnesium and calcium was explored. It was seen that in the formation of erythrocyte vacuoles there is a strict requirement for Mg $^{2+}$, in the absence of which almost no vacuoles can form. ATP is also necessary as a substrate. ADP can substitute for ATP but other nucleotides are much poorer substitutes. Vacuole formation occurs optimally in the presence of 0.5–1.0 mM Ca$^{2+}$ but larger amounts of Ca$^{2+}$ produce inhibition of vacuole formation. The potentiating effect of low concentration of Ca$^{2+}$ is not clearly understood. Small amounts of Ca$^{2+}$ are known to activate a Ca$^{2+}$, Mg$^{2+}$ ATPase which may have a role in endocytosis and vacuole formation. — M. G. B.

Hereditary Hemolytic Anemia With Deficiency of 6-Phosphogluconic Dehydrogenase (6-PGD) and Drug Induced Hemoglobinuria. L. I. Idelson, R. S. Rustamov, and A. C. Kolesnikova. Central Institute of Postgraduate Medicine, Moscow, USSR. Klin Med (Mosk) 6:130–132, 1973

The authors observed seven patients with hereditary nonspherocytic hemolytic anemia and low activity of 6-PGD. One of these patients, a 16-yr-old Russian boy had an acute drug-induced hemolytic crisis with hemoglobinuria after a dose (0.3 daily in the course of four days) of 5-nitro-8-oxychinolin. The activity of glucose-6-phosphate dehydrogenase (G-6-PD) was normal: the activity of glutathione-reductase (GR) was slightly increased. As the authors note, primaquine-induced hemolysis in patients with 6-PGD deficiency was reported by R. N. Dern and others in 1966. — G. A.

Incorporation and Utilization of Iron ($^{59}$Fe) Administered Intragastrically in Suckling Pigs. T. Kryzmowski, J. Przała, F. Przała, J. Czarnecki, K. Jabłoński, M. Góralska, and J. Biadowicz. Institute of Physiology and Biochemistry of Animals, School of...
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59Fe bound to fructose, dextrane or dextran-wort obtained in fermentative dextrane production was administered by stomach tube to suckling pigs on the second day of life. The fourth group of pigs received the same dose of iron in the form of 59Fe dextrane complex intra muscularly. Three days after 59Fe administration the incorporation of iron into erythrocytes, bone marrow and spleen was investigated. Blood hemoglobin level, hematocrit, iron content in plasma and total serum binding capacity were examined at the same time. It was demonstrated that a single 200-mg dose of Fe introduced in the stomach on the second day of life in the pig reduced the iron deficit. Twenty to twenty-five per cent of this dose was retained in the organism. The respective value for intra muscularly administered 59Fe was 49.6%. No relation could be detected between storage of 59Fe in the organs and serum Fe level and iron binding capacity. — M.K.

Favism: Current Problems and Investigations.
E. Bottini. National Research Council Center for Evolutionary Genetics, Department of Genetics, School of Science, University of Rome and Department of Pediatrics, School of Medicine, University of Rome, Italy. J Med Genet 18:154–157, 1973

In vitro studies of the action of extracts of Vicia Fava with red cells from patients who had had episodes of hemolytic favism suggested that several active substances may act in a synergistic manner. Red cell acid phosphatase and thalassemia genes were important in determining the susceptibility of G-6PD-deficient subjects to hemolysis. — J.M.B.


A boy with steroid-responsive congenital hydropastic anemia is described. In addition to long thumbs which are triphalangeal, he demonstrates hypertelorism, antimonogolid slant of his eyes as well as retinopathy, delay in closure of the anterior fontanelle, cleft lip and palate, scoliosis, and narrow shoulders. He also has a short webbed neck, abnormal skin pigmentation, and mental and physical growth retardation. Karyogram was normal. Interestingly the boy’s mother has a long triphalangeal left thumb, which may also have been present in her brother and her mother’s aunt. — J.B.S.


