1140 COMPARATIVE STUDY OF ENDOTOXIN RELEASE FOLLOWING THERAPY WITH AN AMINOGLYCOSIDE VERSUS A THIRD GENERATION CEPHALOSPORIN. Jerry L. Shenep and Ronald P. Barton (Spon. by Walter T. Hughes) St. Jude Children's Research Hospital, Division of Infectious Diseases, Memphis, TN.

In order to determine if the rate of endotoxin liberation following antibiotic therapy of gram-negative bacterial sepsis is related to the antibiotic class administered, sepsis was induced in 12 rabbits by intraperitoneal injection of E. coli K1. Blood was sampled just prior to and 1/2 hour and hourly following antibiotic administration. Bacteremia was measured by quantitative culture. Plasma endotoxin levels before and after passage through a 0.45 micron filter were quantitated by Limulus lysate assay. Two hours after infection rabbits received either 2.5 mg/kg of gentamicin or 100 mg/kg of moxalactam intravenously. Both groups of rabbits developed similar mean levels of bacteremia and free endotoxin prior to antibiotic therapy. However, beginning within 1/2 hour after antibiotic administration and continuing for 4 hours, two to ten-fold higher mean levels of free (filterable) endotoxin were present in the moxalactam-treated rabbits as compared to the gentamicin-treated rabbits ($p < .05$ for each sample time). These higher mean levels of free endotoxin occurred in the moxalactam group although there was no significant difference in the mean rates of bacterial killing. Assessment of the clinical significance, if any, of the observed difference in rates of endotoxin liberation following aminoglycoside therapy versus third generation cephalosporin therapy will require further studies employing biochemical and physiological measurements.

●1141 MONOCLONAL OR POLYCLONAL ANTIBODY-MEDIATED PROTECTION AGAINST GROUP B STREPTOCOCCI IS MARKEDLY ENHANCED BY FIBRONECTIN. Ann O. Shigeoka, David G. Pritchard, Marianne L. Egan, Cynthia Sholly and Harry R. Hill, Univ. of Utah, Salt Lake City and Univ. of Alabama at Birmingham.

Fibronectin (FN) is reported to enhance particle attachment to macrophages and PMNs. Our previous studies showed that cord plasma FN levels are decreased compared with adult levels and that the opsonic activity against group B streptococci (GBS) of such plasma can be increased by the addition of purified FN. The present studies were designed to determine the role of FN alone and in combination with antibody preparations in providing protection against experimental neonatal GBS infection in a rat model. FN administration alone did not protect against type III GBS infection (untreated 33% survival, n=18; vs treated 29%, n=17). When FN was combined with a polyclonal human IgG preparation modified for intravenous use (IGIV), increased protection was observed (untreated 24% survival, n=17; IGIV 29%, n=17; IGIV+FN 48%, n=31). The enhanced protection observed with a combination of FN and antibody was more impressive when a murine monoclonal type III specific IgG antibody was employed (untreated 0%, n=31; FN 14%, n=29; IgG 17%, n=24; FN+IgG 62%, n=29). FN also enhanced protection by low dose monoclonal IgM antibody (untreated 5%; FN 26%; IgM 18%; FN+IgM 78%). Surprisingly, FN also significantly enhanced protection mediated by an IgA type III monoclonal (untreated 36%, IgA 42%, FN+IgA 65%). These studies indicate that FN interacts with antibody of IgG, IgM and even IgA isotype in host defence. Optimal immunotherapy of neonatal group B disease may involve the adminstration of both antibody and FN.

1142 PERTUSSIS PERSISTS AS A CAUSE OF HOSPITALIZATION IN YOUNG CHILDREN. J. Sotomayor, L. Weiner, J McMillan. SUNY, Upstate Medical Center, Dept. of Pediatrics, Syracuse, NY (Spon. by F. Oski).

A review was conducted of all pts seen at Upstate Medical Center during the past 8 yrs whose NP specimens were positive by specific B. pertussis FA stain. A total of 61 pts were identified; 46 were hospitalized and 15 were outpts. The 2 groups were compared with regard to age and immunization status. Indices of illness severity was assessed for hospitalized pts. The mean age of hospitalized pts was 4.5 mos (3 wks-36 mos) as contrasted with 19 mos (6 wks-7 yrs) for outpts. Twenty-six of the 46 inpts were less than 12 wks of age. The 17 non-white infants admitted to the hospital were younger (mean age 2.2 mos) than the 29 white infants who were hospitalized (5.8 mos). The non-white outpts were also younger (mean age 15.7 mos) than the white outpts (mean age 21 mos). Among the outpts 11/15 had received 2 or more pertussis immunizations (PI). In contrast only 7/46 hospitalized pts had received 2 or more PI. The duration of hospitalization was 1-26 days (mean 8 days). All 10 pts who were hospitalized more than 9 days were among the 23 who had received no PI. Forty-three hospitalized pts had chest X-rays, 18/20 pts whose X-rays were abnormal had had less than 2 PI. Pertussis was not considered in the initial diagnosis in 19 of the 46 hospitalized pts. Initial diagnosis for these 19 pts included sepsis, Reye's syndrome, vomiting and pneumonia. This study demonstrates that pertussis persists as a cause of hospitalization among young children with deficient PI and that frequently it is not considered in the initial diagnosis.

