465 SIGNIFICANT SHIFT IN THE BACTERIOLOGY OF MENINGITIS IN EARLY LIFE. Howard S. Faden, Spon. by Pearay L. Ogra, State Univ. of N.Y. at Buffalo, Children's

Hospital of Buffalo, Dept. of Pediatrics, Buffalo, N.Y. Changes in bacterial causes of meningitis over the past years has led to the use of various empiric antibiotic regimens. A review of 248 cases of meningitis among children less than 17 years of age during the period 1973 to 1978 documented a significant shift in bacteriologic agents of meningitis in early life. Group B streptococcus (GBS)(59%), gram-negative bacilli (GNB)(26%), Haemophilus influenza type B (HIB)(9%), Neisseria meningitidis (NM)(3%), and Streptococcus pneumoniae (SP)(3%) caused meningitis in the first month of life. In the second month, HIB (33%), SP(25%), NM(25%), and GBS(17%) were the etiologic agents; GNB were no longer isolated. GBS (33.3%) continued to be a major cause of meningitis in the third month along with HIB (33.3%), and SP (33.3%). HIB (73%), SP (14%), and NM (13%) were the only bacterial isolates beyond three months. These data document two important shifts early in life: 1. HIB is becoming more common in the first month. 2. GNB are no longer a significant cause of meningitis in the second month. Based on the latter observation, ampicillin and chloramphenicol would be the most appropriate antibiotic regimen for the initial management of meningitis in children beyond the first month. Further studies, however, will be needed to determine the efficacy of this antibiotic combination against GBS which remains a major problem through the third month.

466 RIFAMPIN IN ERADICATION OF METHICILLIN/GENTAMICIN-RESISTANT S. AUREUS FROM AN NICU. Sherry Gardner, Robert Brouillette, Andrew Wiesenthal, and Stanford Shulman, Children's Memorial Hosp., Northwestern Univ., Chicago.

An outbreak of infections caused by methicillin- and gentamicin-resistant Staphylococcus aureus (MGRS) occurred in the Children's Memorial Hospital NICU in 1979-80. MGRS was isolated from 44 patients in a 21-month period. Infections included bacteremia (6), ventriculitis (3), osteomyelitis (3), otitis media (2) and surgical wounds (6). Nasal carriage of MGRS of bacteriophage type 29/52 was present in 4/56 (7%) of personnel and in up to 75% of patients. Traditional infection control measures failed to interrupt MGRS transmission; intranasal bacitracin + oral rifampin eradicated nasal carriage in 4/4 adults. Bacitracin alone or treatment of infections with a single antibiotic to which MGRS was sensitive (vancomycin or chloramphenicol) failed to eradicate carriage in 6/6 and 10/11 trials, respectively. Bacitracin + rifampin terminated nasal carriage in 3/6 infants. Treatment with bacitracin + rifampin + IV vancomycin or oral erythromycin terminated carriage in all of 8 patients. This regimen was superior to bacitracin alone ($p < 0.001$), vancomycin or chloramphenicol alone ($p < 0.001$), and bacitracin + rifampin ($p = 0.06$). All patients treated with the three-drug regimen have remained MGRS-negative for up to 10 months. We conclude that therapy with bacitracin, rifampin, and another antibiotic to which the organism is sensitive is effective in eradicating neonatal MGRS carriage.

467 INTRAVENTRICULAR HEMORRHAGE (IVH) BEFORE AND AFTER INTENSIVE CARE. George P. Giaccio, Maria Zielezny, Jo Ann Berlin, Kornel Terplan, State University of

New York at Buffalo and Tulsa Medical College, Department of Pediatrics, Tulsa, Oklahoma (Spon. by S. Yaffe).

The introduction of intensive care techniques into a traditional nursery was associated with an increase in the incidence of IVH complicating HMD in autopsy material (30% vs 56%). To investigate this further two groups of 50 infants each were studied: group A before and group B after intensive care techniques were introduced. The difference between groups A and B was statistically evaluated by using t-test for mean values and z-test for proportions. Sex, incidence of twinning, maternal complications, type of delivery, blood pH and temperature on admission were similar in both groups. Groups A and B differed in a number of other parameters (birth weight, gestational age, apgar scores, proportion of outborn referrals, number of cardiac arrests responsive to therapy, age at death, and use of respirator and/or alkaline therapy). Among the variables that were different between the groups only two (low birth weight and amount of alkali) correlated with the presence or absence of IVH. When those two factors were accounted for by way of a stepwise multivariate discriminant analysis method no differences in the incidence of IVH were found between the groups. It is concluded that intensive care was not responsible for the increased incidence of IVH.

