LEUKOCYTES AND LEUKOCYTIC DISEASE


Antigenic properties of mature human leukocytes have been investigated. The leukocytes were isolated from venous blood by a method with accelerated sedimentation of red blood cells. By means of the leukocytic suspension the sera of rabbits immunized with human plasma proteins were absorbed. These sera contained antibodies against human protein. The absorbed serum was used for agglutination of human leukocytes obtained by the same procedure as the leukocytes for serum absorption. The absorbed serum agglutinated some of the leukocytes of normal humans, whereas leukocytes of other healthy people were not agglutinated.

In the first experiments it was stated that two groups of humans, according to the positive or negative agglutination, could be distinguished. In 73 healthy individuals both blood groups, blood picture and leukocyte agglutination were determined. The authors suggest that human leukocytes have specific antigenic properties. They named these antigenic properties with letters “Z” and “V,” the lack of these substances with the letters “z” and “v.” In some persons these properties can be present at the same time and this group was called “zV.” Preliminary percentual occurrence of these properties in human leukocytes is given. No agglutinin was demonstrated and no correlation between blood groups of red blood cells was found. Due to technical obstacles and to the lack of a greater number of examined persons no heredity was demonstrated. The practical importance of the leukocytic antigen in blood transfusion, transplantation, heredity and forensic medicine is stressed.—M.N.


By means of the interface precipitation method (disk test) the authors have demonstrated in the serum of 8 patients affected by acute leukosis, during the evolutive period, a substance showing the characteristics of an anti-leukocytic precipitating antibody. Technique of the method is given: into a tube 2 to 3 mm. in diameter are layered the serum to be investigated and a leukocyte lysate. The latter was obtained by ultrasonic decomposition of a rich suspension of well-washed leukocytes. The leuko-precipitin, described for the first time in the present paper, is not an iso-antibody: 3 of the 8 patients had received no blood transfusion and the antibody was not present in the serum of normal subjects. The leuko-precipitin seems to belong to the group of antibodies. Being different from the well-known

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leukocytic antibodies, which probably combine with a surface antigen, leuko-precipitins seem to exert their action upon an endo-cellular antigen and selectively upon a constituent of the granulocytes. The relation of the presence of this leuko-precipitin to the disappearance of granular elements of the bone marrow is discussed.—J.D.


Whole blood from two patients with non-leukemic leukopenia of unknown origin was transfused to hematologically normal recipients. A marked, but transient leukopenia occurred. Similar transfusions of blood from three patients with aleukemic leukemia were not followed by a significant drop in the leukocyte levels of the recipients. This may indicate that the pathogenesis of leukemic leukopenia is different from that of non-leukemic leukopenia.—M.S.

TROPICAL EOSINOPHILIA. R. N. Chaudhuri, B. K. Aikat and K. S. Sanjibi. From the School of Tropical Medicine, Calcutta and the Department of Pathology and Bacteriology, G. R. Medical College, Gwalior, India. Ind. J. M. Res. 42: 635-660, 1954.

This is an extensive review of works done so far on the various aspects of the syndrome first isolated by Loeffler from Switzerland and subsequently described in detail by Frimodt-Moller and Barton and by Weingarten from India. The etiology of the condition is still obscure. Both allergy and infection have been suggested as possible causes. Eosinophilia and asthma-like paroxysms strongly point to allergy. A variety of antigenic substances, bacterial and nonbacterial have been suspected. Helminths and mites possibly account for a few. Favorable responses to organic arsenicals and aureomycin suggest an infective origin but the infective agent is yet to be isolated.

At the end of the review are appended up-to-date information on eosinophil, with especial reference to the mechanism and causes of eosinophilia in general, and suggestions for future investigative work.—J.B.C.

X-RAY APPEARANCES IN THE LUNG FIELDS IN TROPICAL EOSINOPHILIA. S. P. Basu. From the Department of Radiology, School of Tropical Medicine, Calcutta. Ind. M. Gazette. 89: 212-217, 1954.

