ABSTRACTS
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ERYTHROCYTES

NUTRITIONAL VITAMIN B₁₂ DEFICIENCY IN AN INFANT. B. C. Lampkin, and F. F. Saunders. From the University of Cincinnati School of Medicine, Cincinnati, Ohio. J. Pediat. 75:1053–1055, 1969.

The infant of a vegetarian mother developed overt megaloblastic anemia due to deficiency in vitamin B₁₂ at age 10 months. The absorption of vitamin B₁₂ was normal in both mother and child indicating that deficiency in the infant was due to maternal deficiency which had resulted from inadequate dietary intake. Abstractor’s comment: B₁₂ deficiency in infants secondary to maternal deficiency appears to be a common occurrence in India (Brit. J. Haemat. 13: 949, 1967). Deficiency in infants can also occur secondary to depleted maternal stores of vitamin B₁₂ resulting from pernicious anemia (New Eng. J. Med. 274:1168, 1968) as well as due to malabsorption of vitamin B₁₂ by the infant resulting from the presence of transplacentally transferred maternal antibodies to intrinsic factor, juvenile pernicious anemia or specific ileal malabsorption.—F. A. K.


The serum unsaturated vitamin B₁₂-binding capacity (UBBC) was found to be of value in distinguishing polycythemia vera from other conditions associated with an elevated red blood cell mass. Increased levels of UBBC were observed in 70 per cent and increased levels of serum vitamin in 36 per cent of patients with polycythemia vera and related myeloproliferative disorders, as contrasted with a normal UBBC in 87 per cent and normal serum B₁₂ concen-

The in vitro activity of the enzyme folic acid conjugase in guinea pig intestinal mucosa was reduced by the addition of the dihydroxy bile acids deoxycholic and chenodeoxycholic acid in a concentration of 0.5 μM/ml to the test system and nullified when the bile acid concentration was 1.5 μM/ml. Cholic acid had only a slight effect at a concentration of 2.0 μM/ml. The authors suggest that these observations may have implications for those clinical conditions in which bacterial proliferation results in deconjugation or dehydroxylation of bile salts.—F. A. K.


Among 24 anemic children with kwashiorkor evaluated in Cairo, the bone marrow was megaloblastic in 70 per cent and hemosiderin was decreased or absent in 87 per cent. Low serum folate concentrations, present in 55 per cent, correlated with the presence of megaloblastosis; serum vitamin B₁₂ levels were high and serum vitamin E values were uniformly low. Response to treatment occurred in 53 per cent who received diet alone, in 66 per cent who received iron, and in 23 per cent who received folic acid. Megaloblastic changes were uniformly corrected during the folic acid therapy period despite the fact that serum vitamin E concentrations remained sub-normal.—F. A. K.

SERUM IRON AND COPPER LEVEL IN WOMEN CHRONICALLY EXPOSED TO TOLUENE. A. Cieslińska, B. Kowal-Gierczak, K. Kuźyńska-Sekieta, J. Makolepszy and M. Wrzyszcz. From First Department of Internal Medicine, School of Medicine, Wrocław, Poland. Pol. Tyg. Lek. 24: 1848–1850, 1969.
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Serum iron and copper levels, and the urinary excretion of porphyrins were examined in 51 women with a history of chronic occupational exposure to toluene vapors. The results obtained were not uniform. In nine cases, a concomitant increase of Fe and Cu in the serum was observed. In six examined women, increase of serum Fe and lowering of Cu were found. Pronounced increase of serum Cu, but normal serum Fe were found in the remaining 18 subjects. In 12 cases, marked porphyrinuria was detected. According to the author's opinion, the results provide the evidence that chronic exposure to toluene induces harmful effects on the hemopoietic system and on the liver cells. 

Abstractor's comment: Hematologic data and liver function tests are not presented and not correlated with Cu, Fe and porphyrin determinations can be made.—M. K.

