962 NUTRITION-INFECTION INTERACTIONS IN THE COMPROMISED HOST. Jose I. Santos, Jesus Kumate, and Harry R. Hill. Univ. of Utah Coll. of Medicine, Depts. of Pediatrics and Pathology, Salt Lake City, Utah, and Hospital Infantil de Mexico, Mexico, D.F.

Malnutrition and infection are two of the major factors affecting morbidity and mortality in children throughout the world. To evaluate the interrelation between these two conditions, we assessed the immune status of 17 children with clinical and laboratory evidence of major bacterial, viral or parasitic infections and varying manifestations of malnutrition. Using standard anthropometric measurements (Bull. WHO 46:547, 1972), the average height for age was below the 50th percentile, and the weight for height below the 25th percentile. Quantitative immunoglobulins, diptheria and tetanus antibody titers, and C_3 levels were normal to elevated in most cases. NBT dye reduction was at least 90% of controls. In contrast, PMN chemotaxis was markedly depressed in 11 of 17 patients when compared to controls. Skin tests for delayed hypersensitivity (DH) were positive to PPD-S (1), SKSD (6), and *C. albicans* (1). Thus, both PMN chemotactic responsiveness and DH skin tests were depressed in these children, indicating that malnutrition has a much greater effect on the cellular portion of the inflammatory mechanism. Our findings are in contrast to previous studies in which normal children with active infection have been shown to have markedly enhanced PMN chemotaxis and metabolism (JCI 53:996, 1974; JID 141:14, 1980). This suggests that the host's nutritional status plays a more important role in modulating the cellular portion of the acute inflammatory response than the mere presence of infection.

● **963** IMMUNODEFICIENCY IN A CHILD WITH A HEALTHY ADENOSINE DEAMINASE DEFICIENT MOTHER. Frank C. Schmalstieg, Hiroko Tsuda, Gordon C. Mills, & Armond S. Goldman. The University of Texas Medical Branch. Department of Pediatrics. Galveston, Texas.

We recently studied a 27 year old woman with adenosine deaminase (ADA) deficiency. Red cell lysates exhibited less than 1 μmole/g hgb/hr conversion of either adenosine or deoxyadenosine to inosine. Lysates made from peripheral blood lymphocytes showed less than 0.5 nmoles/min/mg protein utilization of adenosine. Studies employing intact lymphocytes demonstrated conversion of [8-^{14}C]-adenosine to [8-^{14}C] inosine and [8-^{14}C] hypoxanthine proceeded at 10-20% of the rate of normal lymphocytes. Mixing experiments with red cell extracts failed to demonstrate an inhibitor. She has produced 3 children, one of whom expired with ADA deficient severe combined immunodeficiency. This child's disease was somewhat atypical in that she had considerable lymphoid tissue and the gross and microscopic features of the thymus were relatively normal in appearance and cytology at autopsy. Her husband and 2 living children had approximately half normal ADA activity in their red cell lysates. Starch gel electrophoresis of these lysates indicated the presence of the ADA 1 phenotype. No consanguinity could be detected in the family. Although an absolute determination of the genetics of this disease in this family was not possible, the most likely explanation is that the mother is homozygous for a low activity ADA variant while the father is heterozygous for a more common form of ADA deficiency.

964 ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS (ABPA) WITH LOW SERUM IgE. Robert H. Schwartz, and Gary E. Hollick, University of Rochester, School of Medicine and Dentistry. Dept. of Pediatrics, Rochester, New York

Elevated serum IgE is helpful in making the diagnosis of ABPA and in monitoring the onset of exacerbation and response to therapy. ABPA occurs frequently in patients with cystic fibrosis (CF). They also develop high total serum IgE.

A 20 yr. old non-asthmatic woman with CF who smoked marihuana developed fever, chest pain and expectoration of brown flecks. She had a ligular infiltrate, blood(1500/mm^3) and sputum(50%) eosinopilia. Sputum cultures were positive for Aspergillus fumigatus (Af). A previously negative immediate skin test to Af became positive(1:10,000 w/v). She developed serum precipitins to antigens from two Af sources and to Aspergillus species isolated from her marihuana. Septate hyphae were seen in a left upper lobe bronchial brushing. Culture grew Af. Three mos. prior to the acute illness IgE was 9 IU/ml. Serum IgE rose to 16 and 29 IU/ml. during 10 days when the Dx of ABPA was being considered. With prednisone Rx symptoms disappeared, chest infiltrate cleared, culture for Af became negative, Af precipitin tests became negative and IgE fell to 6 IU/ml. The immediate skin test to Af remained positive 3 mos. after Dx. Af RAST's were negative 4 yrs. and 3 mos. prior to the illness, at the time of acute illness and at 3 mo. intervals after onset. Serum skin sensitizing antibody could not be detected by P-K passive transfer and skin testing at 2 hrs. and 48 hrs.

Elevated total serum IgE does not always accompany acute ABPA. Early diagnosis may need to be made using less restricted criteria.