Radiologic appearances in 87 cases are described. The varieties of radiologic manifestations were as follows: normal appearance 2, emphysema 19, increased striations 59, enlarged hilar shadows 65, pleural thickening 3, diffuse mottling 29, ground glass appearance 2, snowstorm appearance 4, minimal infiltrations 7. The extent of radiological findings could not be correlated with the severity of symptoms or with the degree of eosinophilia. Following clinical improvement with arsenic therapy the radiologic signs disappeared very slowly. Scarring after tropical eosinophilia was rare.—J.B.C.

INFILTRATIVE EOSINOPHILIA. R. S. Dias-Rivera, F. Ramos-Morales, and A. A. Cintron-Rivera. From the Department of Medicine, University of Puerto Rico School of Medicine, and the Department of Medicine, San Juan City Hospital. Arch. Int. Med. 94: 102-121, 1954.

Infilfiltrative eosinophilia is a condition in which there is a marked increase in the circulating mature eosinophils and an inflammatory reaction almost exclusively composed of eosinophils. While the clinical picture, in the subacute and chronic stages, is generally dominated by symptoms simulating bronchial asthma, there is, in some instances, an acute onset with chills, fever, nausea and other systemic manifestations. In addition to the pathologic changes in the lungs, which consist of eosinophilic infiltrations, at times accompanied by fibroblastic proliferation, eosinophilic infiltrations may be observed in the liver, spleen, lymph nodes, muscles, stomach, epididymis, skin, and bone marrow. The alter-
ations in the bronchial walls are indistinguishable from those of bronchial asthma except for the absence of muscular hypertrophy. Small nodular lesions composed of central areas of necrosis and dense infiltrations with eosinophils are found in the liver. The advanced pathologic changes in lungs and liver have a granulomatous character. Some of the cases have been associated with parasitic infestations but the precise role which the parasites play as possible causative agents has not been established. Infiltrative eosinophilia is regarded as a phase of a hypersensitivity state. The tissue reactions may be transitory, chronic, recurrent or irreversible.—H.R.


By examining ordinary blood films of 5 subjects, the ratios of monocytes plus large lymphocytes to small lymphocytes, and of large lymphocytes to small lymphocytes were determined at the beginning and the end of the first week of exposure to a lead hazard. There was a statistically significant increase in both ratios for all subjects at the end of the first week. The author concludes that the results indicate a very early effect of lead on the lymphoid cells, and that the findings are useful in the prevention and diagnosis of lead poisoning.—G. C. de G.


A 22 year old girl with psychotic manifestations associated with vomiting and fever occurring 6 days after the development of bilateral tender cervical lymphadenopathy. The patient became comatose with Cheyne-Stokes respiration and urinary retention. She recovered completely although she was aphasic for several days. The diagnosis of infectious mononucleosis was based upon an absorbed heterophile agglutination titer of 1:1792, abnormal liver function studies (abnormal cephalin flocculation and thymol turbidity; normal alkaline phosphatase and serum bilirubin), and a high percentage of abnormal lymphocytes and Tuck cells in the peripheral blood. Review of the blood smear obtained at the time of admission to the hospital revealed no abnormal cells. The spinal tap showed 46 lymphocytes per cu. mm. with elevated protein in the spinal fluid but normal pressures and normal spinal fluid sugar and chloride.—R.R.E.


Over a period of 12 years in 16 sporadic cases of confirmed mononucleosis and in two others where the clinical manifestations or the blood picture were strongly suggestive, but the serologic investigations negative, there was a petechial eruption on the soft palate. This preceded a skin eruption by 24 and 48 hours in two children who had rubelliform rashes. Platelet counts were made in only 7 of the patients and were normal. Two patients had petechiae on the palatal mucosa but no definite evidence of glandular fever: one of these had severe tonsillitis with lymphadenitis and abnormal lymphocytes in the peripheral blood: the other had lymphadenopathy and a rubelliform rash. The petechial eruption was in all cases localized along the junction of soft and hard palate. The petechiae varied in number from 10 to 50 and were usually of pinhead size. Their earliest appearance was noticed on the third day after the onset of symptoms, and their latest at the end of the first week.—R.H.G.


