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PERTUSSIS AMONG HOSPITALIZED INFANTS. Kathleen Kaya, Irvin Kaufman and James Connor. Dept. of Pediatrics, Univ. of Calif., San Diego and The Children's Hospital, San Diego, Calif.

Pertussis in the very young, unimmunized infant is a serious, continuing problem and appropriate care and management requires early, accurate diagnosis. From 1976-1983, 41 infants ages 16 days to 9 months, with a majority under 3 months, were treated for clinical pertussis at Children's Hospital. Despite a high pre-treatment rate (54%), infection with *B. pertussis* was present in 30/41 (73%) by culture on B-G media or by IFA, or both. There was equal sensitivity of the two methods, although yield by culture was significantly less in treated infants. Major presenting signs included cough, cyanosis, apnea, whoop, vomiting and weight loss. In hospital, one-half experienced repeated coughing paroxysms with minor feeding difficulties only; however, the others had severe disease with cyanosis (42%), bradycardia (54%) and apnea (22%) repetitively and were all under 3 months of age. 15 (36%) were cared for in the ICU due to severity of the paroxysmal syndrome; 3, ages 16 days, 4 and 5 weeks, respectively, required intubation and ventilation and the youngest died of overwhelming pneumonitis. 22 (54%) had no immunizations and only 1 had completed the series. Any immunization appeared to modify the disease and shorten the hospital course, whereas, pre-treatment appeared not to shorten the hospital course. It would seem that the burden of care for pertussis in the hospital has shifted from the ward/pediatrician to the ICU/intensivist. This has major implications for health care providers.

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IN VIVO SIGNIFICANCE OF PENICILLIN (PCN) TOLERANCE IN EXPERIMENTAL ENTEROCOCCAL (E) ENDOCARDITIS (IE). Kwang Sik Kim and Arnold S. Bayer (Spons. by B.F. Anthony). UCLA School of Medicine, Harbor-UCLA Medical Center, Department of Pediatrics and Medicine, Torrance, CA.

Although PCN tolerance has been proposed as one possible explanation of the poor response of some cases of IE, the *in vivo* significance of this phenomenon is not clear. Therefore, we examined the importance of tolerance in the rabbit model of aortic valve IE. Tolerant (T) and non-tolerant (NT) E strains were identified *in vitro* by MBC/MIC ratios, timed-killing assays, autolysis and a penicillin gradient-replicate plate method.

Procaine PCN, 6×10^5 units intramuscularly, twice daily, resulted in 1 hr serum levels of 19 ± 2 and 25 ± 5 $\mu\text{g/ml}$ in NT and T groups, respectively. Vegetation titers and rates of vegetation sterilization at therapy days 0, 3, 6 and 10 are summarized below.

Group	Vegetation titers (log 10 cfu/gm) at therapy days:			
	0	3	6	10
T	$9.3 \pm 0.1(6/6)$	$7.0 \pm 0.3(24/24)$	$6.0 \pm 0.4(23/24)$	$3.0 \pm 0.4(21/28)$
	α	β	α	β
NT	$9.8 \pm 0.1(5/5)$	$6.2 \pm 0.2(20/20)$	$3.5 \pm 0.6(14/20)$	$0.3 \pm 0.2(2/20)$

*Number of vegetations positive for culture/number of vegetations sampled. $\alpha p < 0.05$ $\beta p < 0.005$

Furthermore, 0/7 rabbits infected with T strain vs 4/5 with NT strain were cured by 10 days of PCN therapy ($p < 0.05$).

This study suggests that PCN tolerance may be a significant determinant in the *in vivo* response of E to penicillin.

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EFFICACY OF VARIOUS MONOCLONAL ANTIBODIES (Ab) AGAINST E. COLI (EC). Kwang Sik Kim, Daisy Green, Alan Cross, Bennett Kaufman, Wendell Zollinger, Jerold Sadoff and Michael Apicella (Spons. by B.F. Anthony). Harbor-UCLA Med. Center, Dept. of Pediatrics, Torrance, CA; Walter Reed Army Med. Center, Washington, D.C.; SUNY at Buffalo, Dept. of Med., Buffalo, NY.

The morbidity and mortality associated with neonatal EC infections have remained significant despite advances in antimicrobial chemotherapy. To investigate the feasibility of immunotherapeutic approaches, we evaluated 3 different murine monoclonal IgM Ab against a K_1 EC strain in the newborn rat model: (1) Ab to group B meningococcal carbohydrate (K_1 Ab), (2) Ab to the LPS of the same K_1 EC (LPS Ab), and (3) Ab to lipid A. At 5 days of age, each litter was divided into 4 groups. Each group received intraperitoneally one of the above or murine IgM monoclonal Ab to the LPS of *P. aeruginosa* (control) in a dose of 50 $\mu\text{l}/10$ gm and subcutaneously EC (LD_{50}). Blood and CSF specimens were obtained daily and mortality recorded for 5 days. Results are summarized as protective efficacy against death. K_1 and LPS Ab provided 100% protection neat and at 10^{-1} . All control animals died.

Ab	K_1	LPS	Lipid A	$K_1 10^{-3}$	$K_1 10^{-2}$	$K_1 10^{-1}$
Dilution	10^{-2}	10^{-3}	10^{-2}	10^{-3}	10^{-2}	10^{-1}
Efficacy(%)	80	40	50	0	20	100

These studies indicate that monoclonal Ab to K_1 polysaccharide and Ab to the LPS of EC are highly protective against K_1 EC and combinations of these two further enhance the efficacy.

