884 INTERLEUKIN-1 (IL-1) CHEMOTACTIC ACTIVITY IN CHILDREN WITH CYSTIC FIBROSIS (CF). Robert W. Wilmott, Juan L. Sotomayor and Joseph T. Kassab. (Spons. by A. Gruskin) Wayne State University School of Medicine, Children's Hospital of Michigan, Department of Pediatrics, Detroit.

IL-1 may be released by activated alveolar macrophages in diseases characterized by pulmonary inflammation. We therefore investigated whether IL-1 is a chemotactic factor for peripheral blood polymorphonuclear cells (PMN) in CF, as PMN and their products appear to contribute to CF lung injury. Heparinized blood was obtained from 9 CF children and 8 normal subjects. PMN were isolated using dextran sedimentation. Using a 48 well microchemotaxis chamber, IL-1 chemotactic activity for PMN was evaluated. A wide range of purified human IL-1 (Collaborative Res.) concentrations from 10^{-12}M to 10^{-8}M was used and compared to the powerful chemotactic factor FMLP at 10^{-8}M. RPMI medium was employed as a negative control. IL-1 was chemotactic for PMN from both normals and CF with a peak activity at 10^{-8}M. The CF PMN showed significantly increased migration compared to normal at $5X10^{-9}$M (266 SD 236 vs. 80 SD 70) and $1X10^{-8}$M (483 SD 398 vs. 180 SD 155 cells per 10 oil immersion fields) ($p<0.1$ by Mann Whitney U test). A further experiment with CF PMN showed that IL-1 chemotactic activity peaked at $2X10^{-8}$M. CF PMN chemotaxis to FMLP at 10^{-8}M was not significantly different from normal. Further studies are needed to assess the local activity of IL-1 and its ability to attract inflammatory cells to the lungs in CF.

INFECTIOUS DISEASES

885 CHILDHOOD TUBERCULOSIS. Rosalind S. Abernathy, Dory J. Moers, William W. Stead, Asim K. Dutt. (Spon. by R.H. Fiser, Jr.) Univ. of AR for Med. Sci., AR State Dept. of Health, Dept. of Peds., Little Rock, AR.

Since 1977, 182 children have been enrolled for treatment of active tuberculosis. Diagnosis was made on the basis of a positive tuberculin skin test with compatible chest roentgenogram or physical examination abnormalities. A pediatrician, senior author, saw most of the patients and reviewed the records of the rest. Cultures were obtained from 42 patients, with 19 positive for M. tuberculosis. Presentation with symptoms resulted in diagnosis in 31 (17%), case contact investigation in 128 (70%) and routine screening in 23 (13%). Ages ranged from 2½ months to 15 years, median 3 years, with 50 under 2 years. Only 20 were hospitalized. Pulmonary disease was present in 170, 85% were asymptomatic. Hilar adenopathy alone was seen in 116, infiltrates in 56, miliary disease and pleural effusion in 4 each and 5 had cavities. Extrapulmonary disease was seen in 12, 11 with cervical adenitis and 1 with arthritis. Patients were monitored and medication dispensed by public health nurses, under the supervision of the authors. Treatment was with largely twice weekly INH and rifampin for 6 months for cases with hilar adenopathy alone, 9 months for all others. Respiratory symptoms cleared quickly; cervical nodes in 2-7 months. Most roentgenograms were free of infiltrates in less than a year but hilar adenopathy lasted 1-3 years. Two had drug toxicity (vomiting, rash). Therapy was successfully completed in 168, with greater than 2 year follow-up in 116 without relapse. A pediatrician helps assure good care for children in a Health Department Tuberculosis Program.

●886 EFFECT OF OLIGOSACCHARIDE (OS) CHAIN LENGTH, TERMINAL GROUP, AND HAPTEN LOADING ON THE SERUM ANTIBODY (Ab) RESPONSE OF 1-YR-OLD INFANTS TO H. INFLUENZAE B CAPSULAR ANTIGEN (PRP) CONJUGATED TO THE DIPHTHERIA PROTEIN CRM197. Porter W. Anderson, Michael E. Pichichero, David M. Connuck, David Korones, John M. Zahradnik. Dept. Peds, U. Rochester, NY: Baylor Col Medicine, Houston, TX. (Spon. by K.R. Powell)

Vaccines consisting of OS derived from PRP and conjugated by reductive amination to the nontoxic diphtheria mutant toxin CRM 197 (C) were previously shown to elicit memory-type serum anti-PRP responses in human infants. Here we seek to define structural variables that control the infant's response. In the coupled OS, the nonreducing (and hence exposed) terminal group can be ribitol (r), ribose (R), or phosphate (p). A series of r-terminal OS of mean length 4, 6, or 12 repeat units were coupled to C at ca. 10 ribose/protein, and OS of 12 repeat units terminating in R or p were coupled at ca. 30 ribose/protein. A 2-injection sequence was given to healthy infants aged 9-15 mo (groups of 8-10). Anti-PRP Ab was assayed by radioantigen binding; at 1 mo after the 2° the geometric means (GM) and 95% confidence intervals (CI) were:

Vaccine	C4r	C6r	C12r	C12R	C12p
Ribose/protein	12	8	12	33	34
µg Ab/ml GM	4.8	2.4	3.9	46	74
" ,95% CI	1.6-14	0.5-12	0.9-17	22-95	40-140

Series C4r, C6r, C12r (all at low hapten loading) induced similar titers regardless of OS chain length. C12R and C12p (both with high loadings) induced similar titers that were >10-fold the r series.