Sézary's syndrome is characterized clinically by intense pruritus, generalized erythrodermia, pigmentation, superficial lymph node enlargement associated with the presence of unusual monocytoid cells in the blood. The histologic appearance of the lymph nodes is
similar to that seen in dermatopathic lymphadenitis except that nuclear mitosis and pleomorphism appear to be more marked. The skin shows infiltration of epidermis and corium with monocytoid cells having large, irregular convoluted nuclei with dense chromatin and a scant acidophilic cytoplasm. The abnormal cells in the blood have a feebly basophilic cytoplasm resembling that of monocytes. They are about twice the size of normal polymorphonuclear leukocytes and are peroxidase-negative. The nucleus occupies about 3/4 of the cell and may be round, convoluted, reniform or bilobed. The nuclei simulate those of lymphocytes only in chromatin arrangement and depth of staining. Nucleoli are usually absent or indistinct. It may be difficult to distinguish Sézary's syndrome from dermatopathic lymphadenitis without careful hematologic examination. The authors regard the syndrome as local reticulosis intermediate in phase between benign reaction and frank malignancy. (Reviewer's note: Since no microphotographs of lymph nodes are shown, it is difficult to determine in which respect the pathologic features of this disorder differ from that of dermatopathic lymphadenitis (lipo-melanotic reticular hyperplasia). The evidence that the Sézary's syndrome represents a transitional phase between benign reaction and malignant reticulosis is inconclusive).—H.R.

MEGALOBLASTIC ANEMIA


Macrocytic anemia of all types was studied, the serum iron level being measured before and after therapy on 100 occasions. Treatment was usually with cyanocobalamin and folie acid. In 60 instances the treatment was effective, and in every case the serum iron fell to a low figure during the remission. In 40 the hematocrit was ineffective and the serum iron level did not alter. The fall in serum iron after successful treatment is striking and abrupt and occurs within 48 hours. The serum iron tends to fall to about the same level irrespective of its initial value and remains at about 50-60 µg per ml. until the blood count returns to normal. Impending iron deficiency may be predicted by a fall to a low level.

The fall in serum iron is probably the earliest sign of a hematologic response.—R.H.G.

THE ANTI-ANEMIC ACTION OF EXTRACTS FROM PLACENTA. W. Hongs and A. P. Skouby. From the Research Laboratory, Gea, Copenhagen, and Medical Department C, Copenhagen County Hospital, Denmark. Acta med. Scandinav. 180: 483-488, 1955.

Human placenta and placenta of cows and rabbits were extracted by the method of Laland & Klem (1945). The B₁₂-like activity of all extracts was tested by Hoffman's method (1949). Placental extracts were found to contain substances exerting a B₁₂-like action on bacterial growth, and on blood formation and nervous complications in megaloblastic anemia. Three patients with Addisonian anemia treated with placental extracts for more than one year were kept in full hematologic remission and free of nervous complications. In other cases favorable influence on nervous lesions in pernicious anemia was observed. The authors conclude, that these effects of placental extracts are chiefly due to their content of vitamin B₁₂, although folie acid also seems to be present in small amounts. Other organs were tested as well, the most pronounced anti-anemic effect being found in extracts from liver, spleen, placenta and kidneys.—M.S.


A 68 year old man developed pernicious anemia twelve years after partial gastrectomy for ulcer. There was full evidence of this disease (including neurologic disorders) except the serum iron was low. The patient rapidly improved with the use of vitamin B₁₂. Because there was only partial gastrectomy, surgical removal of gastric mucosa cannot explain the absence of intrinsic factor.—J.D.
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A 27 year old woman whose mother had pernicious anemia had a duodenal ulcer with normal acid secretion. Two years later she developed breathlessness, difficulty in walking and a feeling of uselessness in the legs, hands and arms. The knee and ankle jerks were absent and the plantar responses extensor. Vibration sense was absent to the iliac crests. There was severe megaloblastic anaemia and malabsorption of fat. A hematologic response to liver injections occurred, but a barium meal showed, in addition to a chronic duodenal ulcer, an ileocolic fistula. There was some improvement in the neurologic features with the liver injections. Excision of the fistula enabled this treatment to be discontinued. Three years after operation the patient is well and has a normal blood count. The plantar responses are now equivocal and there is only slight diminution of vibration sense over the lower legs.—R.H.G.

