● 918 REACTIVE EOSINOPHILS HAVE BEEN ACTIVATED IN VIVO. Susan B. Shurin. Case Western Reserve Univ., Rainbow Babies & Childrens Hosp., Dept. Pediatrics, Cleve., OH

Peripheral blood neutrophils (neutros) and eosinophils (eos) were isolated from patients with visceral larval migrans and hypersensitivity reactions during the acute phase of illness, after full recovery, and from normal donors. Reactive eos were found at a wide range of densities (1.080-1.011) on metrizamide gradients. Normal eos were more homogeneous and denser (1.010-1.011) than neutros (1.080-1.090). The kinetics of O_2^- production after PMA stimulation, and peroxidase activity of disrupted cells were measured. Reactive eos of high density (HD, 1.011) and low density (LD, 1.080) were compared to normal HD eos.

1. The activation time (1 min) and initial rate (7-14 nmol/min/10^6 cells) of O_2^- production by normal eos and neutros were equivalent to each other and to reactive HD and LD eos.
2. The duration of O_2^- production by LD eos was 120-180 min, compared to 16-20 min by HD eos and by neutros.
3. Total O_2^- production by LD eos was 2-3 times that by HD eos.
4. LD eos contained 42 to 68% of the peroxidase of HD eos.
5. Resolution of eosinophilia in patients was accompanied by disappearance of LD eos and return of high total O_2^- production and low peroxidase levels to normal.

Reactive LD eos have lower granule enzyme content than HD eos, and have prolongation of the respiratory burst. These metabolic changes may reflect partial degranulation occurring with activation in vivo. The prolonged respiratory burst may contribute to the greater cytotoxicity of reactive eos in helminthic infections.

919 CHRONIC MYELOGENOUS LEUKEMIA IN CHILDREN. Stephen H. Smith and Lois W. Dow. St. Jude Children's Research Hospital and University of Tennessee Center for the Health Sciences, Department of Pediatrics, Memphis, TN. (Spon. by Alvin M. Mauer).

We have reviewed the 40 cases of adult-type chronic myelogenous leukemia (ACML) and 21 cases of juvenile chronic myelogenous leukemia (JCML) seen at St. Jude Children's Research Hospital since 1964. The ACML patients ranged in age from 9 mo to 20-4/12 yr (median 11-1/12 yr) and included 23 boys and 17 girls. The JCML patients ranged from 6 mo to 11-8/12 yr (median 2 yr) and included 14 boys and 7 girls. Cytogenetic studies from 32 of the 36 ACML patients demonstrated the Philadelphia chromosome, whereas studies from only 1 of the 15 JCML patients had a structural chromosome abnormality. The range and median of other presenting characteristics are summarized below:

	ACML	JCML
Hemoglobin (g/dl)	6.3-13.9 (9.2)	5.2-12.1 (8.2)
Leukocyte count (per mm^3)	30,800-925,000 (205,000)	4,200-110,000 (27,900)
Platelet count (per mm^3)	105,000-3,000,000 (570,000)	10,000-250,000 (42,000)
Hgb F (percent)	1.1-10.8 (2.6)	2.5-58 (15.4)
Leukocyte alk phos score	0-122 (7)	0-197 (90)

The survival of the ACML patients ranged from 5 to 63 mo from diagnosis (median 25) and for the JCML patients from 2 to 28 mo (median 9). Eight ACML patients remain alive in chronic phase, 4 died in chronic phase, 5 had disease acceleration without clear documentation of blast crisis, 23 entered blast crisis 4 to 63 mo after diagnosis (6 lymphoblastic, 17 nonlymphoblastic). Five of the 6 patients entering lymphoblastic crisis achieved remission after 4 weeks of a vincristine-prednisone containing regimen. All 21 JCML patients died of disease despite modern therapy. Our studies suggest that better characterization of blast crisis cells of ACML patients may permit more specific and effective therapy. New therapeutic approaches are needed for both ACML and JCML.

920 LEUKEMIC PULMONARY INFILTRATES AS A CAUSE OF RESPIRATORY DISTRESS IN CHILDREN. K. A. Starling, M. V. Gresik, and D. J. Fernbach. Baylor College of Medicine, Departments of Pediatrics and Pathology, Houston.

The clinical and pathological findings in 284 children with acute leukemia who had autopsies over a 22-year period were examined to determine the incidence of pulmonary leukemic infiltrates at the time of death. Six children (2.1%) had acute monocytic leukemia (AMoL), 33 (11.6%) had acute myelogenous or acute monomyelogenous leukemia (AMML) and 245 (86.3%) had acute lymphoid leukemia (ALL). Forty-one of 284 children (14.4%) were found to have 3 distinctive patterns of pulmonary infiltrate. Eleven children (6 ALL, 4 AMML, 1 AMoL) had interstitial infiltrates with or without pleural infiltrates. Seven children (4 ALL, 3 AMML) had parenchymal nodules. Twenty-three children (20 ALL, 2 AMoL, 1 AMML) had perivascular infiltrates with or without peribronchial infiltrates. The presence or absence of infiltrates could not be correlated with leukemic cell type, immunologic phenotype, sex, or white blood cell count at the time of death. Ten of 41 children had respiratory distress (RD) prior to death; however, only 2 of 41 (4.9%) or 2 of 284 (0.7%) had RD which was not explained by active pulmonary infection. We conclude that despite reports of leukemic infiltrates presenting as interstitial pneumonia, pulmonary leukemic infiltrates are a rare cause of RD in the terminally ill child with leukemia.

