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ERYTHROCYTES


Incorporation of $^{59}$Fe into erythrocytes of the peripheral blood and plasma erythropoietic activity were investigated in Wistar rats before and after whole-body exposure to 500 R of x-rays. It was found that incorporation of $^{59}$Fe into erythrocytes decreased progressively from the first day after exposure, with a nadir on the fourth day. On the fifth day the phase of abortive regeneration occurred. The return to the normal values was observed after 14 days, followed by the hyperregenerative phase. Consistent with the changes in $^{59}$Fe incorporation were the results of investigations on bone marrow cellularity. Quite similar, albeit less pronounced, were the changes in erythropoietic activity of plasma of the irradiated rats. M. A.


Wistar rats were subjected to whole-body exposure with x-rays (500 R). The effects of erythropoietin, cobalt, and testosterone on incorporation of $^{59}$Fe were investigated in the irradiated animals. It was found that neither single nor repeated doses of exogenous erythropoietin influenced the disturbances in erythropoiesis. Cobalt chloride administered before or after exposure had similarly no effect on radiation-induced inhibition of erythropoiesis. An increased plasma erythropoietic activity was observed when three daily injections of testosterone were applied either before or on the fifth to seventh day after exposure. However, the stimulation of erythropoiesis, as measured by incorporation of $^{59}$Fe into erythrocytes, was observed only after testosterone.
administration from the fifth to the seventh postexposure day. This result may indicate direct stimulation of bone marrow by testosterone applied during this time period. — M.K.

**Autoimmune Connections Between Diabetes and Addison-Biermer Disease.** K. Rechowicz, S. Pawelski, L. Konopka, A. Czech, and A. Czysyk. Department of Internal Medicine, Institute of Hematology and Third Department of Internal Medicine, School of Medicine, Warsaw, Poland. Pol Tyg Lek 28:1341–1343, 1973

A group of 50 patients with juvenile diabetes and presence of anti-insulin antibodies was investigated. In four cases antibodies to intrinsic factor (type I) was detected in serum. In these patients and in one additional case the diagnosis of Addison-Biermer disease (pernicious anemia) was established on the ground of the results of double Schilling test. In all four patients Addison-Biermer disease was not associated with any manifestations of vitamin B12 deficiency, since periodic injections of this vitamin were applied for other reasons in all cases before the investigations. — G.L.

**Prolonged Incubation of Blood in an Open System With Bicarbonate Buffer.** A. Solecki, T. Badzia, and J. Rogulski. Department of Clinical Biochemistry, School of Medicine, Gdansk, Poland. Acta Biochim Pol 20:55–62, 1973

Bicarbonate buffer and a teflon membrane were applied for prolonged incubation of blood at a hematocrit value of 30%. The conditions used permitted the incubation of the blood for 30 hr at 37°C without any significant changes in pH, Pco2, concentration of bicarbonate, Na, K, and P, glucose utilization, and ATP content. No leakage of hemoglobin occurred during this time. — M.K.


This is a report of the coincidence of polycythemia vera and pernicious anemia in a 78-yr-old woman. Large splenomegaly during megaloblastic anemia allowed the authors to consider a myeloproliferative syndrome masked by vitamin B12 deficiency. — J.C.


Thirteen days after lethal irradiation and syngeneic bone marrow transplantation in mice the spleen was the main erythropoietic organ and produced mature erythrocytes in proportion to the number of cells initially injected. The 24-hr uptake of Fe59 in the circulating blood of the injected mice was an accurate and simple test for the measure of erythropoietic activity of the bone marrow cell suspensions used. — G.L.


