● **960** PLACENTAL NATURAL KILLER CYTOTOXICITY PARALLELS THAT OF CORD BLOOD. Alan B. Goldsobel, Bonnie J. Ank, E. Richard Stiehm, UCLA Dept. of Pediatrics, L.A.

The newborn has enhanced susceptibility to viral infection, in part due to defects in cellular cytotoxicity (CC). The placenta serves as a barrier between mother and fetus, containing many immune cells whose functional capabilities have not been well characterized. Thus, we assessed phenotypic and functional capabilities of these cells.

Placentas obtained within 5 hours from 16 deliveries were minced and digested in collagenase and DNase. Mononuclear cells (MC) were separated by differential centrifugation with average yield of 10^6 MC/gm of tissue with $>$ 80% viability.

Separated MC consisted of lymphocytes, mean 51% (range 20-81%) monocytes 25% (0-67%), and other cells including polys and trophoblasts. E rosette forming cells made up 63% (56-75%), while SMIg positive cells made up 9% (3-18%) of the MC. Monoclonal antibody characterization of MC surface phenotype yielded mean 25% with anti-pan T cell Ab, 20% with anti-DR Ab, 7% with anti-myeloid cell Ab.

Cytotoxic studies including lectin dependent CC using EL-4 target ranged from 11-14% (nl adult 29-38%). Antibody dependent CC using Raji target ranged from 7-19% (nl adult 11-44%). Natural killer CC using Molt 4f target at effector:target of 50:1 yielded 37$\pm$7.4% lysis compared to adult control of 48$\pm$6.5% (NS). Using K562 target, specific lysis by placental MC was 9.9$\pm$3.5% compared to adult control of 44$\pm$8.9% ($p < .01$).

This defective cytotoxic response to K562 parallels the NK cytotoxic defect of cord MC.

961 RESULTS OF DOUBLE-BLIND RANDOMLY SELECTED PLACEBO CONTROLLED THERAPEUTIC TRIALS OF HUMAN IgE PENTAPEPTIDE (HEPP). Robert N. Hamburger and Richard D. O'Connor. UCSD, Department of Pediatrics, La Jolla, California.

In a double-blind study of 40 atopic allergic patients, injections of Human IgE Pentapeptide (HEPP) 2 mg in 0.5 ml buffer or 0.5 ml buffer (placebo) were given on days 1, 4, 8, 11, 15, 18, 22 and 25. Full clinical and laboratory data were collected before and at 25 days and clinical data at 8 and 15 days as well. Duplicate skin tests were made with 4 antigens and 3 controls and were repeated on days 9 and 25. All the laboratory tests were normal before and at 25 days with no difference between groups and no significant side-effects. Twelve of 23 who received HEPP improved clinically as against 4 of 15 controls ($p<0.15$). Skin tests showed significant differences ($p<0.01$) between the groups.

A comparable dose response study of 12 atopic patients (8 HEPP/4 Placebo) using six injections (2, 10, 20 and 100 mg) of HEPP revealed 20 mg to be a statistically significant ($p<0.01$) effective dose. We are presently completing a multicenter controlled study of 5 sc injections of 20 mg HEPP vs placebo in 140 patients.

Preliminary analyses suggest that the pentapeptide, HEPP, may provide a new therapeutic modality in the treatment of atopic allergic disease.

† **962** THE ROLE OF FIBRONECTIN IN NEUTROPHIL ADHERENCE IN NEWBORN INFANTS. M.C. Harris, J. Leavitt, S.D. Douglas, and R.A. Polin. Dept. of Peds., Univ. of Pa. Sch.of Med., and Children's Hospital of Phila., Phila., PA.

Deficiencies of neutrophil (PMN) function, including adherence, may contribute to the increased susceptibility of newborn infants to bacterial infection. The basis for the decreased adherence is currently unknown; however, fibronectin (FN) has an important role in adherence of phagocytes and other cells. The purpose of this study was 1) to compare PMN adherence FOR newborn infants and adults, 2) to investigate the effects of exogenous FN on newborn PMN adherence and, 3) to determine if there are quantitative differences in membrane bound FN between PMNs from infants and adults. PMNs were obtained from cord blood samples of healthy term neonates and adults, and separated with Dextran and Ficoll-Hypaque. 1 X 10^6 PMNs were tumbled in 250 ug of FN or phosphate buffered saline (control) at 37°C for 30 min, washed, and adhered to 15 mm glass coverslps (CS) for 5,10,20 and 30 mins. CS were washed, stained, and the number of adherent PMNs calculated. For determination of membrane bound FN, PMNs (5 X 10^5) were incubated with a 1:2 dilution of fluorescein conjugated $F(ab^1)_2$ goat anti-human FN for 30 min at 4°C, washed, and adhered to CS. PMNs from newborn infants (n=25) demonstrated diminished adherence when compared to adults (n=30) at 5,10,20 and 30 min ($p<.005$). Following preincubation with FN, there was no increase in the adherence of PMNs from newborn infants, whereas, adult PMNs demonstrated enhanced adherence at 10 min($p<.025$). PMNs from newborn infants demonstrated significantly diminished membrane fluorescence for FN when compared to adults: 75.2 $\pm$ 5.4% (fluorescent positive cells) vs. 88.7 $\pm$ 7.3%, p=.05. Thus, deficient newborn PMN adherence may be related to decreased membrane FN.