468 TREATMENT (Rx) OF GROUP A STREPTOCOCCAL (GAS) PHARYNGITIS. RESULTS OF A PROSPECTIVE, RANDOMIZED STUDY OF 4 ANTIBIOTICS. C. M. Ginsburg and G. H. McCracken, Jr., U. Texas Health Sci. Ctr., Dept. of Pediatrics, Dallas, TX

Penicillin V (P), benzathine/procaine penicillin (BP), cefadroxil (C), and erythromycin estolate (EE) were used for Rx of 198 children with GAS pharyngitis. Patients ranged in age from 2-15 years and all were symptomatic when Rx was started. Rx groups were similar with regard to age, sex, weight and duration of illness before Rx. All pts improved within 24 hours of initiation of Rx. At 5 days GAS were present in the throat cultures of 3 pts (2P, 1C); the serotypes of 2 organisms were identical to those isolated from pre-Rx cultures. Four days after Rx GAS were cultured from 3(6%) P-Rx'd pts, 1(2%) C pt, 1(2%) E pt, and 2(4%) BP pts. All were serotypically identical to the pre-Rx organisms. Two (21%) of these pts were symptomatic. GAS were isolated from 19 pts at 7-21 days after Rx; 12 of 19 had new serotypes and 11(91%) of these 12 were symptomatic. Excluding pts with new infections, the bacteriologic failure rates (relapse) during the 31-day study period were: 2%(EE), 6%(C), 12%(P) and 12%(BP). Eleven of 16(69%) children with relapse were asymptomatic at the time of recurrence. There were no significant differences in the rates of serologic conversion between symptomatic (82%) and asymptomatic (54%) children or between those with reinfection (77%) and those with relapse (63%). Antibiotic resistance of GAS, presence of penicillinase-producing staphylococci and lack of compliance were not related to relapse. These four antibiotics were equally effective in Rx of GAS pharyngitis.

469 THE OUTCOME OF THE BREECH PRE-TERM WT.SPECIFIC(1000-1500g)NB(BPNB)&MODE OF DELIVERY. Tilak Gooneratne, Anantham Harin, Angelo Ferrara, NYU/Bell. Dept. Peds, NYC. St. Vincents(SI)Dept. Peds, SI, NY.

One hypothesis is that BPNB may be at added risk if deliv.vaginally. To test this a retrospect. chart review of '78&'79 from Bell. (Mun. III Ctr) revealed a total 16 BPNB out of 3770 live births(.21%). Also a total of 12 BPNB out of 3800 NB(.29%) in the same time period were reviewed from St. Vin(SI) (Vol III Ctr). 14/28(50%) had C-Sect. while 14/28(50%) were delivered vaginally. The decision on mode of deliv. leaned on the discretion of the obstetrician. At least 4/28 cases had CS because of prolapsed cord(2) & past hx CS(2). The mean ($\pm$ SD) Apgar Scores of the CS group (CSG) & vaginal group (VG) were respectively: 6.9 $\pm$ 1.4 & 6.6 $\pm$ 2.1 (not significant) ($P > .5$). Similarly there is no wt.diff. between 2 groups ($P > .8$). 86% of 28 NB had RD & 35% required intubation/ventilation. Results: 1) χ^2 (exact) test on Fig. 1 showed $P = .34$ (No signif. diff. in mortality bet. these 2 gps) 2) Of the 14 neonates bet. 1000-1250g. there were 5/7(71%) survival from CSG & 6/7(86%) from VG ($P > .6$ NS). 3) Of the 14 NB 1250-1500g. the survival rate was identical (86%) in the 2 gps. 4) Between 1000-1500g. in III Ctrs. NS diff. in mortality was noted in CS or VG. A prospective study will shed definitive answers, though implementing such a design is quite difficult.

FIG. 1 2x2 CONTINGENCY TABLE/

	ALIVE	DEAD	% SURVIVAL
CSG N=14 (wt. 1256.4 $\pm$ 170g.)	11	3	14(78.5)
VG N=14 (wt. 1242.7 $\pm$ 160g.)	12	2	14(85.7)
TOTAL	23	5	28

470 MATERNAL SMOKING AND DIFFERENTIAL OUTCOME OF TWIN PREGNANCIES DUE TO PLACENTATION. K. Gottlieb and D.K. Manchester (Spon. by R. Gotlin), University of Colorado School of Medicine, Department of Pediatrics, Denver.

Pregnancy loss occurs more frequently both in twin gestations and when mothers smoke cigarettes. Data are presented which indicate an interaction between maternal smoking and placentation in twin pregnancies. Two sets of twin data were analyzed. Seventy-six twin pregnancies were collected prospectively at 7 Denver hospitals. Medical and smoking histories were obtained by interview and smoking was corroborated by cord blood thiocyanate levels for the last 35 deliveries. Twins were classified as monozygotic (MZ) or dizygotic (DZ) based on placentation, sex and bloodtyping of 20 antigens. Placentas were classified as dichorionic (DC) or monochorionic (MC) by gross and microscopic examination. Data on 457 twin pregnancies were also obtained through the National Collaborative Perinatal Project (NCP). Independence of the variables: zygosity, placentation, and smoking were tested using contingency analysis. Observed (OBS) and expected (EXP) values were:

DENVER	MZ-MC	MC-DC	DZ	NCP	MZ-MC	MZ-DC	DZ
Smoke	2/7*	5/5	17/13		40/50	20/22	165/153
Nonsmoke	19/94	10/10	23/27		62/52	25/23	145/157

$\chi^2 = 6.96$, $p < 0.05$ *OBS/EXP $\chi^2 = 6.49$, $p < 0.05$
Fewer than the expected number of MZ-MC twins were delivered in both groups when mothers smoked. Additional variables (sex, race, amount of smoking, and a perinatal outcome) were controlled for in the interaction and a dose-dependent trend was seen.