Morphologic and cytochemical bone marrow findings in three cases of acquired sideroblastic anemia are described. Two of the three patients studied were responsive to pyridoxine therapy. In the first two cases bone marrow investigations revealed the usual features of erythroid hyperplasia, slight megaloblastosis, rare giant erythroblasts, and many ringed sideroblasts. In a third patient, cytochemical findings and a peculiar responsiveness to pyridoxine sustained the diagnosis of pyridoxine-responsive idiopathic acquired sideroblastic anemia, although the bone marrow was typical of acute erythremic myelosis. Marked erythroblastic defects and dyserythropoiesis were the morphologic evidence of ineffective erythropoiesis that is common to all the sideroblastic anemias. — G.L.


The literature pertinent to the clinical and laboratory picture of paroxysmal nocturnal hemoglobinuria (PNH) in patients with hypoplastic anemia, as well as of occasional PNH patients who later developed hypoplastic anemia, is reviewed. The occurrence of leukopenia and thrombocytopenia in some cases of
LEUKOCYTES

Freeze-etching, Scanning, and Thin Section Electron Microscopic Studies of the "Hairy" Leukocytes in Leukemic Reticuloendotheliosis.

C. Burns and J. Hook. Division of Hematology-Oncology, Department of Medicine, University of Iowa College of Medicine, Iowa City, Iowa. Natl Cancer Inst 51:743-750, 1973

We used three techniques, freeze-etching, scanning, and thin-section electron microscopy, to study the ultrastructure of abnormal mononuclear leukocytes from three patients with leukemic reticuloendotheliosis. Freeze-etching minimized artificial distortion of the cytoplasmic "hairs," while allowing a three-dimensional-like view of the cell cleaved through membrane planes. Cleavage plans revealed no membrane abnormalities. Multi-shaped, tentacle-like projections of the cytoplasm contained few organelles. Cytoplasm contained mitochondria, endoplasmic reticulum, microfilaments, and granules. Nuclear pores were present in a high density similar to that in activated lymphocytes. Scanning electron microscopy, after critical-point drying to decrease distortion, revealed abnormal cells with an extensive series of membrane outpouchings in these leukocytes but not in control preparations of cells from normal individuals and patients with chronic lymphocytic leukemia. Examination of thin sections revealed many cytoplasmic projections into redundant but apparently normal trilaminar membrane. Observation of these unique neoplastic cells by specialized ultrastructural techniques suggested that their major feature was the redundant membrane without unique morphologic membrane defects. The freeze-etch studies confirmed that the hairlike projections of the leukocytes were not artifacts. — J.E.U.

Ultrastructural Features of Phytohemagglutinin and Concanavalin A Responsive Lymphocytes in Chronic Lymphocytic Leukemia.

S. Douglas, G. Cohnen, E. Konig, and G. Brittinger. Laboratory of Cellular and Subcellular Immunology, Department of Medicine, Mount Sinai School of Medicine, The City University of New York, New York, NY. Acta Haematol 50:129-142, 1973

Peripheral blood lymphocytes from patients with chronic lymphocytic leukemia (CLL) had diminished and/or delayed in vitro responses to both phytohemagglutinin (PHA) and concanavalin A (Con A), as determined by thymidine incorporation into DNA, over a 9-day incubation period. The cytoarchitectural features of CLL lymphocytes stimulated by each of the mitogens were similar to those observed in transformed normal cells. However, as shown by planimetric measurements, the mean cell area and the nuclear, cytoplasmic, and mitochondrial areas were diminished in comparison to PHA-stimulated normal cells. The data suggest that some CLL lymphocytes which transform with PHA or Con A are residual normal thymus-dependent (T) lymphocytes, and others may be derived from the metabolically defective leukemic cell population. — J.E.U.

Experimental Studies Bearing on the Question of Retrograde Spread of Hodgkin's Disease Via the Thoracic Duct.