Although neonatal RBC have decreased GSH-peroxidase activity, the response to H2O2 stress was similar in neonatal and adult erythrocytes. Thus the increased sensitivity to oxidants seen in neonates’ RBC appears not to be related to deficient GSH-peroxidase. — J.B.S.

Activity of Serum and Erythrocyte Cholinesterase in Humans After Occupational Exposure to Phosphoorganic and Carbamate Insecticides.

Serum (SChE) and erythrocyte (EChE) cholinesterase activity was determined in 24 agricultural workers exposed for 21–24 days to either phosphoorganic (Brilane, Intration, Bi-58, or Sapekron, group I) or carbamate (Unden group II) insecticides. The examinations were performed on the last day of the exposure and then repeated several times during the following 65 days. In group I, on the last day of exposure, SChE activity decreased to 25% of the control values and EChE to 84%. Respective values for group II were SChE 50%, and EChE 79%. The increase of SChE activity after discontinuation of exposure to insecticides was slow. In group I, the means for SChE attained 69% and EChE 87% of the control values on the 65th day. In group II, on the 57th day, the respective means were SChE 74%, and EChE 75%.— M.K.

The Effect of 50Co Gamma Radiation on Stored Blood.
M. Szator, K. Konopka, and W. Leyko. Blood Bank, Faculty of General and Physiological Chemistry, School of Medicine and Institute of Biochemistry and Biophysics of the University, Lodz, Poland. Pol Przegl Radiol 37:307–315, 1973

The effects of 50Co gamma radiation on changes occurring in stored blood (ACD) were examined. Irradiation was carried out in a cobalt radiation chamber. The dose rate was about 0.1 Mrad/hr, the thickness of irradiated layer 4.4 cm, the exposure time 3.18 and 30 min corresponding to doses of about 5.30 and 50
krd. The investigations were performed 1, 7, 14, and 21 days after collection and irradiation of the blood. Phosphorus compounds, acid-soluble fraction of erythrocytes, degree of hemolysis, and levels of sodium and potassium in whole blood and plasma were determined. A rise in AMP and a fall in ATP was observed in the irradiated blood during storage as compared with control samples. The level of free hemoglobin and potassium rose in the plasma while the sodium level rose in the erythrocytes. These changes were due to damage to the mechanism of ion transport across the erythrocyte membrane and to acceleration of the process of erythrocyte aging.—M.K.

LEUKOCYTES


Cells from nine patients with CML were studied by quinacrine fluorescence and Giemsa staining. All showed a deletion of the long arm of chromosome 22, i.e., the Ph' chromosome, but all showed the addition of dully fluorescing material to the end of the long arm of one chromosome 9. The amount added to chromosome 9 was approximately equal to the amount lost from chromosome 22, suggesting that a translocation was involved.—A.A.M.

Observations on the Cytokinetics of Chronic Myeloid Leukemia. M. Bacocca, M. A. Santucci, and S. Torz. Division of Hematology, University of Bologna, St. Orsola's Hospital, Bologna, Italy. Haematologica 57:11, 1972

The authors have evaluated the mitotic index (I_M) and the in vitro 3H-thymidine flash labeling index (I_3H) of bone marrow and blood granulocytic precursors in nine patients with chronic myeloid leukemia (CML). The I_M and the I_3H of marrow and blood promyelocytes were not different from normal, and the I_L was equal in marrow and in blood in all cases but one. The I_M and the I_3H of marrow myeloblasts were found to be lower than in the normal, and the I_L of blood myeloblasts was lower than the I_L of marrow myeloblasts in all patients but one. In six patients, the stathmokinetic index after vincristine was studied, and the mitotic time (t_M) and the DNA-synthesis time (t_DNA) of marrow myeloblasts was computed. Myeloblastic (t_M) was longer than normal, and similar to the values reported in acute leukemia. Myeloblast-(t_DNA) was shorter than 13.1 hr in all patients but one. From these observations the authors suggest that the kinetic behavior of well differentiated granulocytic precursors is similar to normal, whereas already at the clinical onset of CML a fraction of myeloblasts behaves as the leukemic blast cells of acute myeloid leukemia and of the blastic crisis of chronic myeloid leukemia.—G.L.


