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PCR ANALYSIS FOR DETECTION OF MYCOPLASMA PNEUMONIAE (MP): A USEFUL TEST IN CHILDHOOD LOWER RESPIRATORY TRACT INFECTIONS (LTRI). Marry M. v.d. Heuvel, Bert H.G.M. Niesters, Henriette A. v. Steensel, Philip H. Rothbarth, Alejandro F. Angulo, Marquita H. Fokker, Marja H. Suur, Wim Quint, Ronald de Groot. Sophia Children's Hospital/Universital Hospital, Rotterdam and National Institute of Public Health and Environmental Protection, Bilthoven. The Netherlands. We prospectively studied the role of MP in childhood LTRI. Children aged 3 months to 12 years with a chest X-ray infiltrate were included. Excluded were immunodeficiency disorders, aspiration, congenital malformations, nasogastric tube feeding, cystic fibrosis and severe retardation. A complement fixation test and an IF assay measuring IgM and IgG antibodies on day 1 and 14 were performed to confirm infection with MP. A four-fold rise in IgG titers or a positive IgM titer were considered diagnostic. On day 1 a nasopharyngeal aspirate was taken for culture of MP and PCR analysis. The primers used in PCR analysis were: Myc 16S and Myc P1. Over a period of 11 months 34 children (15F, 19M) with a mean age of 5.5 years were included. In 10 patients (29%) MP infection was detected. The results of serologic testing(SER.), culture(CULT.) and PCR are shown below:

	PCR+	PCR-	PCR n.d.	CULT+	CULT.-	
SER.+	8	0	2	SER.+	3	7
SER.-	0	20	4	SER.-	0	24

When using SER as a gold standard, sensitivity of CULT. was 30% and specificity was 100%, whereas sensitivity of PCR was 100% and specificity 100%. This shows that PCR may be a useful test in the early diagnosis of childhood LTRI by MP.

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THE ADHESION OF *STREPTOCOCCUS PNEUMONIAE* TO HUMAN EPITHELIAL CELLS. *A.Irma van 't Hoog, Marcel Sluyster, Wil H.F. Goessens, Peter W.M. Hermans, Theo Hoogenboezem and Ronald de Groot. Erasmus University and University Hospital Rotterdam/Sophia Children's Hospital, Rotterdam.

The adhesion of 32 *Streptococcus pneumoniae* isolates to human nasopharyngeal and buccal epithelial cells was investigated. Four strains, showing over 200 bacteria per nasopharyngeal cell were classified as highly adherent. Comparable results were obtained with buccal epithelial cells. The pneumococcal adhesion was shown to be proteinaceous. A novel adhesion assay was developed using epithelial cells immobilized in ELISA plates. This method enabled us to screen large numbers of isolates. One highly adherent strain, FT231, was used for transposon Tn916 mutagenesis. The adherence of individual mutants was screened using immobilized buccal epithelial cells. The adherence of selected, putatively lowly adherent mutants was investigated by counting the number of bacteria attached to nasopharyngeal and to buccal epithelial cells. We detected 6 mutants that had lost the ability to adhere to human epithelial cells. The genetic localization of the transposon in these mutants was determined using Southern hybridisation and pulsed field electrophoresis. Sequencing of the gene(s) involved in pneumococcal adhesion is currently in progress.

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CEREBROSPINAL FLUID IL-6 LEVELS IN CHILDREN WITH AND WITHOUT INFECTIONS OF THE CENTRAL NERVOUS SYSTEM.

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High levels of interleukin-6 (IL-6) in cerebrospinal fluid (CSF) in patients with bacterial meningitis (BM) have been detected. The data on IL-6 levels in aseptic meningitis (AM) are controversial. We studied the IL-6 concentration by enzyme immunoassay in CSF in children with BM (n=10), AM (n=15) and without acute infection of the central nervous system (CNS) (n=12) on admission and in those with BM at the end of therapy. The increased concentration of IL-6 on admission was found in patients with BM (1800 pg/ml; 95% confidence interval [CI], 991-2265 pg/mL) as well as in those with AM (650 pg/ml; 95% CI 376-1544 pg/ml), whereas in children without acute infection of CNS the concentration of IL-6 was 17 pg/ml; 95% CI 15.3-133 (p<0.005). At the end of therapy, despite the improved clinical condition, all children with BM had detectable level of IL-6 in the CSF (median 685 pg/ml, CI 95% 178-1811 pg/ml). Thus we conclude, that IL-6 is released into the meningeal space both in BM and AM whereas its concentration in BM is higher.