LEUKOCYTES


At doses of 10 μGm. and higher, cortisone acetate, added to in vitro C57BL bone marrow cultures, was inhibitory to colony formation. The evidence suggests that the cortisone may act by a direct toxic effect on the colony-forming cells. Cortisone, injected into the mouse, caused an acute fall in serum colony stimulating factor (CSF) as well as a fall in in vitro colony-forming cells in the bone marrow. The author emphasizes the problems which can arise as a result of the influence of "stress" on serum CSF levels or in vitro bone marrow colony-forming cell levels.—P. F.

Comparison of Alkaline Phosphatase from Human Normal and Leukemic Leukocytes. R. H. Bottomley, C. A. Louig, R. Holt, and M. J. Griffin. From Oklahoma Medical Research Foundation and the Departments of Medicine and Biochemistry, University of Oklahoma School of Medicine, Oklahoma City, Oklahoma. Cancer 29:1866-1874, 1969.

The alkaline phosphatase of leukocytes from normal subjects, patients with chronic granulocytic leukemia, and patients with reactive granulocytosis have been characterized by means of agarose column chromatography, sucrose density ultracentrifugation, starch gel electrophoresis, Michaelis constant for p-nitrophenyl phosphate, heat inactivation, inhibition by L-phenylalanine, Ouchterlony double immunodiffusion precipitation, and immunoelectrophoresis using rabbit antileukocyte alkaline phosphatase serum. The same antiserum was used to quantitate the amount of alkaline phosphatase protein in purified preparations of the enzyme obtained from leukocytes of patients with chronic granulocytic leukemia, reactive granulocytosis, and normal individuals. Purified alkaline phosphatase from all three sources had similar biophysical and biochemical characteristics, but the enzyme specific activities were shown to be different using the antiserum and quantitative precipitation techniques. This finding was corroborated by using disk gel electrophoresis which showed that similar amounts of enzyme protein had markedly different enzyme activity, i.e., the enzyme from chronic granulocytic leukemic leukocytes had low specific activity, the enzyme from normal leukocytes had intermediate specific activity, and the enzyme from patients with reactive granulocytosis had a very high specific activity.—J. E. U.


The alkaline phosphatase activity of granulocytes was studied in 29 cases of chronic myeloid leukemia. Prior to treatment, a strikingly low level or complete absence of alkaline phosphatase activity was observed. During treatment, a gradual increase of this activity was observed, reaching the normal level during remission. This increase was due to the appearance of a population of granulocytes containing alkaline phosphatase. When inflammatory condi-
tions coexisted with leukemia, alkaline phosphatase activity was markedly increased because of the presence of a granulocyte population with a strikingly high activity of this enzyme. The variations in the size of the alkaline phosphatase positive granulocyte population in various clinical stages of myeloid leukemia, restricts the diagnostic value of a single determination of this activity to nontreated cases and to cases without coexistent inflammatory processes. Appearance of alkaline phosphatase positive granulocytes during treatment and remissions, and of granulocytes with a strikingly high activity in leukemia associated with inflammatory processes, suggest the existence of two different populations of these cells: a leukemic one, alkaline phosphatase negative, and another alkaline phosphatase positive.—M. K.


Monocytic or myelomonocytic leukemia is associated with lysozymuria. These patients often also have hypokalemia. Balance studies were performed in three patients and indicate marked lysozymuria and inappropriately high rates of renal potassium loss. There was also limitation in titratable acid excretion in one patient and glycosuria and hyperuricosuria in another. Ammonium excretion following the administration of an ammonium chloride load was above the expected values at a given urine pH in two patients. All subjects had osteoporosis, and fractures developed spontaneously or following minor trauma.—J. E. U.


Forty-seven cases of plasma cell leukemia reported in the literature and 10 additional cases seen by the authors are reviewed. The clinical picture varies from the terminal leukemic state of otherwise classic multiple myeloma to the fulminant course of acute leukemia. Immunoglobulin abnormalities appeared in plasma cell leukemia with the same frequency and are of the same types as in multiple myeloma. No correlation was found between the cytology of the plasma cells or the type of immunoglobulin produced and the course of the disease. Therapy with steroids and immunosuppressive drugs, used in various combinations, was ineffective in altering the course or the prognosis of the disease.—J. E. U.