PLASMA PROTEINS


In addition to anemia, polyadenopathies, and a tendency to hemorrhage there were in the case reported here neurologic disorders and an osteoporosis that caused fractures of ribs and collapse of vertebrae. The sternal puncture showed both a lymphoctic and plasmocytic reaction; the electrophoresis revealed a hyperglobulinemia γ of myeloma type and there were cryoglobulins in the serum. The diagnosis of Waldenström syndrome was established by demonstrating macro-globulins by means of ultracentrifugation.—J.D.


A woman, aged 80, with pancytopenia and high sedimentation rate was found to suffer from macroglobulinemia. Bone marrow examination showed the presence of small lymphoid reticular cells (13 per cent) and lymphocytes (26 per cent). Electrophoresis: albumin 32.6 per cent, alpha1 globulin 3.6 per cent, alpha2 globulin 4.9 per cent, beta globulin 5.3 per cent, zeta globulin 4.3 per cent, gamma globulin 9.3 per cent. The ultracentrifuge study revealed the presence of macroglobulins with sedimentation constant of 15.9 Svedberg units.—M.N.


A case of so-called “primary” hyperglobulinemic purpura (Waldenström) is described. The patient, an old man of 70, presented a classic picture of this syndrome in 1950 but has been without complaints and any manifestations of purpura for the last three years. Sedimentation rate and blood proteins improved significantly. The authors feel that the division of hyperglobulinemic purpuras into primary and secondary forms is unfounded.—M.N.


Two cases of Waldenström's macroglobulinemia are presented in a 54 year old woman and a 53 year old man. In both cases there were chronic anemia, slight hemorrhagic tendency, hepatosplenomegaly, fever of light degree, hyperproteinemia (10.63 and 8.5 Gm. respectively), no plasma cells in the bone marrow, no bony alterations. The electrophoretic pat-
tern was typical of the gamma myeloma. Ultracentrifugal study revealed the presence of macroglobulins. In guinea pigs, which had been injected with isolated macroglobulins, a lethal anaphylactic shock took place upon reinjection of the macroglobulins from the same patient, but not from the other patient.—P.d.N.


The sera of 11 patients with multiple myeloma were separated by paper electrophoresis and differentially stained for protein, fat, and carbohydrate. Five of the seven patients with gamma myeloma had an abnormal lipid-staining band which migrated with the gamma globulin. A lipid band between the beta and gamma globulins was also found in 1 of the 2 patients with a beta myeloma pattern and in 1 of the 2 patients with only minor abnormalities. When the normal lipids and the bands between the beta and gamma globulins were removed by extraction, four other lipid-staining bands, previously masked, were found associated with abnormal proteins. Carbohydrate, abnormal in position electrophoretically and increased in amount, was always found in cases with abnormal proteins. This was always associated with an increase in total polysaccharides or glucosamine.—R.R.E.


Two female patients, aged 25 and 53 years, respectively, presented themselves with the clinical picture of recurrent pulmonary infections, bronchiectasis and pulmonary insufficiency. In each the diagnosis of agammaglobulinemia was suspected because of a low serum globulin. Electrophoretic studies failed to reveal gammaglobulins in either patient. A small amount was demonstrated in the younger patient by immuno-chemical technics. This patient was of blood group A and had an abnormally low titer of anti-B isohemagglutinin; the other was of group O and isohemagglutinins were absent. Postmortem examination revealed in both patients bronchiectasis with associated chronic suppurative pulmonary disease. The inflammatory exudate consisted of lymphocytes, mononuclear cells and polymorphonuclear leucocytes. Plasma cells could not be demonstrated in any of the inflammatory lesions. Lymph nodes taken from many areas failed to show germinal centers and no plasma cells could be found. The same was true for the lymphoid tissue in the spleen and the gastrointestinal tract. The bone marrow was normal except that it showed a complete absence of plasma cells.—H.R.

RECURRENT PNEUMONIA IN MULTIPLE MYELOMA AND SOME OBSERVATIONS ON IMMUNOLOGIC RESPONSE. H. H. Zinneman and W. H. Hall. From the Veterans Administration Hospital and the Department of Medicine, Univ. of Minnesota Medical School, Minneapolis, Minn. Ann. Int. Med. 41: 1152-1163, 1954.