† **963** DEFECTIVE HSV-SPECIFIC IMMUNITY FOLLOWING NEONATAL HSV ENCEPHALITIS. Anthony Hayward, Myron J. Levin and Jesse Groothuis. University of Colorado, School of Medicine, Dept of Pediatrics, Denver.

With effective anti-viral therapy increasing numbers of infants are surviving neonatal herpes simplex virus infections. Some survivors have recurrent HSV skin lesions, suggesting a relative deficiency of their HSV-specific immunity. To test this we used limiting dilution assays to determine the frequency of HSV specific T lymphocytes in the blood of healthy children and adults and survivors of neonatal HSV encephalitis. The subjects' serum IgG and IgM anti-HSV antibodies were determined independently by ELISA. 30% of randomly selected children aged 18 months - 12 years had HSV antibody and all of these had HSV-responsive lymphocytes in the blood with a frequency of 1:7,000 to 1:15,000. 80% of healthy adults were antibody positive and their responder lymphocyte frequencies were 1:10,000 to 1:20,000. Responder cell frequencies in antibody negative children or adults were 1:200,000 or less. The neonatal HSV survivors were aged 6 months - 7 years. All had IgG and IgM HSV antibodies but their T cell responder frequencies were 1:30,000 or less. Monocyte defects and antigen-specific immunosuppression were excluded as explanations for the low responder cell frequencies by in vitro cultures. These results suggest that the survivors of neonatal HSV may, like the survivors of congenital or neonatal CMV, have a deficiency of HSV specific $T4^+$ cells due presumably to central failure of production or to lack of clonal expansion.

964 EFFECT OF CHRONIC TRANSFUSIONS ON LYMPHOCYTE SUBSETS IN CHILDREN. Henry G. Herrod and Winfred C. Wang, University of Tennessee Center for the Health Sciences, Dept. of Pediatrics and St. Jude Children's Research Hospital, Memphis, TN.

Acquired immunodeficiency syndrome (AIDS) has been reported in hemophiliacs as well as other patients who have received blood products. In order to examine whether other patients who have received chronic transfusions are similarly at risk, we compared lymphocyte subsets and in vitro immunoglobulin synthesis among five study groups. These groups were (1) 10 patients chronically transfused for sickle cell disease (CT-SCD); (2) 21 patients with SCD who have not received regular transfusions; (3) 8 patients splenectomized for hematologic problems; (4) 8 patients who have received chronic transfusions for other refractory anemias; and (5) 27 normal adults. The results are depicted below:

Group	T3%	T4%	T8%	T4/T8
CT-SCD	54.6+6.7*	36.3+3.4*	21.2+3.8	1.77+0.39
SCD	49.9+8.1*	36.1+8.2*	20.4+5.1*	1.86+0.60
Splenectomized	44.9+12.5*	30.6+7.7*	18.2+5.7*	1.78+0.44
CT-Anemia	62.6+9.0	44.0+9.4	20.5+6.0	2.28+0.72
Normal	66.8+6.1	44.9+6.5	24.9+5.5	1.90+0.58

*Different from normal values at a $p < 0.05$.

In vitro IgM and IgG synthesis was not depressed compared to normals. Based on these studies it appears that the transfusion of packed RBC does not produce an AIDS-like picture. The observation of decreased T cell proportions in SCD may be related to functional asplenia as similar changes were seen in splenectomized patients.

965 MARROW TRANSPLANTATION FOR RETICULAR DYSGENESIS RESULTING IN IMMUNOLOGIC RECONSTITUTION WITHOUT MYELOID RECONSTITUTION. Henry G. Herrod, Victoria Turner, F. Leonard Johnson, and Luciano Dalla-Pozza, Department of Pediatrics, University of Tennessee Center for the Health Sciences and St. Jude Children's Research Hospital, Memphis, TN.

Reticular dysgenesis is a rare syndrome characterized by combined immunodeficiency and neutropenia. We have cared for a child, whose sister died of overwhelming sepsis at 2 months of age, who was referred for neutropenia. Further work-up revealed a severe combined immunodeficiency. The patient had evidence of excessive suppressor cell activity as detected in both mixed lymphocyte cultures and an assay designed to measure in vitro immunoglobulin synthesis. He had circulating T cells that bore the maternal HLA haplotype. He was treated without pre-transplant immunosuppression by allogenic marrow transplantation from his histocompatible 5 yr old nonaffected sister. Within one week the maternal T cell haplotype was no longer detectable. Excessive suppressor cell activity was not detectable by 3 weeks. There was significant improvement in his immune function as early as one month (PHA stimulation index 2.7 → 143; serum IgG 134 mg/dl → 512 mg/dl). However the patient has remained neutropenic with a maximum neutrophil count of 0.3 x 10^9/l. Cytogenetic analysis revealed an xx karotype in peripheral blood and an xy karotype in marrow chromosomes. Six months post transplant he is developing normally without infection. Marrow transplantation without preparation can restore immune function but additional immunosuppression may be necessary for complete myeloid reconstitution.