A. Dumont and A. Martelli. Department of Surgery, New York University School of Medicine, New York, N.Y. Cancer Res 33:3195-3202, 1973

The simple purpose of this study was to determine by radiologic and histologic techniques whether lymph flow in an experimentally obstructed thoracic duct is reversed and whether particulate or fat-soluble radiopaque contrast material placed directly into the lumen of the obstructed duct in dogs is carried retrograde to nodes below the diaphragm. In 15 of 16 dogs in which contrast material was so placed as to lie entirely within the intrathoracic portion of the ligated duct, there was no subsequent movement to nodes below the diaphragm. In contrast, in six other dogs in which contrast material was placed so that its lower
level extended initially to the cisterna chyli just below the diaphragm, the material was subsequently demonstrable in lower paraaortic and/or presacral nodes and histologically was located predominantly in the subcapsular sinus and peripheral cortex. These findings bear directly on the question of whether Hodgkin’s disease spreads from the neck to the abdomen due to reversal of flow in a thoracic duct obstructed by enlarged supraclavicular nodes. As results indicate that flow in the intrathoracic portion of the obstructed duct is usually not reversed, retrograde dissemination via the thoracic duct seems unlikely. On the other hand, retrograde lymphatic dissemination to paraaortic and presacral nodes from an infra-diaphragmatic focus near the cisterna chyli is clearly possible when thoracic duct flow is impaired. J.E.U.


The records of ninety-three patients with acute granulocytic leukemia, who were more than 50 yr old and were treated at a university hospital, a cancer center, and at seven community hospitals in Connecticut, were reviewed. Twenty-eight, or 44%, of patients treated with cytosine arabinoside and thioguanine attained a complete remission. This was increased to 51%, if patients treated for less than 30 days were excluded. Forty per cent of patients in complete remission are alive at 25 mo. The median survival time of patients attaining a complete remission was 19 mo, as compared with 2 mo for patients not attaining a remission. Age had no effect on remission rate, although patients 50-59 yr of age appear to have a slightly longer survival time. No difference was noted in remission rate or survival of patients treated in the community hospital, cancer center, or university hospital. This study indicates that patients more than 50 yr old have the opportunity for nearly the same response rate and survival as younger patients with acute granulocytic leukemia. J.E.U.


A treatment program of combination chemotherapy and concurrent radiotherapy was designed for children and adolescents with all stages of Hodgkin’s disease. From September 1967, to April 1972, 49 patients with previously untreated disease were admitted to the study. They were given 12 wk of initial chemotherapy in combination with simultaneous radiotherapy at a tumor dose of 3500-4000 R. For stages II IV chemotherapy was continued for 1-2 yr. Forty-seven patients responded to therapy with complete remissions; two had no response. Of the patients responding, 40 have been in continuous complete remission for periods of 6-58 mo, four have relapsed, and three have died in remission. Twenty-six patients have been off all therapy for periods of 4-54 mo without evidence of active disease. In most instances complications of therapy including drug toxicity, infections, and nutritional disturbances have been reversible by modification of chemotherapy and judicious supportive care. We conclude that combination chemotherapy and concurrent irradiation are tolerated by children and adolescents with Hodgkin’s disease and result in a high frequency of complete remission. Results to date suggest that the majority of children, even those with advanced stages, will have lengthy complete remissions. J.E.U.


The authors report a case of genital herpes in a woman with acute leukemia. Examination of the vaginal secretions under the light microscope showed the presence of herpes virus inclusions, and observation of two successive smears permitted them to detect the possible course of the cytologic appearance of the lesions. An ultrastructural study demonstrated virus particles in various stages of maturation. J.C.

The authors report a case of multiple myeloma with a prolonged course under melphalan treatment complicated by acute terminal myelomocytic leukemia. After reviewing other cases in the world literature, the authors discuss the relationship between myeloma and leukemia. They conclude that the causative relationship between melphalan and the onset of leukemia is a possibility which should be seriously considered. J.C.

The Early and Delayed $^{14}$C-Thymidine ($^{14}$C-TdR) Incorporation Rate in Chronic Lymphatic Leukemia (CLL) Lymphocyte Cultures Stimulated with PHA. J. Hałowiecki, J. Japa, and W. Janiec.

