883 CHRONIC LYMPHOCYTIC LEUKEMIA (CLL) IN A CHILD. F. L. Behm, N. B. McWilliams, E. H. Westin, G. Trench. (Spon. by H. Maurer), Medical College of Virginia, Departments of Pediatrics, Pathology and Medicine, Richmond, Virginia.

Chronic Lymphocytic Leukemia (CLL) effects older people, is rare under age 30 and only 4 cases are reported in children. We present a 2 1/2 year old boy with all the clinical and morphologic findings of the disease. Two days of diarrhea, vomiting and cough prompted the visit of this previously well child to the Medical College of Virginia Hospital. He was found to have 2+ cervical adenopathy and a spleen palpable just below the umbilicus. Hemoglobin and platelets were normal. WBC was 40,000 with 97% lymphocytes which were monotonously small and normal in appearance. The bone marrow was normal except for 70% small lymphocytes.

Immunologic surface marker studies showed B cell phenotype with B1 and Leu 14 positive in 96% of cells. The lymphs also expressed an antigen detected by Leu 1 which is present on T lymphocytes and cells of B-CLL. Heavy chain ($C\mu$) and Kappa light chain gene rearrangements were demonstrated with radiolabelled nucleotide by southern blot hybridization techniques. Chromosome analysis with banding was normal.

These findings offer positive evidence for the presence of B-CLL in this child.

884 CALCIUM-INDUCED ECHINOCYTOSIS(E) IN HUMAN RED BLOOD CELLS FROM NEONATES(N) AND ADULTS(A). E.M. Bifano, S.M. Becker, J.C. Freedman. SUNY, Upstate Med. Ctr., Depts. of Peds. & Physiol., Syracuse, NY, Spon. M.L. Williams.

Echinocytosis in RBC's from A & N were quantitated by 1)photomicroscopy; 2)frequency histograms of the 6 stages of disc-sphere transformation, scored from 0-5; and 3)morphologic index (MI), the mean score for 200 cells. One hr. after adding Ca ionophore A23187 to cells in isotonic media with 100 µM free Ca and 90 mM K_{ex}, the MI was 1.7 ± 0.5 (S.D.,5 donors) for N and 4.2 ± 0.2(6) for A ($P<0.0005$). Under equivalent conditions, net ^{45}Ca uptake, cell deformability as measured by the Ektocytometer, and ATP decline were comparable for A & N. In contrast to Ca, the potencies of 2 echinocytogenic drugs(phloridzin & dinitrophenol) were similar for A & N. While Ca causes a progressive shape change with heterogeneous cell populations, the 2 drugs caused an immediate and stable E with homogeneous cell populations. E caused by the 2 drugs and by Ca were all reversible by the cupping agent, chlorpromazine. Preservation of ATP by 0.5 mM vanadate showed low ATP was not required for Ca-induced E. Vanadate also abolished the inhibition of Ca-induced E in cells from N. In cells treated with Ca and A23187, Mg suppressed E without vanadate, but had no effect with vanadate. These observations are consistent with a model of Ca-induced E whereby Ca-activated phospholipase(s) is counterbalanced by a Mg and vanadate-sensitive repair process, with more active repair in red cells of N as compared with A. The results define a new difference between red cells from A & N, and suggest that cells from N are a useful variant for understanding the mechanism of Ca-induced E.(Supported in part by AHA/Upstate New York Chapter).

● 885 KINETIC DIFFERENCES BETWEEN MATURE AND IMMATURE BLOOD NEUTROPHILS. W. Douglas Biggar, Charmain G. Barker, Desmond Bohn and Geraldine Kent. Department of Paediatrics, Intensive Care Unit and Research Institute, Hospital for Sick Children, University of Toronto, Canada.

Shifts in the number and maturity of blood neutrophils serve as important diagnostic aids. Mature neutrophils (PMN) circulate in two pools, marginating and circulating but it is not known if immature neutrophils (bands) do and if they are regulated by the same physiologic controls. The kinetics of circulating PMN and bands was studied in six week old pigs who were anesthetized with halothane, intubated and ventilated. During 5hr of observation, the number (mean ± SEM; $x10^9/L$) of PMN (5.3 ± 0.4) and bands (0.7 ± 0.1) remained constant. Ten min after PMN demargination was induced by adrenalin (5ml/10,000 IV), PMN increased by 2 fold while the number of bands did not change. When pigs were cooled to 29°C over 60 min, PMN fell from 5.3 ± 0.7 to 3.4 ± 0.6. This was due to increased margination secondary to decreased cardiac output and bradycardia. In contrast, circulating bands did not fall over the 5hr of observation. When endotoxin (E. coli 0111: B4) was given to hypothermic pigs (29°C), the number of circulating PMN did not increase over preinjection values while bands increased from 0.7 ± 0.2 to 4.9 ± 1.6. Our findings suggest that physiologic controls affecting PMNs and bands may differ. Bands may not circulate in the same blood pools as PMN do. The number of bands may help identify different causes of leukocytosis. In conditions causing increased PMN margination, for example bradycardia and hypotension, bacterial infections may be associated with an increase in circulating bands.

