- 1014** IMMUNOLOGICAL STUDIES AND HTLV ANTIBODY STATUS OF MOTHERS OF INFANTS WITH AIDS. Gwendolyn B. Scott, Nancy Klimas, Steven Kanner, Margaret Fischl, Mary Ann Fletcher, and Wade P. Parks. (Spon. by Jose Strauss)
- Thirteen infants with acquired immune deficiency syndrome (AIDS) with opportunistic infection and/or Kaposi's sarcoma have been identified in South Florida. The mothers of eight of these infants have been evaluated with regard to their immune status and the presence of antibody to the human T cell leukemia/lymphoma virus (HTLV). Five of the mothers are recent refugees from Haiti. Two have a history of intravenous drug abuse. Their ages range between 19 and 33 years. Two of the mothers have AIDS and one mother has an AIDS-like illness. The remainder of the mothers are healthy. Immunological studies in the mothers were compared to values obtained in healthy American Black and Haitian women. The mothers showed a higher IgG level (mean value - 2919mg%) as compared to controls. The percentage of T lymphocytes and T-helper cells were decreased in mothers as compared to controls. T helper/T suppressor ratios were generally lower in mothers (mean value - 0.47) as compared to Haitian women (mean value - 1.1) and American Black women (mean value - 1.45). Immunofluorescent studies and radioimmunoassays for HTLV antibody were positive in 75% of mothers and in two of the children with AIDS. HTLV antibodies were found in 20% of Haitian women and none in the American Black women. In conclusion, the mothers show immune abnormalities similar to those found in patients with AIDS but the majority are clinically well. There is an increased incidence of HTLV antibody in the mothers as compared to controls.

- 1015** CHRONIC INTERSTITIAL PNEUMONITIS IN PEDIATRIC AIDS AND AIDS RELATED COMPLEX (PRODROME). Bernard Silverman, Morris Charytan, BenZion Krieger, Rachel Morecki, Micha Ziprkowski, Harold Goldman and Arye Rubinstein, Albert Einstein College of Medicine, Department of Pediatrics, Bronx, New York.

28 of 30 (93%) children with AIDS or prodrome displayed clinical and radiologic evidence of progressive interstitial pulmonary disease. Usually no adventitious sounds were heard on pulmonary auscultation. Digital clubbing occurred in 6 patients. Chronic hypoxia ($PO_2 < 80$ on room air) developed in most patients. Chest roentgenograms displayed diffuse reticulonodular interstitial densities with perihilar haze. Histologically, interstitial lymphocyte and plasma cell infiltration was noted in 8 of 8 pulmonary biopsy specimens. Infiltrates were both focal-nodular and diffuse, occurring both within alveolar septae and surrounding bronchioles. Silver methenamine stain was positive for pneumocystis carinii in 3 patients, all of whom responded well to intravenous Trimethoprim-sulfamethoxazole or Pentamidine. Mycobacterium avium was isolated in 2 patients. Pulmonary cytomegalovirus was noted in 2 patients. In 2 patients resolution of chronic hypoxia was achieved following daily and subsequently alternate day Prednisone therapy. Chronic interstitial pulmonary disease in pediatric patients with AIDS or its prodrome may be similar to lymphocytic interstitial pneumonitis and may be a manifestation of polyclonal B cell activation.

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- 1016** CLINICAL SIGNIFICANCE OF SERUM LACTATE DEHYDROGENASE (LDH) IN ADULTS AND CHILDREN WITH AIDS: A POSSIBLE INDICATOR OF UNCONTROLLED B CELL PROLIFERATION. Bernard Silverman and Arye Rubinstein, Albert Einstein College of Medicine, Department of Pediatrics, Bronx, New York.

Elevation of serum LDH activity occurs in isoenzyme patterns characteristic of various disease states. The isomorphic pattern (i.e. equal elevation of all isoenzymes) is pronounced in B cell neoplasia and infectious mononucleosis. In B cell lymphomas LDH levels correlate directly with tumor burden and clinical outcome. We have detected an isomorphic elevation of LDH in 19 of 21 patients with AIDS or AIDS related complex. This elevation occurred invariably during documented Pneumocystis carinii pneumonitis (PCP) and in all children with interstitial pneumonitis. LDH levels returned to normal following resolution of PCP (6 of 7 patients) after treatment with antibiotics and periodic intravenous gammaglobulin. Serum LDH levels remained elevated following antibiotic treatment alone. Conversely, treatment of patients with Pneumocystis carinii negative interstitial pneumonitis with i-v gammaglobulin alone resulted in a decrease in LDH levels. I-V gammaglobulin may regulate B cell proliferation in immunodeficient patients and thus indirectly affect LDH levels.