First Department of Internal Diseases and Department of Pharmacology, Silesian School of Medicine, Katowice, Poland. Arch Immunol Ther Exp 21:553-557, 1973

The incorporation of $^{14}$C-TdR into lymphocytes in cultures stimulated by PHA was investigated after 3 days (early response) and 6 days (delayed response). Lymphocytes for culture were isolated from the peripheral blood of 12 healthy donors and 36 patients suffering from CLL. It was found that in healthy controls the early response distinctly exceeded the delayed one. In leukemic patients the early response was significantly lower than in controls ($p < 0.005$), and the relation of the early and delayed response was variable. In some cases the incorporation of $^{14}$C-TdR was higher on the third day, in others it was so on the sixth day. Both responses were in some cases very low as compared to the control values. The correlation between lymphocyte reactivity to PHA and clinical symptoms, evaluated by an elaborate scoring system, was better than that observed when the cytomorphic criteria were used. The ratio of early and delayed responses was also found to depend on the clinical severity of CLL. M.K.

Acute Lymphoblastic Leukemia in a Newborn With Down's Syndrome. Š. Štopar-Plasaj, A. Bunarević, T. Nosco, and R. Cnojajević-Ivanušić.

Children's Hospital-Rebro, Zagreb and Institute of Pathology, Zagreb School of Medicine, University of Zagreb, Yugoslavia. Genetics 5:311-318, 1973

A case of congenital lymphoblastic leukemia in a female newborn with Down's syndrome is reported. The infant died 10 hr after birth. The postmortem examination confirmed the presence of leukemic foci in the liver, lungs, spleen, and pancreas, and cytogenetic analysis showed a 47 XX, G+ karyotype. Z.R.

HEMOSTASIS


Department of Internal Medicine, Department of Surgery and Department of Radiology, Institute of Hematology, Warsaw, Poland. Pol Tyg Lek 28:1596-1599, 1973

Clinical observations on the frequency and type of renal complications in 187 patients with hemophilia A and B are reported. Hematuria occurred in 59 cases (31.6%) and could be shown to correlate with the general intensity of hemorrhagic diathesis. In 11 patients radiologic changes in the urinary tract were detected. They consisted in ureterolithiasis in eight cases, transient failure of the left kidney during treatment with epsilonaminocaproic acid in one, inactivity of the left kidney due to pyonephrosis in one, and displacement of the left kidney and ureter by retroperitoneal hematoma in one. M.K.

Results of Investigation on Antiocoagulant Effects of Dextran. W. Rudowski, E. Kostrzewska, F. Sawicki, and Z. Klawe

Department of Surgery, Institute of Hematology and Department of Epidemiology, State Institute of Hygiene, Warsaw, Poland. Pol Tyg Lek 28:1659-1673, 1973

The frequency of postoperative thromboembolic complications in 1740 patients aged over 40 yr was found to be 2.8%. A protective antithrombotic action of dextran 70,000 was demonstrated in surgically treated patients over 60 yr, as well as in cases with malignant neoplasms and patients with high risk of thromboembolic complications existing before operation. The frequency of postinfusion reactions following 5% glucose, dextran 40,000, and dextran 70,000 was quite similar and amounted to about 0.5% of patients. One severe hypersensitivity reaction occurred after infusion of dextran 40,000. M.K.


Department of Surgery and Department of Internal Medicine, Institute of Hematology, Warsaw, Poland. Pol Tyg Lek 28:1581-1583, 1973

The effect of infusion of 500 ml of dextran-70 on blood coagulation and hemostasis was in-
vestigated in 34 patients. As compared with the initial values, dextran was found to prolong slightly the bleeding time, reduce somewhat the platelet count and fibrinogen level, shorten the thrombin time and caolin-cephalin time. All these changes were slight and led the authors to the conclusion that dextran-70 in the dose applied does not induce changes of clinical significance in patients without preexisting disturbances in hemostasis. — M. K.