Increased oncogenicity of murine sarcoma virus (Moloney) MSV(M) was observed to be associated with markedly lowered MSV(M) neutralizing antibody levels when four- to six-week-old BALB/c mice were preinfected five days earlier with Rauscher leukemia virus (RLV). Coinfection with RLV resulted in progressively growing tumors, metastases, and rapid deaths, in contrast to the high percentage of tumor regressions seen in mice given MSV(M) only. A similar effect on tumor size was obtained when mice were given multiple injections of heterologous antilymphocyte serum (ALS) rather than RLV. Mice treated with normal rabbit serum also developed tumors larger than those of controls given MSV(M) alone. However, these tumors eventually regressed while those of coinfected or ALS-treated mice continued to enlarge. It is proposed that suppression of antibody may contribute to the intensified growth of MSV(M)-induced tumors observed in these experiments.—J. E. U.


The clinical course and management of two patients with acute leukemia and hy-
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Pericardial effusion is described. One patient had preexisting reticulum cell sarcoma, the other chronic lymphocytic leukemia. In both patients bone marrow proliferation and hypercalcemia coincided, suggesting increased bone resorption rather than excess parathyroid hormone production as a cause for the electrolyte imbalance. Furthermore, radioimmunossay for this hormone performed on serum and tissue specimens from one subject were negative. The hypercalcemia in both patients responded to intravenous sodium sulfate therapy. Metabolic balance studies were performed in one of the subjects, in whom hypokalemia was noted during and after the administration of sodium sulfate, and potassium supplements had to be given. These two cases illustrate that hypercalcemic crisis may complicate acute leukemia. Successful management of this complication requires both treatment of acute hypercalcemia and control of the leukemia to limit further bone destruction.—J. E. U.


Microscopic testicular infiltration was found at autopsy in 64.3 per cent of 140 males with acute leukemia, 22.4 per cent of 76 males with chronic leukemia, 18.6 per cent of 102 males with lymphosarcoma, and in none of 44 males with Hodgkin’s disease. Clinically evident testicular involvement in acute leukemia has apparently increased in frequency, perhaps reflecting longer survival since the advent of chemotherapy. This complication often develops while the patient is in hematologic remission and may be followed by leukemic masses in distant sites before hematologic relapse. The occurrence of leukemic foci in the central nervous system, kidneys or testes, as reported herein, at a time when patient is in hematologic remission suggests that current therapeutic regimens may not be adequate to eradicate foci of disease in these locations.—J. E. U.

RELATIONSHIP BETWEEN THE COURSE OF HODGKIN’S DISEASE AND MITOTIC INDEX IN CULTURES OF BLOOD LEUKOCYTES STIMULATED WITH PHA. A. Plaźińska. From Second Department of Internal Medicine, School of Medicine, Łódź, Poland. Arch. Med. Wewn. 43:1489–1494, 1969.

Mitotic index and blastic transformation of lymphocytes were examined in PHA stimulated cultures of white blood cells from patients with Hodgkin’s disease and from healthy control subjects. Both mitotic indices and percentages of transformed lymphocytes were found to depend on activity of the disease, being significantly higher in patients in remission than in cases in active stage of lymphogranulomatosis. In this group the values of mitotic index paralleled the degree of blastic transformation of the lymphocytes. In remission, the degree of blastic transformation was similar to that of the controls, but the mitotic index varied within a fairly wide range.—M. K.


The authors describe 32 patients with advanced Hodgkin’s disease who had negative skin test responses to second-strength PPD, and who were vaccinated with BCG during a period of quiescent or mildly active disease. Of eight whose tuberculin responses were not converted, seven died of Hodgkin’s disease within a year. In contrast, only one of the 24 patients who developed positive tuberculin skin tests died within this time period, and the median survival of the converted group, currently 30 months, is still increasing. This difference is significant (p > 0.001) and indicates that BCG vaccination can provide valuable prognostic information in advanced Hodgkin’s disease. It is suggested that cellular immune mechanisms may constitute the principal determinant of “host resistance” in Hodgkin’s disease.—J. E. U.