1143 CONGENITAL CYTOMEGALOVIRUS (CMV) INFECTION: ABSENCE OF IgM ANTIBODY, RETARDED IgG ANTIBODY PRODUCTION AND REVERSED OKT4/OKT8 RATIOS. Mary Ann South, William Rodriguez, David Fuccillo, Lata Nerurkar, Akihiro Yachi, and John Sever. NINCDS and NCI, NIH, Bethesda, Md; Children's Hospital National Medical Center and George Washington University, Washington, DC.

A male child delivered of a 14 year old hispanic was born small for gestational age, jaundiced and had hepatosplenomegaly, a rash resembling "blueberry muffin" spots and brain calcifications. CMV was cultured from urine at a titer of more than 10^7 $TCID^{50}$/ml and also from buffy coat, throat swab, and cerebrospinal fluid. At the age of 2 weeks his T cell subsets were measured for the first time. There was a marked decrease of T4 positive cells with a normal number of T8 positive cells, producing a "reversed" T4/T8 ratio of 0.8. However, his helper-suppressor cell functional assay was normal for age. The mother's T4 and T8 cells were normal with a ratio of 1.5. The indirect ELISA CMV-IgG antibody titer was 1:8192 for both mother and newborn baby. The baby's ELISA CMV-IgM was negative although his total serum IgM was 70 mg/dl. His CMV-IgG titer decreased to undetectable levels by 4 months of age; the other findings persisted unchanged. At 8 months of age, his CMV IgG rose to 1:10,140. Despite this high level of IgG antibody, the CMV shedding continued unabated, the CMV-IgM remained negative and the T4/T8 ratio was still reversed. This study shows that congenital CMV infection can result in profound disturbances of immune regulation.

●1144 RAPID DETERMINATION OF MOLECULAR RELATEDNESS OF CLINICAL CYTOMEGALOVIRUS STRAINS. Stephen A. Spector, Ken K. Hirata, and Thomas R. Neuman (Spon. by James D. Connor) Univ. of Calif., Department of Pediatrics, San Diego.

Restriction enzyme digestion analysis of cytomegalovirus (CMV) isolates is used as a powerful tool to study the epidemiology of CMV infections. Use of this technique is hampered by the necessity of growing sufficient virus in tissue culture which may take 3-6 months. Using 32 EcoRI clones from the AD169 strain of CMV, our studies of the CMV genome show that polymorphism is present in the fragments closest to the long and the short inverted repeat sequences of the joint regions. Complete heterogeneity is present for all different CMV strains when hybridized to joint pieces, F and H. Using these observations, we developed a rapid method to determine molecular relatedness of different clinical isolates of CMV. DNA is extracted directly from primary cultures or clinical specimens containing CMV, cleaved with restriction enzyme EcoRI, separated by electrophoresis, transferred to nitrocellulose filters, hybridized to ^{32}P-labeled fragment F or H, and exposed to x-ray film. Using this procedure, we find that all random isolates of CMV exhibit different fragments hybridizing to clones F and H, while isolates showing identical restriction enzyme digestion patterns exhibit identical DNA bands hybridizing to the joint fragments. This procedure reduces the need to passage CMV in tissue culture, can be performed in less than a week, and should greatly simplify studies designed to define the epidemiology of CMV infections.

1145 MYOCARDIAL INVOLVEMENT IN CHILDREN WITH ENTEROVIRAL ILLNESS. Richard H. Strauss, Rae-Ellen W. Kavey, Julia A. McMillan, S.U.N.Y., Upstate Medical Center, Dept. of Peds, Syracuse, NY (Spon. by Frank Oski).

Although enteroviral (EV) infections have been associated with myocarditis, the potential for these agents to cause subclinical myocardial dysfunction (MD) has not been studied. From 7/1/83, until 10/31/83, we prospectively studied all hospitalized pts under 2 years of age whose illnesses were compatible with EV infection (22 pts) to determine if those pts had clinical, electrocardiographic,or echocardiographic evidence of MD. CSF, rectal swab, and NP swab specimens were cultured for virus, and CSF, blood and urine specimens were sent for bacterial culture. Electrocardiograms (EKG) and echocardiograms (EC) were obtained within 48 hours of admission. Five pts were culture positive for EV (2 with Echo 11, 1 with Echo 14, 1 with Coxsackie A9, and 1 untyped EV). Four of the 5 pts had EKG and EC as described above,and 2 of those 4 pts had EC evidence of MD:1 pt had subnormal left ventricular ejection fraction, and 1 pt had a pericardial effusion. Two additional pts had systemic bacterial infections, 1 of whom had EC changes. None of the 22 pts had clinical or EKG evidence of MD. Of the 15 pts with presumed EV infections whose viral and bacterial cultures were negative, 11 were studied with EKG and EC; 1 pt had decreased left venticular ejection fraction. These data demonstrate that subclinical MD is a frequent complication of EV illness, and that neither physical examination nor EKG is adequate for its detection.