The Effect of Cigarette Smoking on Platelet Adhesion and Aggregation, S. Sidorski, M. Bieławiec, and M. Mysliwiec. Department of Hematology, School of Medicine, Bialystok, Poland. Ada Haematol Pol 4:211-221, 1973

Aggregation and adhesion of platelets in vitro were investigated in volunteers before and after smoking five cigarettes without filters. A significant increase of platelet adhesion (106 people tested) and ADP-induced aggregation (84 people examined) was observed after smoking. — M. K.

Production and Secretion of Plasminogen by Isolated Kidneys. A. Zuch, K. Buluk, T. Januszko, and T. Bielecki. Faculty of General and Experimental Pathology, School of Medicine, Bialystok, Poland. Acta Haematol Pol 4:211-221, 1973

Perfusion of the isolated rabbit kidney with a 30%, suspension of oxygenated erythrocytes in Tyrode solution leads to the excretion of large amounts of plasminogen activator without any significant decrease of the activator concentration in the kidney. These results indicate that under the applied conditions of perfusion plasminogen activator was not only excreted from the kidney but also synthesized. When the Tyrode fluid alone had been used for perfusion, excretion of plasminogen activator was accompanied by the pronounced decrease in its concentration in the kidney. — M. K.


Von Willebrand’s factor is a plasmatic factor absent or decreased in von Willebrand’s disease and responsible for prolonged bleeding time, decreased platelet retention to glass beads, and decrease or lack of ristocetin-induced platelet aggregation. These anomalies are corrected by the addition of normal or hemophilia A platelet-poor plasma. Von Willebrand’s disease is also characterized by a decrease of factor VIII activity and related antigen. An heterologous antiserum was raised in rabbits by immunization with a human fraction containing both factor VIII and von Willebrand’s factor. This antiserum had the following properties: (1) neutralization of factor VIII activity of normal plasma, (2) precipitation of one single factor VIII-like protein present in normal and hemophilia A plasma and absent in von Willebrand’s disease plasma, (3) inhibition of platelet retention to glass beads and inhibition of ristocetin-induced aggregation of normal platelet-rich plasma. The relationship between von Willebrand’s factor and/or factor VIII-like protein is discussed. — J. C.


The half-lives of 131I-labeled purified human alpha-2-macroglobulin and of its complexes with human plasmin and thrombin were compared. This study showed that the complexes rapidly disappeared from the vascular compartment. — J. C.


The influence of carrageenan and prostaglandin E2 on ADP-induced aggregation in human and rat platelets has been examined. Both inhibit aggregation of human platelets and also the extent of platelet disaggregation. However, in the rat, carrageenan and prostaglandin E2 are activators of ADP-induced platelet aggregation. The F2 alpha, which is also synthesized by platelets, has no influence on ADP-induced aggregation of human and rat platelets in concentrations of 2 to 2000 ng/ml. The mechanism of action of carrageenan on platelets is discussed. — J. C.

Hydrocortisone, in massive doses, was shown to induce not only glomerular capillary thrombosis, but also arterial alterations in rabbits receiving quantities of endotoxin which, in the absence of hydrocortisone, did not lead to renal lesions.—J.C.


In exudates collected at various times after intraperitoneal injection of carrageenan only a small number of platelets could be seen. In the blood, quantitative and qualitative modifications were observed. Four hours after carrageenan pleurisy there was a fall in platelet count which could not be correlated with intravascular coagulation. However, after 24 hr of carrageenan pleurisy thrombocytosis was seen. Studies of ADP-induced platelet aggregation revealed an inhibition of spontaneous disaggregation of platelets 4 hr after injection of carrageenan. Some platelet hyperaggregability was also noted after 24 hr of carrageenan-induced inflammation. It seems likely that plasmatic factors are involved in these modifications of platelet function because a simultaneous fall in the consumption of extrinsic ADP in platelet-poor plasma could be demonstrated in rats in which inflammation was induced. However an intraplatelet mechanism cannot be excluded. Both these aspects are discussed.—J.C.