A cell line derived from a A x C rat spontaneous tumor, histologically characterized as a lymphoblastic lymphosarcoma, was carried through 61 passages in monolayer cultures. The first few passages showed two types of lymphocytic-like cells which displayed cytoplasmic processes and interactions with histiocytic cells. After seven passages in culture, the cells were represented by the histiocytic type showing a very pleomorphic pattern. These cells had the capacity to reproduce a highly undifferentiated sarcoma when inoculated in the peritoneal cavity of animals of the same strain. The morphological changes of the cells in culture were followed by numerical and structural chromosome changes, with the presence of "marker chromosomes" represented by large acrocentrics and large metacentrics, seen at passage 53. The possibility of the presence of viruses in the culture and its significance are discussed.—M.J.


One hundred and nineteen cows suffering from leukemia were examined. In 19 animals tuberculosis was diagnosed. The comparison of the two groups, one tuberculosis-free and the second with tuberculosis, indicated that the leukemia morbidity was lower (12.3/1000 animals) in tuberculous animals than in tuberculosis-free cattle (24.9/1000 animals). Besides the slightly higher tendency to generalization
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The activity of esterase of alpha-naphthol acetate was determined in mononuclear cells of blood and bone marrow of healthy subjects, patients with chronic and acute leukemias, reticulooses, anemias and infectious mononucleosis. The investigations were carried out on 161 subjects. It was found that in various diseases differences occur in the esterase activity of lymphocytes; it was highest in chronic myeloid leukemia, and lowest in infectious mononucleosis. The monocytes and lymphocytes in infectious mononucleiosis showed a striking reduction in the activity of this enzyme as compared with the monocytes and monocytoid cells of healthy subjects or patients with monocytic leukemia. This may be of value for the differential diagnosis of these conditions. Increased activity of this enzyme was observed in plasma cells of plasmocytoma and of patients with megaloblastic reactions. — M.K.


Among a group of 33 patients with Hodgkin’s disease in complete remission for at least 2 yr, 16 had hepatitis-associated antigen (HAA) in their serum; histological stigmata of chronic persistent hepatitis were found in the livers of 12 or the 16 HAA-positive patients and in five of the 17 HAA-negative patients. Hepatitis-associated antigen was not present in any of 36 patients with Hodgkin’s disease tested before the introduction of therapy. It is suggested that the occurrence of HAA and chronic persistent hepatitis are more likely to be related to treatment than to the disease. — J.M.B.


Recent epidemiologic studies of Hodgkin’s disease have suggested that horizontal transmission may occur, predominantly from the young patients to the young and old persons. It was further suggested that an asymptomatic carrier state and an incubation period of years may be involved. In the research presented in this paper it was decided to test the hypothesis that in schools where a case of Hodgkin’s disease had occurred in a teacher or student, more than the expected number of additional cases would appear among teachers or students (or both) attending the same school. The study was limited to the period from 1960 through 1970. Objective epidemiologic approaches were applied. Five of the eight secondary public schools with cases diagnosed during the 1960–64 time period had other cases diagnosed during the years 1965–69. In contrast, none of the matched control schools had cases in that latter period. Schools with index cases had a significantly higher than expected number of secondary cases. The results of both analyses support the concept that some form of transmission may be important in the occurrence of Hodgkin’s disease. — M.G.B.


