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COURSE AND SEQUELAE OF H. INFLUENZAE B (HIB) EMPYEMA  
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(Sponsored by: Walter Hughes).

The natural course and sequelae of HIB Empyema have not been  
well characterized. Among 12 cases seen between 1966-1977, 8  
were aged 6 months to 6 years and 4 were aged 6 - 11 years.  
Although 8 received antibiotics prior to diagnosis, 6 had posi-  
tive blood cultures and 5 had positive cultures of pleural  
fluid. Among 4 receiving no prior treatment, none had positive  
blood cultures, 3 had positive pleural fluid cultures and 1 had  
sterile fluid with HIB antigen detected by CIE. All survived.  
Chest tube drainage was required in 3. Additional complications  
included pericarditis (2), Meningitis (1), and cellulitis (1).  
Mean duration of hospital stay was 21 days (range 9 - 35).

Chest radiographs 6 months after diagnosis were available in  
8 patients. 6 had pleural thickening, 4 had scoliosis and 2 had  
prominent hilum. Lung function studies were also performed on  
5, 18-36 months following discharge. Four patients demonstrated  
a restrictive and 1 patient an obstructive ventilatory defect by  
plethysmography or helium dilution. 3 of the 5 patients with  
abnormal lung function studies showed simultaneous residual  
pleural thickening. Persisting defects of lung function may be  
a sequel of HIB empyema.

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USE OF PROPHYLACTIC ANTIBIOTICS AFTER PROLONGED RUP-  
TURE OF MEMBRANES. Natalio Schwartz, Eduardo Bancalari  
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We studied the effect of antibiotic prophylaxis in neonates  
born after PROM. 95 infants > 35 weeks gestation, with PROM >  
24 hrs., were randomly assigned to 2 groups. Group A received  
Penicillin and Gentamicin for 3 days and group B did not receive  
antibiotics. Birth weight, gestational age, and Apgar score were  
similar in both groups. Cultures were taken in the first 4 hours  
of life from blood, CSF, urine, gastric content, ears and axilla.  
92% of all infants had a positive surface culture. Three of 95  
infants had a positive blood culture; 2 in group A and 1 in group  
B. One infant in group A had Group B  $\beta$  hemolytic Streptococcus  
(GB $\beta$  HS) septicemia with uneventful recovery and another had  
asymptomatic bacteremia with  $\alpha$  hemolytic Streptococcus. In  
group B, one infant had asymptomatic bacteremia with GB $\beta$  HS.  
Rectal swab cultures done on the 3rd day of life, demonstrated  
22% colonization with antibiotic-resistant organisms in group A  
compared to 5.4% in group B. The duration of hospitalization in  
Group A (6.3 days) was longer than group B (4.8). The risk of  
systemic infection in infants born after PROM appears low and  
cannot be determined by surface cultures. Routine use of anti-  
biotics in infants born after PROM increases the duration of  
hospital stay and increases the incidence of antibiotic resistant  
intestinal flora. Because of this and the low incidence of  
systemic infection, prophylactic use of antibiotics does not seem  
justified in cases of asymptomatic PROM.

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ABSENCE OF INCREASING INCIDENCE OF H. INFLUENZAE B  
(HIB) MENINGITIS IN BALTIMORE (1965 - 1975).  
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Several studies published within the past 20 years have re-  
ported an increase in the incidence of HIB meningitis. We  
sought to investigate whether there was evidence of a recent in-  
crease in metropolitan Baltimore. Cases of HIB meningitis oc-  
curring in children aged 0-5 years residing in Baltimore City &  
County were identified through: (1) medical records bearing the  
discharge diagnosis of meningitis or sepsis and (2) laboratory  
reports of positive blood or CSF cultures of HIB. The survey  
included all 19 hospitals in Baltimore City & County, plus an  
additional 41 hospitals surrounding this area. The study period  
was Jan. 1965 - Dec. 1975. A case was included if there was (a)  
CSF pleocytosis and isolation of HIB from blood or (b) CSF cul-  
ture was positive for HIB. These criteria were met by 253 pa-  
tients. Age adjusted incidence rates were calculated per  
100,000 population at risk using the Baltimore City & County  
census data with appropriate adjustments for changing distribu-  
tion of age.

YEAR:	65	66	67	68	69	70	71	72	73	74	75
A.R.*	20	12	17	18	22	19	20	21	27	18	19

There was no difference in incidence rates between blacks and  
whites or between males and females. In contrast to most pre-  
viously published studies, we failed to document any increase in  
incidence of HIB meningitis. Important factors explaining this  
difference include the timing, geographical location and method-  
ology of the study. \*Attack rate per 100,000 at risk.

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CONCOMITANT LOSS OF MUCCOID TRAIT AND ANTIBIOTIC RE-  
SISTANCE IN PSEUDOMONAS AERUGINOSA STRAINS FROM CYS-  
TIC FIBROSIS PATIENTS. Thomas W. Seale, Martha M.