Data are reported on the treatment of classic haemophilia, using a new lyophilized cryoprecipitate. The hemoderivate was successfully used in 15 patients suffering of hemarthrosis and mucous membrane bleeding and in one patient during splenectomy.—G.L.


Fibrinogen derivatives, observed in vivo in calves after endotoxin and thrombin injection, and in vitro after thrombin action on plasma and purified fibrinogen, were studied by polyacrylamide gel electrophoresis, agarose gel chromatography, and detection tests of soluble fibrin monomer complexes. By polyacrylamide gel electrophoresis, a fibrinogen derivative was identified not only in vivo after thrombin and endotoxin action, but also in vitro as an intermediary product in the course of coagulation of purified fibrinogen by thrombin. This derivative is a complex probably formed by the association of a fibrin monomer and a fibrinogen molecule.—J.C.


The phospholipase C is known to induce aggregation of washed platelet suspensions. Three parameters were measured on O.D. aggregation curves: the lag time (L.T.), the time to the inflection point (T.I.), and the maximal velocity of aggregation, which changed with the concentrations of phospholipase C. A comparative study was made between platelets from normal subjects and patients suffering from brain thrombosis. It showed a significant increase in the maximal velocity of aggregation among patients presenting also an hyperaggregability to ADP in platelet-rich plasma (shown by the disappearance of the second wave of aggregation at decreasing ADP concentrations). This hyperaggregability seemed to be due to a qualitative modification of the platelets themselves, which may have been responsible for the tendency to thrombosis. The possible role of phospholipid composition of the platelets is discussed.—J.C.


A 30% increase in the platelet count was observed in normal rats 5 days after a single intraperitoneal injection of 0.2 mg/kg of vincristine. Separation of the platelets into four populations (A, B, C, and D from the lightest to the heaviest) on a discontinuous sucrose gradient showed that all populations except D were increased. The incorporation of $^{35}$S-selenomethionine into the platelets was not significantly increased but appeared to be slightly delayed and associated with the production of platelets having a lower protein content. Platelet populations were simultaneously labeled in control rats as in the vincristine-treated rats; however, the light platelets seemed to be labeled earlier after injection of the drug. We suggest that vincristine, responsible for the production of more platelets with diminished protein content, may act by increasing the number of platelets released by the megakaryocytes rather than by increasing the number of megakaryocytes. —J. C.


Fibrinogen degradation products were measured in the sera of 100 healthy males (average age of 26.5 yr) by using the tanned, human erythrocyte hemagglutination method. The presence of fibrinogen degradation products was proved in all cases. The values ranged from 0.05 to 1.47 µg/ml (mean value, 0.44).

Z. R.

IMMUNOHEMATOLOGY


The results of experiments are presented which show that lymphocytes from parental strain rats, stimulated by semiallogeneic F₁ strain lymphocytes in a "one-way" MLC system produced a greater degree of GVH reaction in F₁ hosts than the nonstimulated lymphocytes. The degree of GVH reaction was correlated with the level of DNA synthesis in MLC. The increase in reactivity of lymphocytes was shown to be of specific character. This indicates that in the MLC conditions the lymphocytes become sensitized to the allogeneic transplantation. —M.K.

The Response of Peripheral-Blood Lymphocytes to PHA and Pokeweed Mitogen (PWM) in Senile Subjects. J. Chojnacki and L. Żydowicz. Second Department of Internal Diseases, Military School of Medicine, Łódź, Poland. Pol Tyg Lek 28:1673-1675, 1973

The blast formation of lymphocytes in cultures stimulated either with PHA or PWM was investigated in a group of 35 subjects aged 67-84 yr, and the results were compared with those obtained in a control group of 20 people aged 19-46 yr. The mean percentage of blast transformation after PHA in controls was 68.0% and in senile subjects 50.3%. This difference was found to be significant ($p < 0.01$). The respective percentages after PWM stimulation were lower, 28.2% for control and 21.0% for senile group. The values of spontaneous blast formation were similar in both groups, i.e., 1.2% and 0.95% — M.K.


