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ANTIBIOTIC RESISTANCE (Ab^R) OF HEMOPHILUS INFLUENZAE (Hi). 1971-76, V.K. Syriopoulou, A. Lynn Harding, David H. Smith, Departments of Pediatrics, Children's Hospital Medical Center (CHMC), Boston, Ma., University of Rochester, Rochester, N.Y.

The prevalence, basis and epidemiology of Ab^R in the 283 Hi causing essentially all Hi disease at CHMC has been studied. Ab^R by year, no. of strains and patterns of resistance to 10 Ab were 1971-1972, 81, 0; 1973, 42, 2 Amp^R; 1974, 50, 0; 1975, 87, 13 Amp^R, 1 AmpTc^R, 2 Tc^R, 1 TcCm^R; 1976-77, 21 Amp^R, 2 Tc^R. Patients with Ab^R and Ab^S Hi did not differ significantly in prior antibiotic exposure, type of disease, or clinical course. The incidence of Ab^R was greater among non-typeable than type b Hi. Amp and Cm^R were mediated by Ab-inactivating enzymes. Plasmids capable of conjugal transfer to Hi in vitro mediated Amp^R in 34 of 36 resistant Hi and all AmpTc^R, Tc^R and TcCm^R. Arsenite resistance (Ars^R) was found in 60% of Hi independent of year of isolation or Ab^R. It was mediated by a previously unrecognized, conjugally fertile plasmid(s). Genes mediating Ab^R in 90% of resistant Hi were associated with an Ars^R plasmid. Plasmids differed widely in the kinetics of conjugal transfer. Properties, i.e., amount of capsule, of donor and recipient Hi also affected plasmid transfer. These data provide important insights into the present and future of Ab^R in Hi: it involves more Ab than previously recognized and is mediated by genes which apparently have only recently become associated with native, occult Hi plasmids. The genetics of Hi and its plasmids appears to hold the key to the natural prevalence and patterns of Ab^R.

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HLA AND INVASIVE H. FLU DISEASE

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We have studied HLA phenotypes of 20 Caucasian children who recovered from invasive H. flu disease. Fifteen of the children had meningitis, four had epiglottitis, and one had septicemia. HLA typing was done on lymphocytes isolated from the peripheral blood by ficoll-isopaque gradient centrifugation. A two-stage microcytotoxicity test (NIH technique) was performed, using 350 different mono and multispecific sera. Sera were obtained (a) locally, (b) from the serum bank of NIH and (c) from the 1975 American Workshop. Sixteen specificities could be detected at the A locus, 19 at the B locus and five at the C locus. The results were compared with those of 450 Caucasians from the New York Blood Bank data. HLA B12 was present in 45% of patients with H. flu disease compared with 23% of controls. $\chi^2 = 5.47$ $p < .025$. Altered frequencies were also noted with HLA2 and HLA Bw22 amongst the patient population, but these were not statistically significant. These findings suggest that susceptibility to invasive H. flu disease may be genetically determined. If these findings are confirmed, then a vaccine program for prevention of H. flu disease should give special emphasis to such genetically identifiable children.

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DETECTION OF BACTERIAL ANTIGENS BY STAPHYLOCOCCAL CO-AGGLUTINATION TEST. M.C. Thirumoorathi and A.S. Dajani Dept. Pediatr., Wayne State University, Detroit.

Counterimmunoelectrophoresis (CIE) and agglutination of antibody-coated latex particles have been used to detect bacterial antigens in CSF, blood and urine of patients with certain bacterial infections. Antibody-coated staphylococci coagglutinate in the presence of homologous antigen. Earlier studies in our laboratory (J. Clin. Micro. Jan. 1977) have shown that in 36 cases of H. influenzae type b (HIB) meningitis the coagglutination test (CT) detected antigens in 86% of CSF specimens obtained before therapy while CIE was positive in 72%. Antigens could be detected by CT in 46% of sterile specimens obtained from the same cases 1-10 days after therapy. In further studies, staphylococci coated with 4 different antibodies were used to detect antigens in body fluids of patients with meningitis. The following shows the number of positive reactions per total tested for each organism:

	CSF		Urine		Serum	
	CT	CIE	CT	CIE	CT	CIE
H. influenzae	9/10	8/10	2/4	2/4	6/6	6/6
Pneumococcus	1/2	1/2	-	-	0/1	0/1
Group B Strep.	0/4	0/4	-	-	0/2	0/2
Meningococcus	0/1	0/1	-	-	0/1	0/1

No cross reactions were noted among the above or in CSFs from 9 cases of meningitis caused by other bacteria. No false positive reactions were noted in 21 control CSFs. CT is at least as sensitive as CIE in detecting HIB antigens and has the advantage of simplicity and rapidity.

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CONGENITAL CMV INFECTION PRESENTING AS TYROSINEMIA.