Hodgkin’s disease often affects intrathoracic lymph nodes. We have seen nine pa-
patients in whom such nodes have become calcified following radiation therapy. Calcification may occur within the first year following irradiation and has a tendency to enlarge and become conglomerate. This occurrence is not related to the dose and time schedule of irradiation. The calcification is not specific; it needs to be differentiated from other diseases.—J. E. U.


A series of 142 patients with Hodgkin’s disease of the nodular sclerosis and mixed histologic types who received chemotherapy is presented. Seventy-six of the patients had received radiotherapy before chemotherapy. The median survival after institution of chemotherapy was 20 months. Regardless of sex or histologic type, the 10–29 age group significantly outlived the 60+ age group. The nodular sclerosis histologic type was superior to the mixed type only within the 30–59 age group. Within any particular age–histology subgroup, the females tended to be younger than the males and to have more nodular sclerosis, both of which conferred an advantage. The data also suggest that chemotherapy in Hodgkin’s disease may prolong life.—J. E. U.


Experience with 65 patients with biopsy-proven Hodgkin’s disease who were subjected to laparotomy, splenectomy, liver biopsy, and paraaortic lymph node biopsy is presented. There were no major complications. A general correlation was observed between the occurrence of systemic symptoms and the extent of involvement below the diaphragm. There was no instance of liver involvement without concomitant splenic involvement. It is concluded that laparotomy with splenectomy is a valuable procedure for the more precise delineation of intra-abdominal sites of involvement in Hodgkin’s disease prior to the initiation of extended field megavoltage radiation therapy with curative intent. This is an important step forward in the management of patients with Hodgkin’s disease.—J. E. U.


The second case of acute leukemia developing after administration of lysergide is reported. The unusual bone marrow chromosome pattern and the presence of large cells containing multiple micronucleoli suggest that this association may be causal.—J. E. U.


The chromosome constitution of peripheral blood cells and bone marrow cells was studied in a 31-year-old man with chronic myelocytic leukemia and his normal identical twin. Evidence for their identity includes similar physical appearance, identical blood group antigens and serum factors, similar fingerprint patterns, and phenylthiocarbamide tasting. A typical Philadelphia chromosome was found in the patient. It was absent in bone marrow metaphases of the nonleukemic twin, 8½ years after diagnosis of leukemia in the other twin. This supports the view that the Philadelphia chromosome is not inherited. To obtain more information about the concordance rate of monozygotic twins, all affected twin pairs should be reported, and long-term followup observations are needed.—J. E. U.


Using morphological characteristics of the lymphocytes, the authors separated two
types of chronic lymphoproliferative disease: Chronic lymphocytic leukemia and "chronic lymphosarcoma cell leukemia." The former disorder was characterized by increased numbers of small, normal-appearing mature lymphocytes whose nuclear chromatin is coarsely clumped. In the latter case, the lymphocytes were larger and more atypical, with more primitive nuclear cytologic properties. An analysis of the symptoms, physical findings and hematological presentations (exclusive of cytology) showed no significant differences between the two groups. However, survivals calculated by the actuarial method showed that patients with chronic lymphocytic leukemia had a significantly higher probability of survival after ten years following diagnosis (31 per cent) than did patients with the "lymphosarcoma cell" cytology (14 per cent).—P. F.


A quantitative method was used to determine cytologic indices for viable lymphocytes from 36 patients with chronic lymphocytic or lymphosarcoma-cell leukemia, 16 patients with other diseases, and 45 normal persons. Cytologic indices were defined as the percentage of lymphocytes positive for chromatin masses, nucleoli, and/or nuclear indentation of a specified size. The chromatin and nucleolar indices were much greater, and the indentation index was less for the leukemic patients than for the control persons. The indices for the leukemic patients were usually outside the normal range. Only four leukemic patients had normal cytologic indices; three of these had been treated and had low lymphocyte counts. The elevated chromatin indices seen in most patients with chronic lymphocytic leukemia suggest the hypothesis that leukemic lymphocytes have increased amount of inactive deoxyribonucleic acid (DNA), and an increased number of depressed genes.—J. E. U.