● 921 SPECTRUM OF IMMUNOLOGIC ABNORMALITIES IN SUBJECTS WITH HEMOPHILIA. J.Stockman III, B.Kloster, R.Tomar, J.Kelton and D.Groth, Depts. of Pediatrics/Pathology, SUNY, Syracuse, N.Y. and McMaster Univ. Hamilton, Ontario.

Subjects with hemophilia, exposed to multiple foreign antigens and infectious agents, may develop diverse immunologic disturbances. In order to determine the frequency of these, 42 subjects with hemophilia A and 7 with hemophilia B (ages 16 mos-19 yrs), followed in a single pediatric treatment center, were studied. No subject exhibited clinical evidence of the acquired immunodeficiency syndrome. The most frequent single abnormality was an inverted T_4/T_8 ratio in 41% of the overall group, followed by a $\downarrow C_4$ (21%), thought to be related to the presence of immune complexes, $\downarrow$IgA (17%), lymphopenia (<1500/ul, 22%; <1000/ul, 11%), neutropenia (<1500 neutrophils/ul, 11%), $\downarrow$lymphocyte PHA activity (9%) and cutaneous anergy (9% in subjects >4 years age). B-lymphocytes, C_3, IgG, and IgM were WNL for age. Inverted T_4/T_8 ratios were noted in both hemophilia B subjects (2/7) and hemophilia A subjects (19/42). Of 7 using cryoprecipitate, none demonstrated an inverted T_4/T_8. All subjects with$\downarrow$ PHA activity had $\downarrow T_4/T_8$; otherwise, no common pattern of immunologic abnormalities was discernable. Subjects with lymphopenia were as likely as not to demonstrate $\downarrow T_4/T_8$ ratios with lymphopenia 2^o to a$\downarrow$ in absolute T_4 or T_4+T_8 but not T_8 alone. Thrombocytopenia (<150,000 platelets/ul) was present in 13% of subjects. Although platelet associated antibody (>8.5 fg/plt) was noted in 20/32 subjects tested, the mean value for thrombocytopenic subjects was remarkably higher (>65 fg/plt) than for non-thrombocytopenic subjects (mean = 9.9 fg/plt).

922 URIC ACID EXCRETION IN ACUTE LYMPHATIC LEUKEMIA (ALL) -RESULTS OF A 10 YEAR FOLLOWUP. James A. Stockman III, Dept. of Peds, SUNY, Syracuse, N.Y.

In 1975, we reported (Pediat Res 9:391(A), 1975) the results of a preliminary study in which 18 newly diagnosed patients with ALL had 24 hour urine collections for uric acid, xanthine and hypoxanthine (UXH) during a 4 wk induction with vincristine (V) and prednisone (P). These patients were subsequently followed with similar collections during routine periodic V+P administrations in remission. It has now been 10 years since all of these children were initially diagnosed. Conclusions regarding UXH as an index of remission status and long term prognosis can be made. Treatment consisted of 4 wk of V+P and 10d L-asparaginase followed by 2400R cranial irradiation with 6 I.T.MTX. Maintenance consisted of daily 6MP and weekly MTX. As reported, avg daily UXH (mg/m^2) during the entire induction varied little (wk 1:933, wk 2: 607, wk 3:676, wk 4:803) and did not differ significantly from 3 children similarly treated who failed to achieve remission. Of the 18 children achieving remission, 8 have relapsed and died, 1 has relapsed but remains alive free of disease, 18 mos post autologous marrow transplantation (mean time to relapse in this group = 23 mos), and 9 have remained in continuous remission and are now off therapy >5 years. Induction UXH excretion and remission UXH excretion (overall mean 307$\pm$102) during V+P cycles did not differ significantly between long term survivors and treatment failures. These data suggest UXH excretion during induction and remission provides little long term prognostic assistance in children with ALL.

● 923 THE EFFECTS OF PROPIONIC ACIDEMIA ON HEMATOPOIESIS. L.C. Stork, D.R. Ambruso, S.F. Wallner, J.E. Sambrano, E.R.B. McCabe (Spon. by J.H. Githens). Univ. of Colo. Sch. of Med., Dept. of Peds. and Medicine and V.A. Hospital, Denver, CO.

We evaluated hematopoiesis in a 1 month-old infant with propionic acidemia who presented with pancytopenia. Her bone marrow (BM) showed dysmyelopoiesis and maturation arrest of all cell lines. Numerous mono- and multinucleated histiocytes engaged in hemophagocytosis were present. We studied the effects of the child's serum and of propionic acid (PA, pH 7.3) on mouse BM colony forming units-erythroid (CFU-E) and colony forming units-granulocytic-monocytic (CFU-GM) grown in fibrin clots. The patient's (pt's) serum significantly inhibited CFU-E but not CFU-GM compared to normal human sera. PA inhibited growth of CFU-E and CFU-GM as shown in the table.

% Inhibition of Mouse BM Cells	CFU-E	CFU-GM
pt's serum	43%*	32%
5 mM PA#	92%*	47%*
1 mM PA	37%*	0%
0.5 mM PA	0%	0%

#concentration found in pt of Hommes et al., Pediatr Res 2:519, 1968; *significant $p < 0.05$.

Semi-soft agar culture of human BM CFU-GM showed complete inhibition with 5 mM PA but none with 1 mM or 0.5 mM PA. There was no consistent inhibition of mouse or human BM cultures by glycine, tiglic acid, or 3-OH PA (1.0, 0.1, 0.01 mM, pH 7.3), all of which were elevated in this child. From these results we conclude that the pancytopenia and hematologic abnormalities found in this infant may be directly related to the effects of propionic acid.