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An infant male born at 28 weeks gestation to unrelated Caucasian parents was found at 8 weeks to have hepatosplenomegaly and a bilirubin of 8.1/4.6 mg/dl. The SGOT was 226 I.U., and the alkaline phosphatase was 1700 I.U. At 12 weeks, 2+ urinary reducing substance prompted referral for metabolic studies, and the plasma tyrosine was found to be 7.09 mg/dl (nl 0.5-1.3 mg/dl). The infant was small (2280 g. at 15 weeks), deeply jaundiced, and had a liver palpable 3cm below the RCM. The bilirubin was 7.0/2.7 mg/dl, SGOT 166 I.U., SGPT 48 I.U., alkaline phosphatase 1780 I.U., NH₃ 79 mg/dl, and BUN 3. Titers for rubella, herpes and CMV were all <1:8. A quantitative VDRL was negative. On a protein restricted diet (1 g/kg/day), the plasma tyrosine became normal. Oral phenylalanine loading tests (100 mg/kg) both off and on Vit. C (100 mg/day) showed markedly high and prolonged elevations of the plasma concentration of tyrosine, approximately 5.0 mg/dl at 8 hours. This pattern is the one classically reported in hereditary tyrosinemia. Plasma methionine and urinary δ -amino-levalulinic acid were not elevated and a fructose tolerance test was normal. Three urine cultures were positive for CMV. Liver function tests have returned to normal and at 6 months the infant is gaining weight. These observations indicate that perinatal infection with this virus can produce a clinical and chemical picture that must be added to the differential diagnosis of hereditary tyrosinemia.

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ANTIBODY COATED BACTERIA IN RECURRENT URINARY TRACT INFECTION. Leticia U. Tina, Carlos A. Jimenez, Zoe L. Papadopoulos, Philip L. Calcagno. Georgetown Univ.

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Recent reports have suggested a correlation between a positive antibody coated bacteria test (ACBT) and urinary tract infection (UTI) of renal origin. Studies were performed to observe whether a relationship between a + ACBT and recurrent UTI exist. A total of 34 tests were performed in 16 children with significant bacteriuria (ages 3 1/2-12 yrs, M-4, F-12). Twelve of 16 children had E. coli infection. Duration of treatment was 6 wks or longer in 13 and 2 wks in 3 children. Radiologic examination demonstrated no anatomical defect in 14 of 16 children. Follow-up was 4-14 mos. Renal tissue examined from a child with + ACBT showed changes consistent with chronic pyelonephritis, however, antibody coated bacteria was not demonstrated. In 2 untreated children with 17 recurrences sequential ACBT demonstrated alternating + or - results. The recurrence rate and the results of the ACBT are tabulated.

	+ ACBT	- ACBT	Total
Recurrence	15	15	30
Non-recurrence	2	2	4
Total	17	17	34

The recurrence rate in patients with + ACBT was not significantly different from those with - ACBT. The recurrence rate in UTI can not be predicted by the results of ACBT.

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CLINICAL CHARACTERISTICS OF CHLAMYDIA TRACHOMATIS

PNEUMONIA. M.A. Tittle, E.M. Saxon, M.A. Radkowski, M.O. Beem, U. of Chicago, Wyler Children's Hosp. Dept. of Peds.

50 infants aged <6 mos with afebrile pneumonia were prospectively studied for respiratory C. trachomatis (Ct) and viruses (v), and their illnesses analyzed to learn if certain clinical, x-ray, and routine laboratory findings could identify cases associated with Ct. Grouped by culture results as: Ct only, Ct+v (RS=1, CMV=8, adeno=1, picorna=4), v only (RS=4, RS+CMV=1, RS+adeno=1, CMV=1), or other (o) (meconium aspiration=1, chronic aspiration=2, unknown=3), respective frequencies of specific features were:

Group (# patients)	Ct (23)	Ct+v (14)	v (7)	o (6)
Illness onset < 6 wks	14/20	8/9	1/5	2/4
Symptoms > 1 wk	9/15	11/11	0/7	3/4
Conjunctivitis (hist+PE)	9/21	7/12	0/7	0/6
Blood eosinophils > 300/mm ³	12/16	8/12	0/6	0/5
Ig A > [x age + 2 SD]	11/13	7/9	1/6	2/5
G > "	12/13	8/9	1/6	1/6
M > 150mg/dl.	12/13	9/9	1/6	0/6
X-ray = diffuse symmetrical interstitial infiltrates	20/21	13/14	3/7	3/6

Conclusions are: 1) Ct alone or in combination with a virus was associated with 75% of illnesses in this group of patients, 2) illness with Ct alone was indistinguishable from that caused by Ct+v, 3) characteristics favoring Ct were: age of onset < 6 wk, duration > 1 wk, conjunctivitis, elevated immunoglobulins, mild eosinophilia, and diffuse, symmetrical interstitial infiltrates.