Fifty patients with advanced Hodgkin’s disease were treated with a combination of nitrogen mustard, a vincra alkaloid (vincristine or vinblastine), procarbazine and prednisone, used in cyclical fashion. Complete remission was achieved at some time in 33 of the 50 patients (66%). The attainment of complete remission was not significantly influenced by prior therapy; it occurred in 12 out of 20 previously untreated patients in eight out of nine who had
previously received only limited radiotherapy, and in six out of ten who had previously undergone extensive radiotherapy. The mean period of follow-up was over a year in the 30 patients (60%) who remained in continuous complete remission. Major dose limiting toxicity was the result of bone marrow depression and vincristine-induced neuropathy. Patients who had previously been treated by extensive radiotherapy, with or without chemotherapy were able to tolerate less of the combination chemotherapy than patients who had received either no prior therapy or only limited radiotherapy. Decreased tolerance was usually due to thrombocytopenia. Abstractor's comment: These results are very similar to those previously reported with this type of therapy. — T. H. B.


Various aspects of the cellular biology of Hodgkin's disease are described together with the results obtained using different experimental methods such as high resolution autoradiography, cytogenetics, electron microscopy, cytochemistry, and immunologic techniques. The modern views on the pathogenesis of Hodgkin's disease in the light of the most recent experimental findings are also discussed. — G. L.

Chromosome Alterations in Chronic Myeloid Leukemia. Present Aspects of the Problem. A. Baserga and G. L. Castoldi. Department of Internal Medicine, University of Ferrara, Ferrara, Italy. Haematologica 57:11, 1972

After a review of the various hypotheses on the morphogenesis of the Ph1 chromosome, the authors present a cytogenetic classification of chronic myelogenous leukemia (CML) and results of their observations on the main cytogenetic aspects during the blastic crisis of CML and in other hematologic disorders. — G. L.


Radiologic evidence of bone involvement in children with ALL was noted in 21% of 191 patients. There was no prognostic significance whatever to the finding. — J. B. S.


In 200 patients with hemopoietic proliferative diseases and in healthy controls, parallel determinations of the activity of peroxidases, granulocyte alkaline phosphatase, nonspecific esterase with NaF used as inhibitor, PAS reaction, Sudan black staining, Hb F and sideroblast determinations were done. For classification of acute leukemias, the PAS reaction, Sudan staining and determination of nonspecific esterase were found to be most useful. It was possible to recognize in a group of 51 cases of acute leukemias, myeloblastic leukemia in 55% of cases, so-called myelomonocytic leukemia in 14%, monocytic leukemia in 2%, lymphoblastic leukemia in 25%, and nondifferentiated leukemia in 4%. Increase of Hb F was demonstrated in 12.5% of acute leukemias. — M. K.


Nucleoli in peripheral blood lymphocytes of healthy persons and of patients with chronic lymphocytic leukemia were identical by submicroscopic studies. Changes in the submicroscopic structure of the nucleoli and also their number and localization in the nucleus observed under the effect of PHA in the transformed lymphocytes both from normals and from patients with chronic lymphocytic leukemia were identical. The authors associated the changes in the ultrastructure of the nucleoli with the changes in function of the lymphocytes in the course of blast transformation. Possible mechanisms of the passage of ribosomes or their precursors from the nuclei into the cytoplasm are discussed. — G. A.

Cell Population Growth in Chronic Myeloid Leukemia. F. Govosto. Division of Haematology, Medical Clinic, University of Turin, Turin, Italy. Haematologica 57:11, 1972

After a review of the literature on cell proliferation in chronic myeloid leukemia (CML), new kinetic data are reported. The existence of ineffective granulopoiesis is demonstrated by
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Kininogenesis, blood coagulation and plasma euglobulin fibrinolysis were investigated in dogs comparing proliferation rates in and efflux rates from the proliferating compartment. A kinetic model is proposed based on the following three compartments: stem cell compartment, expanding compartment and maturation compartment. This scheme appears to be the most complete for CML. In particular, such a model can agree with the hypothesis of clonal succession during expansion of the leukemic cell population. — G.L.