In 10 healthy subjects and 19 patients with blood disorders (hypoplastic or aplastic anemia—11; chronic lymphocytic leukemia—six; macroglobulinemia—one; lymphosarcoma—one), lymphocyte cultures were made and the effects of phytohemagglutinin stimulation observed. Of these patients six were treated by splenectomy, lymphocyte cultures being studied in three before and after splenectomy. In healthy subjects, and in patients with hypoplastic anemia and lymphosarcoma, no change from the pattern of events observed in healthy subjects was noted. Lymphocytes of patients with chronic leukemia and macroglobulinemia showed a markedly reduced or no response to phytohemagglutinin stimulation and culture. After splenectomy some patients showed a slight reduction in their phytohemagglutinin response.—J. V.


This brief report summarizes the results of an international "consultation" among experienced hematopathologists and cytologists with a particular interest in Burkitt's tumor to give an authoritative definition which would be internationally acceptable. Very useful summary with excellent color plates.—J. E. U.

**STUDIES ON HAPTOGLOBINS IN PATIENTS WITH NEOPLASM OF THE LYMPHATIC SYSTEM.** H. Głóńska, K. Jaegermann, B. Turowska, A. Urban and M. Paulicki. From Institute of Oncology and Department of Forensic Medicine, School of Medicine, Kraków, Poland. Pol. Tyg. Lek. 24:1767-1769, 1969.

Levels and types of haptoglobin (Hp) were determined in 45 patients with Hodgkin's disease and 29 patients with lymphosarcoma. The results were compared with the normal values for the Polish healthy population. It was found that the occurrence of particular types of Hp in lymphoma cases
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does not differ significantly from controls, although some increase in frequency of Hp 2-2 type was observed in patients with neoplasms of lymphatic tissue. Significant increase of serum Hp level was shown in Hodgkin’s disease (mean 254 ± 115 mg per cent) as well as in lymphosarcoma (mean 236 ± 103 mg per cent) when compared with the controls (105 ± 21 mg per cent). Nearly identical values were observed in patients with acute or chronic course of the disease. Repeated determinations of Hp in 40 cases before, during and after X-ray therapy gave variable results. According to the authors, serum Hp determination has no prognostic significance.

—M. K.

IMMUNOHEMATOLOGY


Other authors have repeatedly reported that thymic lymphocytes, unlike those from other sources, exhibit reduced “transformation” following treatment in vitro with phytohemagglutinin (PHA). Possible reasons for this include (1) intrinsic inability of thymic cells to respond to PHA, (2) impairment of activation as a result of in vitro methodology, or (3) defective subsequent transformation after successful initial activation, probably relating to in vitro factors. Using cultures of rat thymus, lymph node and spleen, the author measured 5-3H uridine incorporation as a measure of RNA synthesis. During the first four hours in vitro, thymic cells did not show evidence of biological deterioration, as compared to node and spleen cells, but there was failure of activation of the thymic cells by PHA under the culture conditions employed. —P. F.


The effect of melphalan on normal serum immunoglobulins was evaluated in 74 consecutive patients with multiple myeloma. Of 42 patients with one or more subnormal immunoglobulins who were responsive to melphalan, significant and sustained improvement occurred in all low components in 21 per cent and in one component in 29 per cent. Such changes usually required one year of treatment. None of 29 patients unresponsive to melphalan showed improved immunoglobulin levels, including 11 who lived for more than one year. When immunoglobulins were in the normal range, decline to subnormal values was always associated with disease progression. IgM and IgA globulins were more useful to follow than IgG components. Results suggested that decreased immunoglobulin production in patients with multiple myeloma could have resulted from the replacement of normal plasma cells by malignant plasma cells. —J. E. U.


Of 6995 persons examined in a population study, 64 were found to have M-components in the serum. One of these was diagnosed as having myelomatosis and another as having asymptomatic chronic lymphatic leukemia. Two-and-a-half years later 52 of the 62 subjects who were considered originally to have benign monoclonal gammopathy were reexamined. The M-components were still demonstrable in all subjects in similar concentrations to those observed at the first examination. The results lend further support to the view that benign monoclonal gammopathy is more common than myelomatosis or Waldenström’s macroglobulinemia. —J. E. U.