887 MAGNETIC RESONANCE IMAGING IN CENTRAL NERVOUS SYSTEM HERPESVIRUS INFECTIONS. James F. Bale, Jr., Richard D. Andersen and Charles Grose. The University of Iowa College of Medicine, Departments of Pediatrics and Neurology, Iowa City, Iowa.

To determine the usefulness of magnetic resonance (MR) imaging in children with herpesvirus infections affecting the central nervous system (CNS), we obtained MR scans in nine children, ranging in age from two weeks to ten years, who had neurologic disorders caused by members of the herpesvirus group. Clinical syndromes included: neonatal herpes simplex virus (HSV) encephalitis, symptomatic congenital cytomegalovirus (CMV) infection, congenital varicella-zoster virus (VZV) infection, post-VZV encephalopathy, and acute Epstein-Barr virus (EBV) encephalitis. MR scans were abnormal in eight children and demonstrated a wide range of cerebral abnormalities including cystic encephalomalacia, ventricular enlargement, cerebral atrophy, and focal parenchymal lesions. In young infants with severe congenital or perinatal infections due to HSV, CMV, or VZV, the results of MR were comparable to those of computed tomography (CT), although MR was more sensitive in defining the extent of the lesions in brain parenchyma. MR in two of these children demonstrated abnormalities of cerebral white matter one to two years after recovery from their neonatal infections. In a child with EBV encephalitis CT was normal, whereas MR revealed bilateral abnormalities that corresponded to the clinical and electroencephalographic findings. In post-VZV encephalopathy, MR detected transient abnormalities of the cerebral and cerebellar peduncles. These results indicate that MR effectively detects abnormalities of the CNS during childhood herpesvirus infections.

†888 Murine Cytomegalovirus Infection of Blood Leukocytes: Detection of Antigen, Nucleic Acid, and Infectious Virus. James F. Bale, Jr. and Marsha O'Neil (Spon. by Charles Grose). The University of Iowa College of Medicine, Department of Pediatrics, Iowa City, Iowa.

To investigate further the interaction of cytomegalovirus (CMV) with blood leukocytes, we studied the kinetics of leukocyte infection during sublethal murine CMV (MCMV) infection. Three-week old Balb/c mice were infected ip with 10^5 plaque-forming-units of MCMV, and mononuclear and granulocyte-enriched leukocyte fractions were studied 0, 1, 3, 5, 7, 14, and 20 days post-infection using in situ nucleic acid hybridization, detection of antigen by monoclonal antibodies, and culture for infectious virus. By day 3, immediate-early MCMV antigens were detected in the leukocytes of all infected animals (mean of 200 antigen-positive cells/10^6 leukocytes). By day 5, antigens, nucleic acid, and infectious virus were detected in the leukocytes of all animals and were present until day 14. By each method, peak infection was observed on day 5. At peak infection, more cells contained antigens (mean of 248 antigen-positive cells/10^6 leukocytes) than contained nucleic acid (mean of 64 nucleic acid positive cells/10^6 leukocytes) ($p<0.001$). On day 5, 73% of the antigen-positive cells were lymphocytes and 23% were monocytes, with MCMV antigens in 0.2 to 0.9% of the lymphocytes harvested from MCMV-infected animals. Infection of leukocytes in these studies corresponded to our previous observations regarding the timing of MCMV-induced alterations in lymphocyte subset numbers and mitogen responsiveness. These studies provide additional support for the concept that CMV-induced immunosuppression is attributable to direct infection of blood leukocytes.

†889 PERSISTENCE OF ANTIBODY (AB) TO HAEMOPHILUS INFLUENZAE TYPE B (HIB) AND RESPONSE TO PRP AND PRP-D BOOSTER IMMUNIZATION IN CHILDREN INITIALLY IMMUNIZED WITH EITHER VACCINE AT 15 TO 24 MONTHS. CD Berkowitz, JI Ward, JO Hendley, K Meier, P McVerry, L Gordon, C Chiu, L Guravitz, UCLA Med Sch, Harbor-UCLA Med Ctr, Torrance, CA, U of VA, Charlottesville, VA, CHOP, Phil, PA, Kaiser-Perm, Panorama City, CA, Connaught Lab, Swiftwater, PA.

Children initially immunized with PRP or PRP-D conjugate vaccines between 15 and 24 months of age were assessed 1 year later for persistence of AB and response to revaccination with PRP, PRP-D, or normal saline (N=111). Pre and post-vaccination sera were obtained and anti-PRP antibodies were assayed by RIA. Adverse reactions were minor and noted in <5% of vaccinees. AB levels a year after initial immunization were significantly higher in subjects immunized with PRP-D(GM 1.12 ug/ml) than with PRP (0.22 ug/ml)($p<.0001$). All groups demonstrated an increase in anti-PRP levels after revaccination, although this response was significantly greater in subjects initially immunized with PRP-D, regardless of booster vaccine given.

Initial vaccine:	PRP (N=47)			PRP-D (N=64)		
Booster vaccine:	Saline	PRP	PRP-D	Saline	PRP	PRP-D
GM pre (ug/ml)	0.25[a]	0.31[c]	0.17[e]	2.89[g]	1.13[i]	0.80[k]
GM post (ug/ml)	0.23[b]	3.55[d]	11.62[f]	2.50[h]	81.80[j]	78.47[l]
% >1.0 ug/ml	20%	67%	96%	75%	97%	100%

(Not signif.: a=c=e, a=b, g=i=k, g=h, d=f, j=l)
($p<.001$: d>c, f>e, j>i, l>k, l>f, j>d, j>f, l>d)

Children immunized with PRP or PRP-D between 15 to 24 months of age respond dramatically to reimmunization one year later, although children previously immunized with PRP-D show the greatest responses even with conventional PRP antigen.