Diagnosis of Primary Lymphogranulomatosis of the Bone Marrow. M. G. Abramov, N. T. Fokina, V. S. Dubrovskaya, V. I. Konовалова, and N. A. Lobanov. Central Institute of Postgraduate Medicine, Moscow USSR. Probl Gematol Pereliv Krovi 6:8-12, 1973

Primary lymphogranulomatosis of the bone marrow is rarely recognized during life. Its diagnostic signs, detected by iliac trephine biopsy, are total infiltration of the bone marrow and the presence of Berezovsky-Sternberg’s cells in the sternal aspirate. The blood picture is characterized by signs of bone marrow hypoplasia, i.e., anemia, leukopenia, and thrombocytopenia. — G.A.


The authors consider the so-called dermatopathic lymphadenopathy as a benign reaction produced by the extensive skin affection. Differential diagnosis between lymphogranulomatosis, Brill-Simmons disease and leukemic reticulosis on one hand and reactive lymphadenopathy on the other is described. The authors present two observations where Hodgkin’s disease was erroneously diagnosed. The correct diagnosis was made on the basis of clinicomorphological data. The reactive nature of the dermatopathic lymphadenopathy is supported by the demonstration of analogous morphological changes in the peripheral lymph nodes following prolonged anticonvulsant therapy (Brow, J.M., 1971; Raising, A., Trell, E., 1971 and others). — G.A.

HEMOSTASIS

Interaction of Blood Platelets with Synthetic Vascular Prostheses. S. Olszewska and K. Wnorowski. Department of Thoracic, Cardiac and Vascular Surgery and Department of Physiological Chemistry, School of Medicine, Białystok, Poland. Polymers in Medicine 3:23-29, 1973

The interaction of materials used for production of vascular prostheses with platelets was investigated. The synthetic vessels made of polyester of terephthalic acid and ethyl glycol (Dacron, USA; Terital, Italy; and Elastor, Poland) were examined. The prostheses were cut into pieces (0.5-1.0 mg) and used as agents aggregating platelets in PRP or for filling the columns on which adhesion of platelets was examined. Adhesion of platelets accompanied by a release of small amounts of platelet factor 4 (antiheparin) was induced by all examined samples. Neither aggregation nor increase in platelet factor 3 availability was observed. — M.K.

Clotting and Fibrinolysis in People Exposed to Lead Compounds. Z. Skrzydlewski, J. Kordecka, S. Kreczek, A. Mical, J. Skrzydlewski, and W. Sadowski. Department of Obstetrics and Gynecology, School of Medicine, District Service for Occupational Medicine and M. Curie-Skladowska District Hospital, Białystok, Poland. Med Pracy 24:178-183, 1973

The toxic effects of chronic lead exposure were evaluated in 31 people by determination of coproporphyrin, and delta-aminolevulinic acid in urine, and of lead content in blood. On the basis of the obtained results the whole group was divided into two subgroups with slight and pronounced signs of lead toxic effects. In both these subgroups significant changes in clotting and fibrinolysis were detected as compared with the controls. These changes consisted in decrease in thromboocyte counts, prolongation of the whole blood clotting time and prothrombin time, lowering of fibrinogen level, and activation of fibrinolysis, measured by the determination of the lysis time of clots formed from euglobulins. Less pronounced changes were observed in thrombelastograms. — M.K.


Kininogenesis, blood coagulation and plasma euglobulin fibrinolysis were investigated in dogs...
with experimental pancreatitis induced by introduction of bile salts mixed with thrombin into the choledochus. As compared with the control values, the following changes were detected during acute pancreatitis: decrease of platelet counts and plasma kininogen level, increase in activity of kininforming enzymes, increase of FDP content, transient drop in fibrinogen level followed by first increase, transient activation and subsequent inhibition of plasma euglobulin fibrinolytic activity. All these changes were significantly less pronounced in dogs pretreated with infusions of heparin (1.5 mg/kg of body weight). The results point to the role of intravascular coagulation and kinin formation in the pathogenic mechanisms of experimental pancreatitis as well as to a protective effect of heparin. M.K.