An attempt is presented to correlate the clinical symptoms and survival in 105 cases of plasmocytoma to the class and type of M protein. The whole group comprised of cases of plasmocytoma IgG k, 29 IgG λ, 27 IgA k and 5 IgA λ, 2 IgD λ, 4 IgU k, and 3 IgU λ. Survival, bone complaints, and radiologic changes, enlargement of lymph nodes, liver, and spleen, qualitative and quantitative changes in bone marrow plasma cells, concentrations of M component in serum, hemorrhagic symptoms, kidney changes, neurologic disturbances, degree of anemia, and duration of remissions after treatment were comparatively analyzed in all groups. On the basis of this analysis the authors were not able to establish any connection between the type of monoclonal serum protein fraction and the clinical picture — M.K.

philes de la Croix-Rouge Francaise, La Queue-Yvelines, France. Pathol Biol. (Hemostasis and Thrombosis) 21 (suppl):76, 1973

Following transfusions with human and porcine factor VIII preparations, a young hemophilia A developed potent anti-AHF antibodies. Differences in the immune response towards iso- and heteroantigens could be demonstrated by the sequential appearance in time of two distinct types of antibodies. These antibodies, when studied with human, porcine, and bovine AHF, differed in neutralization assays and in their kinetics of factor VIII inactivation. —J.C.


The A antigen was detected by electron microscopy of adult erythrocytes using an indirect method with peroxidase-bound antibodies. A1 subjects had a strong and homogeneous labeling, while in A2 subjects the labeling was more heterogenous, changing from one to another cell. This method was also useful for studying A antigen in erythroblasts. —J.C.

Studies on Moloney Leukemia Virus Infection of Antibody-forming Cells. F. Celada and B. Asjo. Laboratory of Cell Biology, CNR, Rome, Italy and Department of Tumor Biology, Karolinska Institute, Stockholm, Sweden. La Ricerca Clin Lab 2:4, 1973

By the use of serologic methods (specific suppression in Jerne plaques) the authors have observed that in newborn mice infected with Moloney leukemia virus (MLV), a proportion of antibody-forming and precursor cells carry the virus, while the specific functions and the life span of these cells are not hampered, so that a normal immunologic memory could be demonstrated by serial adoptive transfers. The possibility is raised that both virus-mediated immunosuppression and leukemogenesis (which requires the presence of thymocytes) may not be mediated by the infection of the effectors of the humoral immune response. —G.L.

Recolonization of Bone Marrow and Spleen in Rats during Autotransplantation of Protected Bone Marrow in Irradiated Rats and After Use of Cyclophosphamide. V. Ninkov, O. Pletić, and D. Štepanović. "Boris Kidrić" Institute of Nuclear Sciences, Vrnjačka Banja and Institute of Histology School of Medicine, University of Belgrade, Yugoslavia. Med Invest 6-7:21-24, 1972

The effect of autotransplantation of "protected" bone marrow cells on the hematopoietic response of rats after a single dose of cyclophosphamide or after irradiation was
studied. Cyclophosphamide was administered in doses of 200 and 325 mg per kg of body weight. Rats were irradiated with 800 rads. The suspension of bone marrow cells was taken before the administration of cyclophosphamide or irradiation and was reinjected into the animal 24 hr later. In the cyclophosphamide-treated animals intensive hematopoietic regeneration was found on the fifth to the seventh day after autotransplantation. The same was true for irradiated animals, but the extent of regeneration was more pronounced.—Z.R.