854 INTELLECTUAL AND ACADEMIC STATUS OF LONG-TERM SURVIVORS OF ACUTE LYMPHOCYTIC LEUKEMIA (ALL). Morris Powazek, Robert B. Rosen, (Spon. by Donald Pinkel), City of Hope Medical Center, Duarte, CA

Long-term survivors of ALL (n = 20; median 10 years) at City of Hope were evaluated with intelligence (WISC) and achievement (WRAT) tests and family interviews. They had been treated with rotational reinduction combination chemotherapy. CNS prophylaxis had consisted of 2400 R cranial irrad. + IT Mtx (16/20); craniospinal irrad. + IT Mtx (3/20); IT Mtx (1/20). Two children had experienced bacterial meningitis, 2 seizure disorders, 1 P. carinii pneumonitis.

WISC Verbal IQ was significantly low (mean 91.6). Poor performance on Information, Arithmetic and Digit Span subtests contributed to low Verbal IQ suggesting deficits in attention, concentration, long and short term memory skills. WRAT achievement scores were below average on Spelling and Arithmetic subtests (mean 90.4 and 84.6). 8/20 had repeated a grade. 8/20 had received special education or remedial instruction and 4/20 had been tutored. The results indicate that children with ALL in remission are at risk for learning difficulties and that the scholastic functioning of leukemia survivors should be closely monitored.

855 HEMOSTATIC ABNORMALITIES AND THROMBOSIS DURING L-ASPARAGINASE (L-asp) THERAPY FOR ACUTE LYMPHOBLASTIC LEUKEMIA (ALL). John R. Priest, J. Roger Edson, William Krivit. Department of Pediatrics and Laboratory Medicine and Pathology, University of Minnesota Hospitals, Minneapolis, MN 55455.

Because of unexpected thrombotic complications (12 cases of cerebral infarction, 4 cases of deep vein thrombosis), a comprehensive study of the hemostatic system was undertaken in children receiving L-asp as part of ALL induction therapy. Antithrombin (AT), plasminogen (PLAS), fibrinogen (FIB), prothrombin time (PT), partial thromboplastin time (PTT), thrombin time (TT), factor V (F-V), and platelet count were studied weekly for 7 weeks (wks) in 12 children who received 9 doses of L-asp in wks 1, 2, and 3 of induction therapy. AT, PLAS, and FIB decreased progressively in all patients (pts) with minimums in 3rd wk of L-asp: mean of 12 pts: 70%, 52%, and 31% of normal, respectively; lowest individual levels: 52%, 33%, and 11%, respectively. Functional and immunological assays of AT and PLAS gave identical results. AT and PLAS were normal 2 wks after L-asp; FIB within 3 wks. PT, PTT, and TT were prolonged during wks 1-3 and normal or shortened by wks 5-6. Platelet production rebounded during wks 3-5 as marrow remission occurred (>400,000/µl in 10 of 12 pts). F-V rose steadily from 112% of normal, pretherapy, to 158% wk 5. These data demonstrate multiple abnormalities during ALL therapy; changes in AT, PLAS, FIB, PT, PTT, and TT are due to L-asp. The net effect is a tendency to thrombosis, which may be explained by deficiencies of AT and PLAS, rapidly rising platelet counts, and elevated F-V, despite concurrent severe hypofibrinogenemia.

856 CORRECTION OF CHRONIC GRANULOMATOUS DISEASE (CDG) BY BONE MARROW TRANSPLANTATION (BMT). Joel M. Rappeport, Peter Newburger, Armond Goldman, Randall M. Goldblum, and Robertson Parkman, The Children's Hospital Medical Center and Sidney Farber Cancer Institute, Boston, Massachusetts, and the University of Texas Medical Branch, Galveston, Texas.

Although the mortality and morbidity of CDG has been reduced by prophylactic antibiotics, certain CDG patients still have a severe course leading to death. A 15 year old white male with CDG had an acute reduction in pulmonary function (70→45% of expected) and it was decided to transplant him with 2.4 X 10^8 bone marrow cells/kg from his HLA identical sister after preparation with rabbit anti-human thymocyte serum, procarbazine, and total body irradiation (800 R). Prior to transplantation all the patient's peripheral blood granulocytes and bone marrow CFU-C were NBT negative while greater than 98% of the donor cells were NBT positive; after BMT all hematopoietic and lymphoid elements were of donor origin; 100% of the recipients peripheral granulocytes, monocytes and bone marrow CFU-C were NBT positive. The patient developed chronic graft versus host disease (GVHD) and died six months following transplantation of renal failure. CDG, like other genetic disorders of bone marrow function, may be corrected by BMT in selective cases. The transplant related problem of chronic GVHD is the major limitation to the increased use of BMT.

