673 DECREASED BLAST CELL TRANSFORMATION AND BLASTOGENIC FACTOR PRODUCTION IN CORD BLOOD LYMPHOCYTES.

Ziad Alqusus, Hemant Kesarwala, Photini S. Papageorgiou. CMDNJ, Rutgers Medical School, Department of Pediatrics, Piscataway, N.J.

Increased susceptibility of newborn to infection with agents controlled by cell-mediated immunity (CMI) is well documented. To evaluate the CMI function of newborn we studied the peripheral T cell numbers by E-rosette technique, as well as the phytohemagglutinin (PHA) lymphocyte transformation and the production of blastogenic factor in the cord blood from 11 healthy newborn infants and in venous peripheral blood from 6 healthy adults. It was found that 1. T cell numbers in newborn were comparable to the ones found in the adult controls (mean 50% in newborns and 52% in adults); 2. the PHA lymphocyte transformation as measured by tritiated thymidine incorporation was markedly lower than in adults (mean PHA index 16 in the cord blood and 70 in adults), although spontaneous transformation was much higher in newborn compared to adult lymphocytes; and 3. the supernatant derived from PHA stimulated cord lymphocytes (after removal of PHA) failed to stimulate neonatal lymphocytes as measured by tritiated thymidine incorporation (mean blastogenic index 1.6, range 1-2) in contrast to the supernatant of PHA stimulated adult lymphocytes which significantly stimulated the neonatal lymphocytes (mean blastogenic index 5.1, range 3.5-7). These data suggest that newborn lymphocytes, while possessing the surface properties of T cells, are functionally immature.

674 SYSTEMIC LUPUS ERYTHEMATOSUS (SLE) AND DERMATITIS HERPETIFORMIS (DH) IN A GIRL WITH MARFAN'S SYNDROME.

Andrew J. Aronson, Keyoumars Soltani, Rosa T. Ong, Iris K. Aronson (Spon. by Burton J. Grossman). The University of Chicago Pritzker School of Medicine, La Rabida Children's Hospital, Departments of Pediatrics and Medicine(Dermatology), Chicago, Illinois.

The concurrence of DH and SLE has previously been reported in 2 patients. Our patient is a 15 year old black girl with Marfan's Syndrome who developed a bullous eruption which was clinically, histologically, and immunopathologically characteristic of DH. Sulfapyridine was given. Two months later she developed fever, pleural effusion, renal insufficiency, nephrotic syndrome, hypertension, hypocomplementemia, positive ANIF and positive LE preparation. Immunofluorescence of uninvolved skin demonstrated IgG, IgM and C3 at dermal-epidermal junction and around papillary blood vessels. Kidney biopsy showed Type III (proliferation with depcsits) lupus glomerulonephritis. Prednisone treatment resulted in improvement of clinical manifestations. She subsequently expired when cystic medial necrosis of the ascending aorta resulted in cardiac tamponade. Since both DH and SLE are diseases mediated by the deposition of immune complexes, our patient clearly exhibited a rare predisposition to formation of immune complexes. The presence of two immune-mediated diseases in the same patient suggests a common underlying immune defect.

675 CHANGES IN SERUM IgE AND IgM LEVELS IN HETEROPHIL-ANTIBODY POSITIVE INFECTIOUS MONONUCLEOSIS (HA+IM).

Sami L. Bahna, Charles A. Horwitz, Milan Fiala and Douglas C. Heiner. UCLA School of Medicine, Harbor General Hosp., Torrance, California.

141 serial blood samples were obtained from 19 patients (14-40 yr) with HA+IM including 9 from whom pre-illness samples were available. All specimens were simultaneously studied immunologically, and most were studied hematologically and serologically. IgE was determined by a paper disc solid phase radioimmunoassay, and IgM by single radial immunodiffusion.

IgE showed an average rise to a peak 276% of the pre-illness level (PIL), usually within the 1st 10 days and always by the 17th day. This was followed by a drop to 41% of PIL, with a gradual return to PIL after about a year.

IgM showed a similar trend but the relative changes were less pronounced. On the average, the peak was 176% of PIL and the nadir 75% of PIL. The IgE peak preceded the IgM peak in 44% and coincided with it in 56% of the cases.

		IgE Peaked			IgM Peaked		
Peak of:	n	Before	With	After	Before	With	After
Atypical lymphs.	15	0	15	0	0	8	7
Lymphocytes	15	4	11	0	2	8	5
Monocytes	11	8	3	0	6	4	1
SGOT	13	4	9	0	0	10	3
HA titer	16	7	9	0	4	9	3

A 2 to 3 fold rise in serum IgE is a relatively constant accompaniment of HA+IM which usually coincides with the peak of atypical lymphocytes and often precedes other responses.