965 DETECTION OF ANTIBODIES TO COW'S MILK PROTEIN(CMP) IN DUODENAL FLUIDS(DF). Praful C. Shah, Byung H. Park, Gary Rich, Emanuel Lebethal. SUNY/AB, Department of Pediatrics, Children's Hospital of Buffalo, Buffalo, NY 14222

Measurement of serum antibodies to CMP has not been useful in differential diagnosis of milk intolerance (allergy). Since duodenal mucosa is exposed to CMP during the digestive process, antibodies to CMP in DF might provide a new insight into the local immune response and development of clinical sensitivity to CMP. DF were collected originally for evaluation of pancreatic exocrine function and stored at -20°C for 1-36 months. 46 DF from 36 patients (1-16 years) were available for this study. Antibodies (G, A,M) to CMP (casein, albumin, α-lactalbumin, β-lactoglobulin A&B) were measured by Enzyme Linked Immunoabsorbent Assay (ELISA). IgA & IgM, but not IgG, antibodies were detected in 14 of 17 post pancreozymin (PZ), 6 of 26 post secretin (S) and 2 of 3 basal (unstimulated) DF. 3 DF were compared with paired sera collected simultaneously: Antibodies were detected in both in 2 pairs, but only in serum in 1 pair. 6 pairs (PZ-S) of DF from same patients were compared: antibodies were present in both DF of 2 pairs, in only PZ fluid of 3 pairs, and none in 1 pair. The relative absence of IgG antibody in DF in comparison to serum and the presence of only IgA & IgM antibody in DF, suggest that these antibodies are produced locally. Further, hormonal stimulation of DF secretion may be accompanied by concomitant secretion of local antibody. Detection of antibodies to CMP in DF may provide a new means of studying the development of local immune response to food antigen. (Supported by Dairy Council and USPH Ag02417-01.)

966 AN ANIMAL MODEL OF LATE PULMONARY RESPONSES TO ANTIGEN CHALLENGE: EFFECTS OF TRANSFUSION WITH "BLOCKING" ANTISERA AND BRONCHODILATOR ADMINISTRATION. Mark P. Shampain, Gary L. Larsen, Peter M. Henson (Spon. by Richard B. Johnston, Jr.). Nat. Jewish Hosp., Dept. of Peds. and Univ. of Colo. School of Med. Denver, CO.

Late pulmonary responses (LPR) to mold antigens are a major cause of morbidity in asthmatic patients. We have developed a rabbit model of IgE-dependent LPR to Alternaria aerosol challenge. Rabbits with both IgG and IgE antibodies against Alternaria had blunted LPR measured by increases in total pulmonary resistence (R_L) and decreases in dynamic compliance (C_{dyn}) compared with IgE-only rabbits. To note if passive transfer of IgG would diminish LPR, rabbits were transfused with 30 ml of antiserum heated to remove IgE activity. Marked early pulmonary responses (EPR) (R_L =135% of baseline, C_{dyn}=64%) and LPR (R_L 151%, C_{dyn}=48%) were blunted in three out of four rabbits after transfusion (R_L=115%, C_{dyn}=100% for EPR, R_L =119%, C_{dyn}=100% for LPR). The fourth rabbit had a larger EPR before transfusion compared with the other three (R_L =150%, C_{dyn}=38%), which was partially diminished after (R_L =133%, C_{dyn}=38%). No consistent changes in WBC, differential, platelet count or hemolytic complement were noted in 3 rabbits. Intravenous isoproterenol 6 hrs after challenge did not reverse the LPR. Thus LPR in human asthma as well as in this model is poorly responsive to bronchodilators. Our results suggest that abbrogation of the early, anaphylactic response (e.g. through generation of "blocking" antibody) is important in suppression of the LPR in Alternaria sensitivity. Peripheral leukocyte and complement changes may not be important in the LPR.

967 EFFECTS OF HYDROCORTISONE AND THEOPHYLLINE ON MONONUCLEAR CELL SUPERNATANT IgE CONCENTRATIONS. L. Reed Shirley and Rebecca H. Buckley, Duke University Medical School, Durham

As lymphocytes have been reported to have theophylline (THEO) receptors and variable sensitivity to hydrocortisone (HC), we have analyzed the effects of these widely used agents on atopic subjects' cultured mononuclear cell (MNC) supernatant IgE concentrations (S IgE). MNC were isolated from 9 patients with elevated serum IgE (10,954 ng/ml) and cultured at $2x10^6$/ml for 7 and 12 days in RPMI 1640 with 10% fetal calf serum to which 10^{-4} M THEO or 10^{-5} M to 10^{-7} M HC was added. Viable cell numbers (VCN) were assessed at the beginning and termination of culture by trypan blue exclusion; S IgE was measured by double-antibody RIA. THEO had no demonstrable effect on either S IgE (965 pg/ml with vs 1,676 pg/ml without, p=NS) or VCN (1.29×10^6/ml with vs 1.28×10^6/ml without, p=NS) in studies with MNC of 3 patients. Cultures from 6 patients containing 10^{-5} M HC had less S IgE on day 7 (1,974 pg/ml with vs 5,532 pg/ml without, p<.05) and on day 12 (2,359 pg/ml vs 5,958 pg/ml, p<.05). However, at 10^{-5} M HC, VCN was also reduced (0.39×10^6 cells/ml with vs 0.88×10^6 cells/ml without, p<.005). In contrast, MNC from the same 6 patients cultured with 10^{-6} M HC had significantly more S Ig on day 7 (10,597 pg/ml with vs 5,532 pg/ml, p<.05) and on day 12 (12,393 pg/ml vs 5,938 pg/ml without, p<.05) even though 10^{-6} M HC also reduced VCN on day 7 (0.625×10^6/ml with vs 0.88×10^6 without, p<.05). Since S IgE augmentation by 10^{-6} M HC was noted despite fewer cells than in culture without HC, the effect may be directly on the B cell rather than allowing increased cell replication by action on suppressor T cells. Subpopulation studies are underway to elucidate the target cell of HC in this enhancing effect.