In reviewing the records of 64 patients with multiple myeloma, there was found a tendency to recurrent bouts of bacterial pneumonia. There were thirteen patients who had bacterial pneumonia (excluding terminal infection) with ten of the group having a total of 44 episodes. There was no particular difference between the protein patterns of seven patients with multiple myeloma and recurrent pneumonia and the patterns obtained in ten others with no pneumonia. Immunization of this second group of multiple myeloma cases with pneumococcus polysaccharides, Brucella abortus polysaccharides, and typhoid-paratyphoid vaccine, showed a poor serum-antibody response as compared with normal controls. The evidence suggested that antibody production occurred in inverse relationship to the amount of abnormal serum globulin. Clinically, this situation resembles that seen with agamma globulinemia, although the laboratory findings are of elevated, though abnormal, serum globulin.—R.R.E.
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PARAMYLOIDOSIS IN MULTIPLE PLASMACYTIC MYELOMA. J. Karpíšek, V. Valach and J. Wolf. From the Medical Department, Praha I. and the 1st Institute for Pathological Anatomy, Charles University, Praha. Čas. lék. čes. 88: 1172-1178, 1954.

Among some 10,000 post-mortems performed during the last five years 27 cases of multiple myeloma and diffuse plasmocytosis of the bone-marrow occurred. In two of them, viz., in 7.5 per cent of all myelomas, paramyloidosis was found. In the first case, large deposits of paramyloid were situated in articulations and around them, in particular at the shoulders, hips and knees, all of which were macroscopically conspicuous by their swelling; in addition, there was a large focus of paramyloid in the left lung. In the second case, paramyloid was present in several tumors of the bone-marrow; there was also severe paramyloidosis of the myocardium, to which death of the patient was due. In both cases foreign-body giant cells were found adjacent to the deposits of paramyloid. Clinical symptoms of Kahler's disease were partly absent. The present theories of amyloidosis are briefly discussed.—M.V.


In 24 cases of chronic, uncomplicated lymphocytic leukemia no significant alterations of the serum proteins were detected by means of electrophoresis, colloidal tests and their statistical evaluation. Total proteins were only decreased. In the splenomegalic forms there were marked modifications, characterized by reduction of the albumin/globulin ratio and increase of the gamma globulins.—P.d.N.


In 38 cases of Hodgkin's disease the serum proteins were investigated by means of electrophoresis and colloidal tests. No correlation was found between protein alterations and general conditions, hematologic patterns, localization and extension of the disease. It is suggested that the tendency to a severe evolution might be associated with an increase of the alpha-1 globulins and negativity of the colloidal tests. The prognostic significance of such investigations in Hodgkin's disease is, therefore, stressed.—P.d.N.


The serum of ten patients with Hodgkin's disease was studied by the filter paper method of Grassmann et al. for electrophoresis. Six patients were followed through the course of therapy with methyl-bis-chloramine and triethylenemelamine. In every case a reduction of the albumin content was noted. In eight cases there was an increase of the alpha-1 globulin and in every case there was a definite increase on the gamma globulin. With the nitrogen mustard the albumin content went up and the alpha-1 globulin deviated to normal values. In relapses the electrophoretic pattern came back to the above mentioned deviations. The treatment corrected for a while the abnormalities of the serum proteins and in this way the electrophoretic pattern has some value in the management of the patients and their prognostic evaluation. —M.A.J.


Plasma proteins of the adult mammal are in a steady state of synthesis and degradation; the rate is comparable to that by which the proteins of actively metabolizing cells are re-
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placed, but the factors that control the rate are obscure. When amino acids are injected into the blood of animals in a steady state of serum protein turnover, a period of time (“transit time”) elapses before the amino acids can be found in the serum proteins. Experiments with labeled amino acids at various body temperatures in the same and different species, demonstrated the temperature dependence of serum protein turnover in the intact animal. Amino acid analogues did not affect transit time nor the incorporation rate.—O.P.J.