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SERUM ASSAY FOR CYTOPLASMIC CANDIDA ANTIGEN (CA) IN CHILDREN WITH SYSTEMIC (SC) OR MUOCAL SURFACE (MS) CANDIDAL INFECTION. Thomas R. Kinney, Laura T. Gutman, Shirley A. Violand-Jones, Thomas G. Mitchell. Duke U. School of Medicine, Depts. of Pediatrics and Microbiology, Durham, N.C.

38 sera of 10 pts with *Candida* sp infection proven by culture of MS, body fluid/cavity, or IV catheter were tested for CA by quantitative immunofluorescence assay. SC was suspected in all pts. Each had ≥ 1 elevated CA level, ($n_1 = 15 \pm 10$ ng/ml). 6 pts (Gp A) had SC (See Table). MS disease only occurred in 4 pts (Gp B); 3 had no SC at autopsy and 1 recovered without antifungal rx.

Pt.	Age(yr)	Diagnosis	Systemic Site	MS*	Peak CA (ng/ml)
Gp 1	6	Myelodysplasia	IV cath	-	74
A 2	NB	Multiple anomal.	CSF	U	89
3	1	Cong. heart dis.	Abd. abscess	-	77
4	NB	Prematurity	Blood	-	142
5	NB	Multiple anomal.	Abd. abscess	R,S	275
6	19	ALL	Pleural fluid	U	107
Gp 7	16	AML	-	U,S	102
B 8	19	ALL	-	R,U,S	84
9	NB	Prematurity	-	R,U,S	65
10	NB	ECHO viremia	-	R	273

*All 10 pts had respiratory(R), urine(U), and stool(S) cultures.

In Gp A, *Candida* sp was not isolated from MS in 3 pts. All Gp B patients had MS colonized. The mean peak CA for each group was higher ($p < .05$) than nl. No difference was noted between mean peak CA Gp A (127 ± 76) and Gp B (131 ± 96). The data show MS colonization does not predict SC and that elevated CA occurs with both SC and MS disease.

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INFECTION OF HUMAN MONONUCLEAR LEUKOCYTES WITH RESPIRATORY VIRUSES. L.R. Krilov, R.M. Hendry and K. McIntosh. Children's Hospital, Div. Inf. Dis. Boston, MA.

The interactions between respiratory viruses and mononuclear leukocytes in the natural course of infections with these agents is not completely understood. We have attempted to look at these cells directly for evidence of production of new antigen and/or infectious progeny. Peripheral blood mononuclear leukocytes (PBML) separated into adherent (M) and non-adherent (Ly) populations were infected with purified respiratory syncytial virus (RSV) or parainfluenza type 3 (PI3) at a MOI of 0.5-0.6. Since M's have been reported to become more macrophage-like over time in tissue culture, experiments were done infecting the M's 1, 2, 4 and 7 d after harvest. Cells were washed after 2 hrs of viral adsorption and every 24 hrs for the duration of these experiments. Antigen production was measured in supernatants by ELISA and in cells by indirect fluorescence (IF); infectious progeny were assayed on Hep-2 monolayers. With both viruses new antigen and infectious virus production were detected in M by 48 hrs and in Ly fractions by 96 hrs after infection. The youngest M's (day 1) were poor producers of new virus although the most striking syncytia formation with PI3 occurred in these cells. RSV caused no definite syncytia but did lead to cell rounding by 96 hrs in the M's; this was most marked in the cells infected 7 d after harvest. For both viruses 10-20% of M's were positive by IF in contrast to only 2-3% of Ly's. Further investigation of this model may be helpful in elucidating aspects of the pathophysiology of infection with these agents.

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EFFICACY OF ENZYME IMMUNOASSAY (EIA) FOR DETECTION OF CHLAMYDIA TRACHOMATIS (C.t.) INFECTION. M.L. Kumar, T. Anglin, R. Paul, D. Krowchuk, R. Brown, N. Wimpie, C. Leman, Cleveland Metro. Gen. Hosp. Dept. of Ped., Cleveland, OH and Abbott Diagnostics, N. Chicago, IL. (Sponsored by K. King).

The availability of a low cost, rapid method to detect C.t. antigen would encourage diagnostic testing for this important genital pathogen. We compared the efficacy of C.t. EIA to tissue culture isolation in 95 sexually active female adolescents. An endocervical swab specimen was tested for C.t. antigen and a second swab processed for culture in cycloheximide-treated McCoy cells using both iodine and a fluorescein-conjugated C.t. monoclonal antibody (FA) for detection of chlamydial inclusions. 24 subjects (25%) were C.t. culture (+). 23 specimens were positive by both iodine and FA; 1 was (+) by FA only. C.t. (+) and (-) subjects did not differ in regards to presence of symptoms or signs of genital tract infection. 18 of the 24 culture (+) subjects were EIA (+) (sensitivity 75%). C.t. inclusion counts in 4 of the 6 culture (+) EIA (-) specimens were low. 69 of 71 C.t. culture (-) specimens were EIA (-) (specificity 97%). In view of the high prevalence of C.t. in our population and its non-specific presentation, diagnostic testing for this pathogen is essential. In our study, EIA performed well as a diagnostic test with a (+) predictive value of 90% and a (-) predictive value of 92%. Potentially, EIA offers a cost-effective rapid screen which could expand testing of groups at high risk for C.t. infection.