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A new cell line (SK-RCS1) is described which originated from the tumor cells in a pleural effusion of a patient whose neoplasm exhibited mixed features of multiple myeloma and reticulum cell sarcoma. Electron microscopy showed that the same cell types were present in both the pleural effusion and the established cell line, and chromosome analysis showed similar karyotypic abnormalities in vivo and in vitro. The tumor cells synthesized protein of K specificity both in vivo in the pleural effusion and in the established culture. An interesting study permitting speculation regarding the relationship between plasma cells, lymphocytes and reticulum cells.—J. E. U.

Lysosomes of Lymphocytes of Peripheral Blood from Patients with Connective Tissue Diseases. H. Chwialtinska-Sadowa. From Department of Locomotor System Diseases and Department of Pathology, Institute of Rheumatology, Warsaw, Poland. Rheumatol. 7:305-317, 1969.

Histochemical examination of acid phosphatase-positive granules in blood lymphocytes was carried out in 10 cases of SLE, 20 cases of rheumatoid arthritis in 15 healthy subjects. Increase of scores after prolonged incubation with substrate and after UV irradiation was considered as a measure of lysosomal membrane lability. No significant differences were observed in the number of lymphocytes with demonstrable lysosomes in patients with SLE and rheumatoid arthritis as compared with the control group. Percentage of lysosomes with decreased stability of lysosomal membranes was, however, found to be increased in both connective tissue diseases examined. This increase was statistically valid in the rheumatoid arthritis group.—M. K.


By immunization of rabbits with type K and L human myeloma globulins, nine different antisera were obtained. After absorption, two kinds of antibodies were separated, which served for analysis of antigenic structure of myeloma globulins. Antibodies were divided into: Type-nonspecific; i.e., reacting with a certain number of monoclonal globulins belonging to both (K and L) antigenic types; Type-specific; i.e., reacting only with globulins of the same type of light chain present in the antigen used for immunization. Type-nonspecific antibodies served to distinguish four antigenic subgroups among isolated myeloma globulins.—M. K.

HEMOSTASIS


In this study were included 89 patients with thrombocytopenia, 146 with atherosclerosis, 20 with alimentary lipemia, and 107 blood donors. Studies included tests for platelet agglutinins, beta-lipoprotein levels, platelet aggregation in recalcified plasma, platelet aggregation in agitated plasma and other coagulation studies. From these data the authors feel that alimentary lipemia may cause nonspecific platelet agglutination, apparently effected by serum lipoprotein acting upon the first phase of blood coagulation and thrombin formation. Endogenous beta-lipoproteinemia and alimentary lipemia appear to intensify the aggregation of thrombocytes and possibly promote intravascular coagulation.—J. V.


The following tests were performed in nine adults with mucoviscidosis: blood clotting time, recalcification time, thrombin time, fibrinogen level, prothrombin time, prothrombin consumption, time of lysis of clots formed by recalcification of whole plasma and euglobulin fraction, platelet counts and clot retraction. Inhibition of
fibrinolysis of plasma clots and euglobulin clots and lowering of platelet counts was found in the majority of patients.—M. K.


In Willebrand’s disease there appears to be lack of two different components, one being active on the bleeding time, the other being necessary for the production of (inactive) factor VIII. This concept was demonstrated in a number of in vivo and in vitro studies made in two female patients with this disease. It was shown that: Infusion of normal plasma and of hemophilia A plasma had a positive effect on bleeding time and on factor VIII activity; In vivo synthesis of factor VIII was more pronounced and more protracted following infusion of hemophilia A plasma than following normal plasma; No factor VIII synthesis was observed in vitro; Contact activation of the infused plasma did not affect in vivo results; Infusion of lyophilized cryoprecipitate (“anthemophilic factor”, “AHF”) had a stronger effect on bleeding time than the lyophilized fraction I of Cohn (“anthemophilic globulin, “AHG”). On the other hand, AHG infusion produced better correction of factor VIII activity. Since, in Willebrand’s disease, correction of bleeding time is clinically more important than normalization of factor VIII, infusion of the cryoprecipitate presents the treatment of choice; while infusion of lyophilized fraction I of Cohn usually reveals inadequate results.—H.-J. H.