RETICULOENDOTHELIAL SYSTEM AND ITS DISEASES


In vitro dehydrogenase activity of lymph nodes in health and disease was studied in 36 cases. Tissues were received within 10 minutes of removal. Dehydrogenase activity was determined endogenously and in the presence of fluoride. Qualitative histochemical studies were also conducted by determining the localization and distribution of formazan deposition in frozen sections of lymph nodes. Quantitative studies did not reveal any significant difference between the endogenous activity of control lymph nodes and the involved nodes of lymphosarcoma, Hodgkin's disease, and chronic lymphocytic leukemia. Qualitatively, lymphocytes of lymph nodes involved by chronic lymphocytic leukemia and by lymphosarcoma showed active formazan crystal formation. These observations clearly demonstrate that lymphocytes may vary markedly in their metabolic activity without any appreciable microscopically demonstrable structural change. The lymphocyte in the Hodgkin's node is similar to that in normal nodes and different from that in chronic lymphocytic leukemia and lymphosarcoma.—O.P.J.


X-ray irradiation was used in 216 patients with Hodgkin's disease during the years from 1938 to 1948. Of this group, approximately 10 per cent received nitrogen mustard at some time during their illness. Other chemotherapeutic agents were not used. A clinical classification of Hodgkin's disease, not unlike that proposed by Craver, wherein patients are classified according to the number and location of sites involved as well as whether or not constitutional signs or symptoms are present was used.

In this predominantly young adult male group of patients the results obtained with quite aggressive x-ray irradiation compare favorably to those previously reported. The overall 5-year survival was 36 per cent. From experience obtained in this group of patients, it is concluded that x-ray irradiation is most effective in all except the terminal case of Hodgkin's disease. Assessment of the decrease in morbidity or length of clinical remissions obtained is not presented. There is no discussion as to the merits of chemotherapy and radiation therapy in certain selected patients. This study presents the results of treatment with irradiation in a sizeable group of patients which may be compared with other patients treated predominantly with chemotherapy or combinations of chemotherapy and irradiation.—W.N.J.


After an extensive review of the biological, chemical, pharmacological and clinical properties of the nitrogen mustard derivatives, the authors report the results obtained in 38 cases of acute and chronic hemolymphoblastosis and 12 cases of malignancies, which were treated by means of triethylene-melamine (TEM). Longer remissions were obtained in chronic lymphatic and myeloid leukemias than with other treatments. Good results were obtained in Hodgkin's disease, while acute leukosis, lymphosarcoma and particularly non-
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hemic and maliganties were less sensitive to this treatment. Citrovorous factor or folic acid-ascorbic acid were suggested for granulocytopenic complications.—P.d.N.


A boy 13 years old presented the clinical picture of moderate lymph-node enlargement in the left epitrochlear region and left axilla, without fever. The lymph nodes were solid, without any signs of inflammation. Histologic study of two nodes gave the picture of a granuloma similar to that of the Hodgkin’s disease. The benign course together with the knowledge that the patient had been scratched by a cat led to the final diagnosis of “cat scratch disease” (Debré) or “benign lymphoreticulosis” or “regional subacute adenopathy spontaneously curable” (Mollaret). Intradermal reactions with Debré’s, Mollaret’s and Foshay’s antigens were positive. Up to the present about 200 cases are known of this disease in France, United States, Switzerland and Belgium. This is the first to be described in Brazil and probably in South America. The author proposes a Greek-rooted name for the disease—Galeonicosis (Galé, cat; onicosis, nail or claw).—M.A.J.


Twenty cases of fibrotic-congestive splenomegaly and Banti’s disease were studied from the histologic point of view and in connection with portal hypertension. In this investigation, which includes an extensive review of the literature and a complete presentation of clinical and pathological data (36 photomicrographs and 2 color plates showing typical histologic aspects, and many tables), the authors pointed out that splenic fibroadenias is not only caused by portal hypertension but also by hyperplastic alterations of the capular, trabecular and perivascular elastic tissue in the spleen. Such finding may involve the whole splenic tissue or only portions of it, and should be differentiated from similar alterations in congestive splenomegalies (pseudofibroadenias). Typical chronic liver cirrhosis always accompanies the true fibroadenic splenomegaly. Two groups of diseases should be, therefore, distinguished: 1) chronic splenomegaly with anemia and leukopenia due to bone marrow inhibition and chronic liver cirrhosis, without portal hypertension, according to Banti; 2) splenomegaly with fibrosis and congestion, which can be early correlated with portal hypertension from the pathogenetic point of view. —P.d.N.