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EPIDEMIOLOGY OF RESISTANT(R) *S. PNEUMONIAE*(Sp): A SIX YEAR PROSPECTIVE STUDY. Mobeen H. Rathore and Steven G. Jenkins Dept of Peds and Path, Univ of Florida, Jacksonville, USA. Increased isolation of R-Sp have significant implications. To determine changing patterns of Sp susceptibility, all Sp isolated from 1988 to 1993 were tested. Penicillin susceptibility was defined by MICs: Sensitive (S) <0.1 ug/ml, Relatively Resistant (RR) 0.1 to 1 ug/ml and Highly Resistant (HR) >1 ug/ml. Results are shown in the table:

Sp(n)	88	89	90	91	92	93
S*	101	71	62	108	132	110
RR*	100(99)	63(89)	51(83)	93(86)	105(80)	87(79)
HR*	1(1)	7(8)	9(14)	12(11)	22(17)	15(14)
HR*	0(0)	2(3)	2(3)	3(3)	4(3)	8(7)

*Number of isolates (percent of total)
584 Sp were isolated, 499(85.4%) S and 85(14.6%) R (66 [11.3%] RR and 19[3.3%] HR. An increase of 8 fold occurred in RR-Sp in 1989 and a 1.75 fold in 1990. No significant increase in HR-Sp occurred in first 5 years of the study; in 1993 there was a >100% increase. Our data suggest that empiric management of serious Sp infections should include antimicrobials effective against R-Sp. This is important since Sp is a major causes of childhood meningitis.

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VISCERAL LEISHMANIA IN PAKISTANI CHILDREN. Mobeen H. Rathore, Bhani Buksh, and Mumtaz Hasan. Depts of Peds, Univ of Florida, USA and Pakistan Institute of Medical Sciences, Islamabad.

This study was initiated to elucidate the clinical and laboratory features of visceral Leishmaniasis in childhood. Fifty-eight children with visceral Leishmaniasis were prospectively enrolled over a five year period. Diagnosis was suspected based on clinical signs and symptoms and confirmed by identification of Leishmania donovoni bodies in bone marrow aspirate and/or a positive immunofluorescent test. Mean age was 2.9 years (range 5 months to 12 years); 42 were male and 16 were females. Patients were sick an average of 4 months (range: 1 week to 2 years) prior to the confirmation of the diagnosis. On examination, all patients had fever, 40 (69%) had pallor, 32 (55%) had abdominal distention, 30 (52%) had cough, 21 (36%) had bleeding (rectal, injection site etc), 19 (33%) had vomiting and 16 (28%) had diarrhea. At the time of initial presentation all patients were febrile (>38.5°C) and had splenomegaly, 50 (86%) had hepatomegaly, 21 (36%) had palpable lymphadenopathy (cervical or inguinal), and 21 (36%) pneumonia. Laboratory features included the following: anemia (Hemoglobin <7gm/dL) in 45 (78%), leukopenia (WBC count <4000/mm³) in 42 (72%), neutropenia (PMN <1000/mm³) in 42 (66%), and an elevated ESR (>50mm/hr) in 56 (97%). Bone marrow aspirate was done in all patients and Leishmania donovoni bodies were identified in 56 (97%); immunofluorescent test was done in 28 patients and was positive in 19 (68%). 43 (74%) patients were treated with sodium stibogluconate and 15 (26%) with amoisidine. There were no deaths, all patients recovered completely and were followed for up to 2 years.

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MULTI-DRUG RESISTANT (MDR) *SALMONELLA TYPHI* (ST) IN PAKISTANI CHILDREN. Mobeen H. Rathore, Bhani Buksh, Mumtaz Hasan. Depts of Peds, Pakistan Inst of Med Sciences, Islamabad and Univ of Florida Hlth Sci Ctr, Jacksonville,

Typhoid fever (TF) remains a major public health problem in Pakistan this problem is further compounded by development of MDR-ST. The MDR-ST is defined as resistance to the commonly used oral antibiotics(ATB): chloramphenicol (CLP), ampicillin (AMP) and trimethoprim-sulfamethoxazole (TMP-SMX). Susceptibility of ST was tested to CLP, AMP, TMP-SMX, ofloxacin(OFX), cefotaxime(CTX) and ceftriaxone(CTR). TF is defined as isolation of ST from blood or a positive Widal test in appropriate clinical situation. We prospectively investigated the presence of MDR-ST in 170 children admitted to CH-PIMS between 1/1/90-12/31/90. There were 111(65%) males and 59(35%) females; 27(16%) from rural and 143(84%) from urban areas. Average age was 6.2 yrs: 4(2%) <1 yr old, 78(46%) 1-5 yrs old and 88(52%) >5 yrs old. All pts received antibiotics prior to admission to CH-PIMS and diagnosis of TF. ST was isolated in 109(64%) pts and Widal test was positive in 84(49%) pts. 23(14%) pts had both positive blood culture and Widal test. There were 79(72%) MDR-ST from as many pts; all isolates were sensitive to OFX, CTX and CTR. Of the 79 pts with MDR-ST 55(70%) were treated with OFX and 24(30%) with CTR. All pts responded to treatment and recovered from TF. 16 pts had complications of TF and there were no deaths. The clinical features of pts with MDR-ST were not useful in differentiating them from those pts who did not have MDR-ST.