Some Aspects of Coagulation and Fibrinolysis in Experimental Burns. J. Niedworok, E. Spychalski, and E. Miekis. Faculty of General and Experimental Pathology, Faculty of Pathological Anatomy and Department of Urology, Military School of Medicine, Lodz, Poland. Bull Wojsk Akad Med 16:217-222, 1973

Rabbits were burned with napalm (approximately 17%, of the neck skin). During the first few days of “burning sickness” pronounced shortening of r and k values in the thrombelastograms, significantly enhanced thromboplastin generation and increase in fibrinogen level were observed. Fibrinolytic activity of plasma (euglobulins) was inhibited during the whole period of 30 days after burning. Soluble fibrin in plasma could not be detected by protamine sulfate test. Multiple thrombi were found in histologic sections of the burned skin. The results may support the indication to thrombolytic treatment of burns. M.K.


Four infants with cystic fibrosis of the pancreas (therefore unsuspected in three) developed significant hemorrhage into skin, GI tract and/or CNS. Marked prolongation of the prothrombin time was found, which promptly and permanently responded to Vitamin K. The vitamin K deficiency in the infants appeared to be due to administration of vitamin K-deficient artificial formulae, to chronic diarrhea, and/or prolonged broad-spectrum antibiotic therapy. J.B.S.

IMMUNOHEMATOLOGY


The surface of human lymphocytes was studied by scanning electron microscopy. Lymphocytes from peripheral blood or tonsils were identified as thymus-derived (T) cells or thymus-independent (B) cells on the basis of the ability of T cells to form rosettes with sheep red cells and for some B cells to form rosettes with complement-coated human red cells. The rosettes were glutaraldehyde fixed and subsequently examined by scanning electron microscopy. Lymphocytes both rosetting and non-rosetting, had multiple surface microvilli. As compared to rosetting B cells, rosetting T cells were generally smaller and smoother, with fewer and shorter microvilli. Microvilli appeared to be the sole cell-cell contact points between T cells and red blood cells; B cells made contact through both villi and non-villi areas. Microvilli are an important mode of primary contact between lymphocytes and the outside cells or the outside world. The ability of lymphocytes to form rosettes in several in vitro systems with antigens or sheep red blood cells is an active process that can be blocked by metabolic inhibitors. It is very possible that this process of in vitro attachment has a counterpart in vivo in the recognition and immune response to foreign or altered self antigens. This research further emphasizes the importance of microvilli as a mode of primary contact with the lymphocytes and the outside world. M.G.B.


The effect of in vitro heating experiments on red cell glycolysis varied with the ABO blood group of the cells. J.M.B.


This is a review article on recent research into antigens and immune responses in leukemia. Sections are devoted to the evidence for humoral and cellular immune responses to
leukemia antigens, the characterization of leukemia-associated antigens, alterations in the amount of normal isoantigens, reappearance of embryonic antigens, and evidence for depression of the immune response in leukemia.— A. A. M.

Limitations of Solid-Phase Radioimmune Assay for HB Ag in Reducing Frequency of Post-transfusion Hepatitis. F. B. Hollinger, R. D. Aach, G. L. Gitnick, J. K. Roche, and J. L. Melnick. Department of Epidemiology and Virology, Baylor College of Medicine, Department of Medicine, Washington University School of Medicine, Department of Medicine, UCLA Center for Health Sciences, and the Blood Resource Branch, National Institutes of Health, Bethesda, Md. N Engl J Med 289:385–391, 1973