This is a histologic study of spleens from 22 patients with acute ITP, associated with serum antibodies in four cases; the spleens weighed between 90 and 200 Gm., except for one which weighed 360 Gm. Microscopically all showed increase in lymph follicles, many of which had large, pale centers with reticulum cells, frequent mitoses and macrophages. Peripheral follicles had wide zones containing immature lymphocytoïd cells and, in contrast to areas with more mature cells, these zones were rich in ribonucleic acid. The red pulpa was very cellular including a large number of eosinophil myelocytes, both diffusely scattered and in small foci; mixed with these were reticulum cells, nucleated red cells, a few plasma cells and neutrophils. In those cases with antibodies large accumulations of plasma cells were noted; many erythroid elements, white cells and even megakaryocytes were also found. The authors consider the changes to confirm the immune-allergic nature of this disease and suggest that in the development of an acute ITP there may be a prolonged latent phase.—J. V.


In a study of 20 patients with subacute hypoplastic anemia with hemorrhagic manifestations (hemorrhages of skin, gums, mouth, conjunctiva, nose, etc.) who had been treated by steroids, vitamin B complex, and marrow transplants, splenectomy was performed during periods of progressive hemorrhagic phenomena. This resulted in improvement or stabilization of the syndrome as characterized by complete cessation or diminution of the hemorrhagic symptoms. Initially, an improvement in the condition of the blood vessels was noted and a rise in activity of the blood coagulation system occurred; fibrinogen levels became elevated. Later, in the postoperative period, improvement, sometimes to normal, of platelet formation was accompanied by a rise in serotonin levels; prothrombin consumption became normal and clot retraction was improved.—J. V.

MISCELLANEOUS

RHEOLOGICAL PROPERTIES OF BLOOD IN PATIENTS TREATED WITH INFUSIONS OF
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Viscosity of blood was examined in 15 patients before and after infusions of Dextran 40 and Dextran 70. The influence of hemodilution was excluded in such a way that plasma and erythrocytes were separated by centrifugation and mixed in various proportions. It was found that infusion of 500 ml. of Dextran 70 increased blood and plasma viscosity, while after infusion of Dextran 40 the viscosity of plasma rose slightly but that of blood decreased. These findings were more pronounced with increasing hematocrit and decreasing shear values.—M. K.


Blood and bone marrow studies were conducted in 58 persons who had prolonged contact with a source of mixed radiation (alpha and beta particles and gamma rays) for varying periods of time, exceeding 10 years in some. By the end of a year some reduction in the number of peripheral blood leukocytes, though not to leukopenic levels, could be detected. After four to five years platelet and leukocyte counts were decreased in some; in 10 subjects there were qualitative changes such as toxic granulation and mild nuclear degeneration in the neutrophils, and anisocytosis of the red cells. Marrow studies showed no significant changes except in two subjects in whom a slight decrease in megakaryocytes was noted.—J. V.

CHANGES IN BLOOD CELLS DURING VIBRATION. A. Tarnawski. From Department of General and Experimental Pathology. School of Medicine, Kraków, Poland. Med. Pracy 20:345-353, 1969.

Hooded rats were exposed to vertical vibration (4.1-Hz frequency and 32-mm. amplitude) for 10-21 hours daily for a period of four-10 days. Blood cell counts and some physicochemical and biochemical parameters of erythrocytes, leukocytes and platelets were examined. It was shown that vertical vibration induces the following changes: a significant decrease in lymphocyte count, increase of granulocytes, enhancement of alkaline phosphatase activity of granulocytes, decrease of osmotic resistance of white cells, acceleration of ESR, decrease in content of ascorbic acid and ATP of erythrocytes. No changes were observed in phagocytic activity of leukocytes, in erythrocyte counts, osmotic resistance of red cells, concentration of Na+ and K+, in aldolase and aminotransferase activity of erythrocytes, reticulocytosis, platelet counts and thrombocyte morphology.—M. K.