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- 1017** POSSIBLE VERTICAL TRANSMISSION OF ACQUIRED IMMUNODEFICIENCY IN INTRAVENOUS DRUG USERS. Bernard Silverman and Arye Rubinstein, Albert Einstein College of Medicine, Department of Pediatrics, Bronx, New York.
- 9 pregnant intravenous drug using mothers and their respective infants were studied. 3 mothers (1,4,5) had decreased T cell %. 3 mothers (1,2,3) displayed an abnormally low T₄/T₈ ratio during pregnancy and post partally (1,2). Transient depression of lymphocyte stimulation by PHA occurred in 1 mother (2). Depression of the PWM response occurred in another (1). Both of these subjects demonstrated polyclonal hypergammaglobulinemia and elevated circulating immune complexes. Mother 5 was diagnosed with Burkitt's lymphoma during pregnancy. Mother 6 developed depressed PHA and PWM responses and a T₄/T₈ ratio of .71 immediately post partum. Baby 2 exhibited an elevated IgM level and a low PWM response at birth. The T₄/T₈ ratio declined from 3.2 at birth to 1.16 at 5 months of age in association with a low PHA response and a further depression of the PWM response. Baby 4 displayed low total T cell % and depressed Con A and PWM responses. Baby 6 demonstrated an IgG level of 2700 and a T₄/T₈ ratio of .69. No other clinical or immunologic abnormalities were noted among the 9 babies. Specimens for viral isolation were obtained from various sites including the placenta. Adenovirus was isolated from the urine of mother 7. EBV titers were consistent with reactivation during pregnancy in mother 5. No serologic evidence for EBV, CMV, HSV or toxoplasmosis infection in infants was demonstrated. Longer follow-up will determine the relevance of these findings with regard to AIDS. Supported by NIN Grant Number: 1 U01 AI 20671-01

- 1018** RAPID DEVELOPMENT OF POLYMERIC IgA IN THE SERUM OF INFANTS. JB Splawski, CS Woodard, RM Denney, and RM Goldblum, University of Texas Medical Branch, Department of Pediatrics, and Human Biological Chemistry and Genetics, Galveston, Texas.

Three molecular forms of IgA, monomeric (mIgA), polymeric (pIgA), and secretory (sIgA) make up approximately 85, 15, and 1% of the IgA in adult serum. IgA concentration in secretions (sIgA) increases with age more rapidly than serum IgA. To evaluate the development of the IgA system, we measured total IgA, pIgA, and sIgA in the serum of infants 3-54 weeks of age. pIgA was measured by an enzyme-linked immunoassay based on the binding of pIgA to solid phase free secretory component. Total IgA and sIgA were measured by immunofluorescent assays.

pIgA measurements in 10 normal adults sera (13 ± 4 mg/dl or $7\% \pm 2$ of the total IgA) were similar to those reported using assays based on prior separation of the IgA forms. The pIgA concentration in infants' sera ranged from 3.2 to 27.9 mg/dl. They increased from $\frac{1}{2}$ to full adult levels over the first year of life. The pIgA was 10 to 75% of the total IgA in the infants' sera. The proportion of pIgA decreased with age due to an increase in mIgA. sIgA concentration ranged from 0 to 5.3 mg/dl (0 to 28.9% of the total IgA) and did not correlate with age.

These studies suggest that the various forms of serum IgA develop from pathway which mature at different rates. This is in keeping with the predominance of pIgA in the serum of many lower animal species. Alternatively, the relative predominance of high molecular forms of IgA in infants' sera may be due to immaturity of the mechanisms for removal of these forms of IgA.

- 1019** SURGICALLY INDUCED IMMUNOLOGIC ALTERATIONS IN PEDIATRIC PATIENTS. Russell W. Steele, F. A. Burrows, Daniel L. Mollitt, Daniel J. Marmer, Departments of Pediatrics and Surgery, University of Arkansas for Medical Sciences/Arkansas Children's Hospital, Little Rock, AR.

Surgery is generally believed to be an immunosuppressant, based primarily on studies of adult compromised patients undergoing major operations. Little information is available regarding the young pediatric surgical patient.

Eight infants requiring cardiopulmonary bypass (CPB) for cardiac surgery and 50 (mean age: 20 months) undergoing herniorrhaphy were evaluated with an extensive survey of immune function. CPB patients had peripheral blood drawn before surgery, post-sternotomy pre-bypass, post-bypass, and 1, 24, and 48 hours post-surgery. Both groups exhibited an increase in absolute neutrophil counts but no change in neutrophil random migration, chemotaxis or phagocytic capacity. However, bacterial killing was reduced in the cardiac surgery group during and after CPB ($p = .005$). Opsonizing antibody and complement levels remained unchanged in both groups. There was a significant decrease in absolute lymphocyte count post-operatively with T and B cells, T-helper and T-suppressor cells equally effected ($p < 0.02$). There was no change in the T-helper/suppressor ratio. The subtle changes of neutrophil function seen in CPB patients are unlikely to play a major role in postoperative infection. Lymphocyte changes suggest redistribution in response to the stress of surgery.