676 SEVERE COMBINED IMMUNODEFICIENCY WITH B LYMPHOCYTES, ANTIBODY SYNTHESIS AND RESPONSE TO ALLOGENEIC CELLS IN MLC.

Ballow, M., Incefy, G.S., Good, R.A. and Pahwa, R.; Univ Conn Hlth Cntr, Sch Med, Dept Peds, Farmington, Ct; Mem. Sloan-Kettering Cancer Cntr, NY (Spon. by M. Lepow)

A male infant with severe combined immunodeficiency (SCID) presented at 8 mos of age with failure to thrive and Staph pyoderma. Quant. immunoglobulins were: IgG 150 mg/dl; IgM 31 mg/dl and no detectable IgA. He had 20% complement receptor rosetting peripheral blood lymphocytes (PBL). Lymphocyte membrane immunofluorescence was positive only for IgM (18%). Total lymphocyte counts varied between 1200-2000/mm^3. Antibodies (Abs) to tetanus and polio virus antigens were present. Following a submandibular salpingitis and a severe bilateral pneumonia, Abs to rubella virus were detected. Red cell ADA and NP were normal. Anergy to candida and failure to sensitize to DNCB were demonstrated. Lymphocyte proliferative responses were absent to all mitogens and specific antigens but normal (SI ratios) to allogeneic cells in MLC. E-rosetting lymphocytes in the PB were very low, 3-8% (nl 50-65%). An increased proportion of cells bearing the HTLA marker, a T-cell surface antigen, was demonstrated after incubation of bone marrow cells (fraction 3) and PBL with bovine and human thymosin and upon thymic epithelial monolayers. However, these same thymic factors could not induce E-rosette formation or responsiveness to mitogens. The cells inducible for the HTLA T-cell marker with thymic factors may represent a precursor T-cell subpopulation responsible for the ontogenically primitive MLC response and perhaps play a role in the production of Abs.

677 STUDIES OF E-ROSETTE-FORMING CAPACITY OF CORD BLOOD LYMPHOCYTES(CBL).

R. Bernales, J. Kapian and J.A. Bellanti. Depts. Peds., Georgetown Univ. Sch. Med., Wash., D.C. and Wayne State Univ. Sch. Med., Detroit, Mich.

The capacity of CBL to form E-rosettes with sheep erythrocytes(SRBC) was evaluated at SRBC/CBL ratios ranging from 2 to 80, employing: 1) CBL containing autologous RBC, 2) relatively pure suspensions of CBL, and 3) CBL subjected to hypotonic shock with distilled water.

		% E-rosette (mean ± SE) at varying SRBC/CBL ratios					
		80/1		40/1		8/1	
Exp	no						
#1	3	36.5 ± 4.5	P<.01	25.8 ± 10.8	P<.02	3.5 ± 1.8	P<.01
#2	6	63.8 ± 3.0	P<.01	57.6 ± 4.2	P<.01	36.3 ± 2.7	P<.02
#3	6	36.4 ± 4.0		33.8 ± 4.3		19.5 ± 4.7	

The addition of autologous RBC to purified CBL also depressed E-rosette formation; hypotonic shock did not impair the uptake of ^{3}Hthy by CBL. When the mean % E-rosette values were plotted as a function of different SRBC/CBL ratios, the shape of the curves obtained were similar, with the slope of the curves being very steep at the lower ratios. Moreover, the 50% E-rosette values were consistently observed at SRBC/CBL ratios between 8/1 and 16/1. The quantitative relationship of the curve using purified CBL was similar to that seen with adult lymphocytes. These results indicate that CBL have a capacity to bind SRBC probably comparable to that of adult lymphocytes, that a steric hindrance by autologous RBC may occur in the E-rosette phenomenon. They might also explain the divergent values of E-rosette % reported in cord blood.

678 FURTHER OBJECTIVE STUDIES IN CHILDREN WITH HYPERSENSITIVITY TO FOODS.

S. ALLAN BOCK & CHARLES D. MAY, NATIONAL JEWISH HOSPITAL & UNIVERSITY OF COLORADO MEDICAL CENTER, DEPARTMENTS OF PEDIATRICS, DENVER.

There is an air of uncertainty surrounding the diagnosis of hypersensitivity to foods. Objective means of evaluating adverse reactions to foods are needed to eliminate patient and observer bias. This may be accomplished only by double-blind food challenges. Simultaneously immunologic parameters were measured including skin tests, in vitro histamine release from leukocytes, and quantitative serum antibodies to cow milk proteins to confirm an immunologic basis for the adverse reaction. Extracts of food used in skin tests were verified by a preliminary study in which the extracts were found not to produce non-immunologic reactions in normal subjects but did identify subjects with hypersensitivity to the parent foods. Double-blind food challenges were carried out with 71 children with histories of adverse reactions to foods. Positive responses to food challenges confirmed adverse reactions to foods in only 25 of the 71 children. Thirty-eight of the 71 children exhibited positive skin tests by the puncture technique; all of the positive food challenges occurred in only those with positive puncture tests. All the reactions to food challenges were characteristic of immediate-type hypersensitivity. In individuals with a suspicious history of adverse reactions to foods utilization of the puncture test served to identify those in whom a double-blind food challenge was indicated, and these techniques allow an orderly approach to the identification of clinically significant hypersensitivity to food.