IRRADIATION EFFECTS


In tadpoles receiving 500 r of X-irradiation, the damage to the hematopoietic tissues occurs mainly in those cells undergoing mitosis and may be retarded by a low post-irradiation temperature. In order to determine whether or not anoxia would have a similar effect, 204 tadpoles were divided into two groups—those given X-irradiation and those given colchicine. Various subgroups were subjected to anoxia before and after treatment and at different intervals. The results indicate that anoxia, like low temperature, acts to slow metabolic processes and delays destruction. —O.P.J.

The influence of lethal dose of the roentgen irradiation (700 r) on white blood picture in the early phase was investigated in normal albino rats and in rats in Dial narcosis (a dose of 0.1 ml./200 Gm. weight) as well as in animals receiving β-mercaptoethylamine (a dose of 50 mg./200 Gm. weight) immediately before the irradiation.

Changes in the leukocytic response were statistically considered. It was found that neither narcosis nor β-mercaptoethylamine influenced the character of the leukocytic response in the early phase following massive roentgen irradiation.—M.N.

**PATHOLOGY OF TOTAL BODY IRRADIATION IN THE MONKEY.**

H. G. Schluemberger and J. J. Vasquez. From Department of Pathology, College of Medicine, Ohio State University, Columbus, Ohio. Am. J. Path., 30: 1013–1047, 1954.

To determine the LD 50/30 dose of total body irradiation for the rhesus monkeys, the animals were exposed to doses ranging from 300 r to 900 r. The gross and microscopic lesions were strikingly similar to those seen in man. The hematopoietic system was affected first with destruction of the blood-forming elements in the marrow and loss of lymphocytes from the lymph nodes and spleen. No animal died less than six days after irradiation. Those that had died on that day received 900, 800, and 700 r respectively. In these there was almost complete absence of normal marrow elements. Small numbers of mature neutrophils and megakaryocytes were present but immature forms of the erythrocytic and granuloeytic series had wholly disappeared. Eighteen days after irradiation there was evidence of extensive destruction of marrow elements but regeneration, particularly of the erythrocytic series, was already present. Animals surviving 27 days showed hyperplasia which was predominantly erythroid in type. The spleens of animals which died after six days showed disappearance of the normal follicular architecture with almost complete disappearance of lymphocytes. Recovery was slow, usually initiated by the appearance of plasma cells and proliferation of reticulum cells. 61 days after 500 r, repopulation of the follicle areas was just beginning. Well-defined follicles were beginning to appear after 180 days and complete restitution occurred in animals surviving over 300 days. Subsequently this went on to follicular hyperplasia. The lymph nodes contained only a few isolated lymphocytes 6 days after irradiation. Plasma cells and monocytes were abundant during the early stage. Between 60 and 180 days there was marked pleomorphism with scattered lymphocytes, plasma cells, numerous monocytes which varied in appearance, many of them having large bizarre nuclei. Hyperplasia was observed in animals surviving 300 days. The lymphoid tissue throughout the gastro-intestinal tract underwent changes similar to those observed in the lymph nodes. Hemorrhages occurred most often as petechiae in the skin, lungs, epicardium, stomach, and colon. The LD 50/30 was found to be approximately 550 r.—H.R.

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**DR. WILLIAM DAMESHEK**, Editor-in-Chief of this Journal and President of the International Society of Hematology, left Boston on November 11 for a trip around the world, accompanied by Mrs. Dameshek. He is giving a series of lectures on hematologic subjects in Hawaii, Japan, Hong Kong, Thailand, India, Pakistan and other countries, where he will be the guest of various university, medical and hematologic groups. His major speaking engagements will be in Honolulu, Japan and India. Toward the close of his trip, which will be of approximately three months' duration, he will visit Russia for a two week visit to Moscow and Leningrad. It is hoped that in future pages Dr. Dameshek will review some of the experiences and impressions gained on this trip.