857 FC RECEPTOR (FCR) HETEROGENEITY IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA (ALL): Yaddanapudi Ravindranath, Joseph Kaplan, Gary Schultz; Children's Hospital of Michigan and Wayne State Univ. School of Med., Detroit, MI

We have previously shown that null cell ALL (sheep erythrocyte receptor -ve, surface immunoglobulin -ve) to be either human B lymphocyte antigen (HBLA) positive or human T lymphocyte antigen (HTLA) positive (Blood 49: 371, 1977). Thirty children with HBLA+ve null cell ALL were further studied for the presence or absence of FcR on the leukemic blast cells by rosette formation with ox erythrocytes sensitized with IgG or IgM rabbit antibody. Twenty-two were FcR-ve. Eight were IgM FcR+ve. None had IgG FcR. Of the various poor prognostic parameters examined the two groups differed only with respect to sex distribution (Table). Males were predominantly FcR-ve and an unexpectedly higher number of females were FcR+ve, P= 0.048. The complete remission rate at 3 years did not differ significantly in the two groups.*

	T	M	F	Age <2, >10	WBC >20,000	3 yr CR rate
FcR⁻	22	16	6	8	7	38.15%
FcR⁺	8	2	6	2	3	83.30%

These data suggest that within the HBLA+ve null cell leukemia heterogeneity exists with respect to FcR positivity. FcR- phenotype is more common. The FcR+ group had an unexpectedly higher number of females. The clinical significance of this heterogeneity is still to be determined.

*P = 0.11

858 ABSENCE OF ISOLATED TESTICULAR RELAPSE (ITR) IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) WITH A REPETITIVE REINDUCTION PROTOCOL. Yaddanapudi Ravindranath and Raj Warrier, (spon. by J.M. Lusher), Children's Hospital of Michigan, Detroit, Michigan.

ITR has emerged as a major new problem in children with ALL both on and off therapy. Post treatment overt ITR up to 40% and a 10-30% incidence of occult ITR (by testicular biopsy) has been reported. Our data is in sharp contrast to the published reports of ITR. We have not encountered ITR as the sole initial relapse in any of 107 boys with ALL treated at our institution over an 11 year period. 10 patients had mediastinal mass at presentation and 41 had WBC >20,000/mm^3 at diagnosis. All were treated for 5 yrs. with identical chemotherapy. In addition, the last 68 patients received Intermittent Intrathecal Methotrexate (MTX) and Fractional Irradiation (IMFRA) Central Nervous System (CNS) prophylaxis. Remission was induced with Vincristine (VCR) 2 mg/M^2, 6-Mercaptopurine (6-MP) 2.5 mg/kg, and Prednisone (Pred) 60 mg/M^2, and maintained with alternating cycles of biweekly oral MTX 30 mg/M^2 for 6 weeks, and VCR + 6-MP + Pred for 4 weeks. IMFRA CNS prophylaxis is given every 10 weeks. The median duration of complete remission was 18 mos. (range 1-120 mo.) for patients not receiving CNS prophylaxis, and it has not yet been reached (>33 mos.; range 1-95 mos.) in those receiving CNS prophylaxis. Five of 26 patients off therapy had relapse, but none in the testes. This suggests that an effective maintenance program such as the repetitive reinduction protocol described above prevents ITR and that testis may not be a sanctuary site.

859 SCREENING FOR ANEMIA IN INFANTS: EVIDENCE FOR USING IDENTICAL HEMOGLOBIN (Hb) CRITERIA IN BLACKS AND CAUCASIANS. Jerry D. Reeves, David A. Driggers, Edward Y.T. Lo, Peter R. Dallman. Dept. of Pediatrics, David Grant Med Center, Travis AFB, CA., and Univ. of California San Francisco.

Blacks are reported to have an inherently lower Hb than caucasians. The purpose of this study was to determine by evaluating the Hb response to a therapeutic trial of iron whether separate Hb screening criteria according to race are justified. Hb was determined on capillary blood in 1128 healthy one-year-old infants of air force personnel. All infants with a Hb < 11.5 g/dl were considered screen positive and were asked to return for Hb determination on venous blood before and after 3 mo of oral iron therapy (3 mg/kg/d as ferrous sulfate). Significantly more blacks (37%) than caucasians (22%) were screen positive ($p < 0.005$). If an inherently lower Hb were the only basis for overrepresentation of blacks in the screen positive group, we would expect fewer blacks than caucasians to have an Hb response to iron therapy. However, there was a similar percentage who had a $\geq$ 1.0 g/dl rise in venous Hb in both races: 38% of the 41 black and 35% of the 122 caucasian infants who satisfactorily completed the regimen. The distributions of Hb values and the rates of Hb response indicated that a slight but significant inherent tendency to lower Hb values among the blacks was counterbalanced by a substantially higher prevalence of iron deficiency anemia. These findings favor using uniform Hb screening criteria in similar populations.