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The unusual frequency of pulmonary colonization of cystic fi-  
brosis patients by mucoid ( $mu^+$ ) strains of P. aeruginosa suggests  
a special relationship between these strains and the pulmonary  
milieu of CF patients. To better characterize the control of  
slime production, we isolated P. aeruginosa from sputum cultures  
of CF patients collected during respiratory therapy. 16 of 19  
patients yielded P. aeruginosa which was identified by the API  
method with growth at 410 and on Pseudomonas isolation agar.  $mu^+$   
strains were isolated from 13 of 16 patients; 11 of 16 had both  
 $mu^+$  and nonmucoid ( $mu^-$ ) strains. All 13  $mu^+$  strains were unstable  
in nutrient broth, producing  $mu^-$  variants at characteristic fre-  
quencies ranging from 1-97% of c.f.u. in 24 hours.  $mu^-$  segrega-  
tion frequency is medium-and temperature-dependent. The low fre-  
quency ( $<1 \times 10^{-5}$ ) of reversion of  $mu^-$  to  $mu^+$  suggests inherited  
loss of the capacity to produce slime. 2 of 13  $mu^+$  strains  
showed concomitant loss of slime production and selected anti-  
biotic resistance on Mueller-Hinton agar. Each of 10 independ-  
ently derived  $mu^-$  clones from VLO-1 became bactrim sensitive; MIC  
by the agar dilution method for trimethoprim and sulfamethoxa-  
zole were respectively 64 and 160  $\mu$ g/ml for VLO-1 $mu^+$  vs 8 and  
40  $\mu$ g/ml for VLO-1 $mu^-$ . Strain TWH-1 $mu^-$  showed a similar increase  
in sensitivity to chloramphenicol. This suggests that slime pro-  
duction is encoded by a plasmid which also specifies resistance  
to certain antibiotics.

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PHAGOCYTIC KINETIC DEFECTS OF HUMAN NEWBORN MONOCYTES  
CORRECTABLE WITH LEVAMISOLE. Kenneth E. Schuit\* and  
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(Sponsored by Wallace A. Clyde, Jr.)

Despite reports that phagocytosis in the newborn is comparable  
to that in adults cells the temporal aspects of this function  
have not been examined. We have thus compared the kinetics of  
phagocytosis by monocytes isolated from cord blood and from the  
blood of adult volunteers. Monocytes attached to glass cover-  
slips were incubated with polystyrene spheres (1.10  $\mu$  diameter)  
for up to 120 minutes. At intervals, the cells were fixed and  
extracted in xylene to remove noningested particles. The number  
of cells containing two or more particles was counted using a  
phase contrast microscope. In this system, the rate of phago-  
cytosis was considerably more indolent in newborn monocytes than  
in those from adults. By 50 minutes, phagocytosis had occurred  
in virtually all of the adult cells, while only 38% of the neo-  
natal monocytes had engulfed particles. However, this defect was  
not absolute, since by 120 minutes all the newborn cells con-  
tained engulfed spheres. Levamisole, a low molecular weight com-  
pound which stimulates the function of phagocytes and T-lympho-  
cytes but accelerated phagocytosis of newborn cells to a rate  
identical with that of adult cells. These data suggest that new-  
born monocytes are less efficient at phagocytosis than are com-  
parable cells from adults, a compromise which may be critical in  
the early phases of infection. \*Supported by NIAID 5-F32-A105395

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TRACHEAL ASPIRATION AND ITS CLINICAL CORRELATES IN  
THE EARLY DIAGNOSIS OF CONGENITAL PNEUMONIA.  
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Since the lungs of neonates should be sterile after birth, we  
investigated the ability of tracheal aspiration to provide early  
diagnosis of congenital pneumonias. Forty infants presenting  
with respiratory symptoms and positive chest radiographs by eight  
hours of age were assigned to control or suspect groups based on  
the presence of bacteria after sputum analysis. These groups  
showed no difference in maternal age, parity, duration of mem-  
brane rupture or labor, Apgar scores, or birth weight and gesta-  
tional age. Polymorphonuclear leukocytes (PMNS) were found in 7  
of 20 control and 16 of 20 suspect infants. Positive blood cul-  
tures were obtained in 1 of 20 control and 14 of 20 infants  
suspect for pneumonia. Tracheal isolates included Group B strep-  
tococci (11), Hemophilus influenzae (2), Escherichia coli (2),  
Listeria monocytogenes (2), alpha hemolytic streptococci (2),  
and Staphylococcus aureus (1) in the suspect neonates, and Group  
B streptococcus from the single control infant. At the time of  
tracheal aspiration, no statistical differences could be ascer-  
tained between the groups regarding pulse, respirations, blood  
pressure, rectal temperature, pH and base deficit, and corrected  
absolute numbers of segmented and immature PMNS. The presence of  
bacteria on histologic analysis of sputum obtained by tracheal  
aspiration, and the subsequent isolation of a similar bacterium in  
blood and sputum, provides a valuable tool in the diagnosis of  
congenital pneumonia when compared to other clinical variables.