● 886 CHLORAMPHENICOL (CAP) MODIFIES BONE MARROW SUPPRESSION FROM CYTOSINE ARABINOSIDE (ARA-C) IN VITRO. Bruce Bostrom, Karin Smith, Norma Ramsay, Dept. of Pediatrics, University of Minnesota, Minneapolis, MN 55455.

As neutropenia due to bone marrow suppression is a common effect of many antineoplastic agents, we explored the ability of CAP to modify bone marrow suppression in vitro using ARA-C as a model drug. Previously we have shown concentrations of CAP below the therapeutic antimicrobial range stimulate human granulocyte/monocyte stem cells (CFU/GM) from normal and neutropenic bone marrow (NEJM 1984; 310:723). The effect of CAP in combination with ARA-C was examined using Ficoll-Hypaque separated, washed bone marrow cells from normal donors plated in agar over feeder layers containing peripheral blood cells. Colonies were counted from quadruplicate replicates after 14 days incubation. Therapeutic ARA-C concentrations (0.1 to 10 uM) inhibited CFU/GM in a dose dependent manner. The effect of CAP (1 ug/mL) is illustrated as the ratio of CFU/GM colonies with CAP to colonies without CAP for each ARA-C concentration.

	ARA-C CONCENTRATION			
	None(n=4)	0.1 uM(n=5)	1 uM(n=7)	10 uM(n=4)
Mean ± SD	1.70+.18	1.50+.38	2.06+.60	1.60+.79
Range	(1.45-1.85)	(1.31-2.18)	(1.43-3.08)	(0.99-2.76)
p value	.004	.02	.003	.12

The ratios are significantly different from unity at all ARA-C concentrations except 10 uM suggesting stimulation by CAP partially reverses suppression of CFU/GM by ARA-C. These data suggests CAP may be useful for the treatment of neutropenia due to antineoplastic agents.

887 CONGENITAL DYSERYTHROPOIETIC ANEMIA (CDA) WITH KARYORRHEXIS. Joel A. Brochstein, Salvatore Siena, Rona S. Weinberg, Elena Bianchi and Blanche P. Alter. Dept. of Pediatrics, Memorial Sloan-Kettering Cancer Ctr. and Mt. Sinai Sch. of Med., New York and Univ. of Pavia, Pavia, Italy.

A new variant of CDA was diagnosed in an 11-year-old Italian boy with life-long mild anemia. The patient was born at 28 weeks gestation and had somewhat delayed developmental milestones. Physical examination revealed short stature, microcephaly, and splenomegaly (4 cm). Hb ranged between 9 - 11 g/dl (MCV=83) and reticulocytes = 1%. Peripheral smear showed anisocytosis. Bone marrow aspirate revealed significant dyserythropoiesis with marked karyorrhexis (found in 60% of erythroblasts) and rare (3%) binuclearity and multinuclearity. The non α/α globin synthetic ratio in reticulocytes was 0.5. Betke-positive cells = 3.5% while Hb F = 0.2%. I antigen was normal while i antigen was elevated, consistent with stress erythropoiesis. Acid hemolysis was negative in several sera. All erythroid colonies and bursts from marrow and blood mononuclear cells had normal and abnormal cells, thus indicating a stem cell disorder. In the bone marrow aspirate as well as the colonies and bursts, cells which had normal morphology were less mature than those with abnormal morphology, suggesting a defect in precursor cell maturation. This patient thus has a CDA which does not fit any of the recognized types (I - III) but which, as in other cases of CDA, is due to defective erythroid maturation.

● 888 FORMATION AND REMOVAL OF POCKED ERYTHROCYTES: STUDIES IN HUMAN SUBJECTS AND LABORATORY ANIMALS. George R. Buchanan, Jureta Horton, and Christine Holtkamp, Departments of Pediatrics and Surgery, Univ. of Texas Health Science Center at Dallas, Southwestern Med. School, Dallas TX.

The "pit count" or pocked erythrocyte (Pk RBC) count (PC) is the percentage of RBCs containing one or more vesicles visualized by phase interference microscopy. The PC is <1.5% in normal subjects and 25-60% in surgically splenectomized patients; values between these extremes may result from splenic hypofunction. Although the PC is being increasingly utilized as a test of splenic function, little information is available about the patterns of formation and removal of these organelles. We performed serial PCs following splenectomy (S) in 4 patients. Levels began to rise within 1 week and reached a plateau (30-50%) by 6 to 8 weeks. Similar results were obtained following S of dogs, except that the steady state plateau value was only 10-13%. Rats initially exhibited a similar pattern of rise in PC post-S, but from the 4th to 10th week the PC gradually declined to 3%; splenosis or accessory spleens were not visualized at autopsy. Rabbits had only a slight and inconsistent rise in PC after S. Rate of removal from the circulation of Pk RBCs was determined by exchange transfusion of blood from a splenectomized dog into a eusplenic animal. Clearance of the Pk RBCs was linear, with a t1/2 of 8 hours. We conclude that Pk RBCs rise slowly following S, rapidly disappear from the circulation in the presence of a normal spleen, and vary in the pattern of rise and peak levels following S among different laboratory animals.