Attempts at prevention of post-transfusion hepatitis have so far focused primarily on developing sensitive screening tests for detecting hepatitis B antigen in donor blood. The counter electrophoresis technique has been one of the first methods that was readily adaptable to the needs of blood banks and diagnostic laboratories. Despite a substantial reduction in post-transfusion hepatitis some cases of hepatitis B have continued to occur. To determine if a recently licensed radioimmune assay (Austria-125) would further reduce the incidence of type B hepatitis, 139 presumably susceptible recipients were respectively studied after they had received blood negative for hepatitis B antigen by counter electrophoresis. Fifteen cases of icteric or anicteric hepatitis occurred but only four could be attributed to hepatitis B. No hepatitis B occurred in nine subjects who received radioimmune assay-positive blood alone, and only one in ten who had received radioimmune assay-positive and hepatitis-B-antigen-positive blood. Type B hepatitis developed in three of 120 patients who received radioimmune assay-negative blood. If serologic responses only are compared, exposure to hepatitis B or hepatitis B antigen occurred in six of 19 recipients of radioimmune assay-positive blood and only eight of 120 responded among the recipients of radioimmune assay-negative blood. The findings do not support proposal for universal compulsory implementation at present of the Austria immunoassay for screening blood donors to reduce the risk of hepatitis.— M. K. B.


The protein called “Jam” was isolated from the pleural fluid of a patient with heavy chain disease. The amino acid sequence was determined in the whole polypeptide chain using an automatic amino acid analyzer according to Edman’s procedure. Amino acids were identified by gas chromatography. Contrary to the first descriptions of incomplete IgG chains in Franklin’s gamma G-1 syndrome, “Jam” failed to confirm the hypothesis of the presence of an internal amino acid defect within the chain, suggesting rather absence of a whole N-end portion down to the 221st amino acid in the gamma polypeptide chain.— M. K.


Together with an extensive review of the literature on the topic of immunoproliferative disorders, the authors report their own contribution to the problem of clinical, humoral, and cellular classification of immunoproliferative diseases. A critical examination of recent theories concerning the monoclonal origin of some immunoproliferative diseases, particularly plasmacytoma, is included. The major problems concerning lymphoplasmodic immunoproliferative binomials (biclinal and pluriclonal types), the relation between chromosome abnormalities and paraproteinemia and the use of the concept of T and B lymphocytes in the classification of these diseases are discussed together with new techniques for demonstrating surface immunoglobulins. Three classifications are presented based on humoral, cellular and clinical criteria. The clinical classification is inspired by diagnostic needs and distinguishes essentially the various anatomico-clinical types of plasmocytomas, including plasma cell leukemia, monocryplasmodic and lymphoproliferative cryopathies and gammopathies. G. L.

MISCELLANEOUS

A Simple Technique to Determine the Blood Volume of Newborns With Human Serum-Albumin Labeled With Technetium-99m (HSA-
The authors describe a simple method for the determination of small blood volumes (BV) by which they have determined the blood volume (BV) of 11 normal full-term newborns. By injecting through the anterior fontanelle 1 ml of a human serum albumin solution labeled with Technetium-99m (Tc-99m) and withdrawing from the posterior fontanelle blood samples of 1.2 to 1.5 ml at 10, 20, and 30 min after the injection, they demonstrate the possibility of determining BV with only two of these samples without using a standard and with insignificant whole body irradiation (3.2 mrad/6 hr). Statistical treatment showed that the samples drawn at 10 and 30 min characterize a straight line which is close to the logarithmic regression defined by the three samples. The authors suggest, therefore, the use of this pair of points as a simplification of the methods; however, by using only the 10 min sample they obtained excessive values with a mean of 7.72 ± 4.71 m. They recommend the use, in newborns, of only radiopharmaceuticals with the Tc-99m's physical characteristics. — M.J.


Exudate cells were obtained from the peritoneal cavity of mice previously injected with thioglycollate. The cells were cultured in soft agar and medium conditioned by L cells was used as a stimulus. Colonies consisting of macrophages developed between 2 and 4 wk. By contrast, when marrow cells were cultured, colonies developed within 7–10 days. — A.A.M.