1333 MICROBIAL PROFILE OF CHRONICALLY INTUBATED NEWBORN INFANTS. Albert Bartoletti, Martha Lepow, Susan St. Martin, Richard Venezia, Sally Hipp. Departments of Pediatrics and Microbiology, Albany Medical College; Centers for Laboratories and Research, New York State Department of Health.

Tracheal aspirates (TA) are obtained at birth and serially from neonates with respiratory distress that require mechanical ventilation (MV) for greater than 1 week. Cultures include aerobic bacteria and gram stain twice weekly, viruses (CMV, HSV, VS, Adeno, Entero) once a week and mycoplasma (M. Hominis, Ureaplasma Urealyticum) once during the first week of hospitalization and weekly thereafter if positive. The significance of grams stain and culture during the first 24 hours of life, the incidence and duration of bacterial and viral colonization/infection of the respiratory tract, the effect of systemic antibiotics on bacterial presence and the importance of mycoplasma infections are being investigated. Preliminary results from 209 bacterial, 102 viral, and 90 mycoplasmal cultures reveal: the most common bacterial organisms were coagulase negative Staphlococcus and Haemophilus strains. Once present, organisms persist for weeks. All cases (5) of congenital pneumonia had positive gram stains and/or culture during the first 24 hours. 68% of cultures obtained during the antibiotic therapy were negative. 1 infant grew HSV and 2 grew transfusion acquired CMV (1 survivor grew CMV for weeks). U. Urealyticum grew from 20% of infants (13/65). Most were GA < 28 weeks with maternal history of chorioamnionitis. The role of these microbial organisms on the pathogenesis of chronic lung disease (MV and/or O_2 supplementation > 30 days) of the neonate is being evaluated.

†1334 INCIDENCE AND MORTALITY OF INTRAVENTRICULAR HEMORRHAGE (IVH) OVER A THREE YEAR PERIOD. Daniel G. Batton, Danielle Boal, M. Jeffrey Maisels. Penn St Univ Coll of Med, M.S. Hershey Med Ctr, Dept of Peds, Hershey, PA

We examined the trend in incidence and mortality of IVH in low birthweight infants from 1981-1983. During this time we admitted 343 infants with a birthweight ≤1500gms, 317 having cranial ultrasonography or autopsy information available regarding IVH. There were no differences in the mean birthweights, incidence of SGA, proportion inborn, or percentage of infants receiving mechanical ventilation during the 3 years. In 1983 34% of infants ≤1500g had a birthweight <1000g vs 22% in 1981 ($p<.05$). Despite this, the incidence of IVH decreased from 62% in 1981 to 49% in 1983 ($p<.05$). This decrease was accounted for primarily by a reduced incidence of severe hemorrhages (grades 3 and 4) from 19% to 10% ($p<.05$) while the incidence of minor hemorrhages (grades 1 and 2) remained essentially the same. Further analysis revealed that the decrease was most evident in the infants with a birthweight of 1000-1500g in whom the incidence of severe hemorrhages decreased from 14% to 4% ($p<.05$). The mortality rate for all patients with IVH remained similar during the 3 years but for patients with a severe hemorrhage mortality decreased significantly from 56% in 1981 to 10% in 1983 ($p<.03$). Although the incidence and mortality for IVH in a large population have changed significantly over a 3 year period, the reasons for this are not apparent. Caution should be exercised in attributing such changes to therapeutic interventions.

1335 SYSTEMIC BLOOD PRESSURE (BP), RESPIRATORY DISTRESS, AND INTRAVENTRICULAR HEMORRHAGE (IVH) IN LOW BIRTHWEIGHT (LBW) INFANTS. Daniel G. Batton, Miroslaw Gardyasz, Danielle Boal (Spon. by M. Jeffrey Maisels) Penn St Univ Coll of Med, M.S. Hershey Med Ctr, Dept of Ped, Hershey, PA

We have examined the course of systemic BP over the first 48 hrs of life for LBW infants (≤1500gms) in relation to IVH. Thirty-four patients suffering a severe hemorrhage (grades 3 or 4) were matched for the severity of respiratory illness with an equal number of patients who developed a minor hemorrhage (grades 1 or 2) and an equal number who had no hemorrhage. All patients required mechanical ventilation for at least 24 hrs and the degree of respiratory illness was comparable in all three groups. Blood pressure was recorded hourly from indwelling arterial lines in the majority of patients (95%) and measured intermittently by oscillometry (Narco) in the remainder. There were no differences in the average systolic (S), diastolic (D) or mean (M) BP between the 3 groups on day 1 or day 2. Multivariant analysis of 12 variables including the highest and lowest S, D, and M BP on day 1 and day 2 failed to show any significant differences. The variability of BP was evaluated by determining the coefficient of variation (CV) for all the available measurements of S and D BP for each of the first 2 days. There were no differences in the CV between the 3 groups on either day by analysis of variance. Thus, for LBW infants with respiratory distress we were unable to demonstrate a relationship between the course of the systemic BP over the first 2 days of life and the incidence or severity of IVH.

=1336 INTRAVENTRICULAR BLOOD AND CEREBRAL PERFUSION IN NEWBORN DOGS. Daniel G. Batton, Elizabeth E. Nardis (Spon by M. Jeffrey Maisels). Penn St Univ Coll Med, M.S. Hershey Med Ctr, Dept of Peds, Hershey, PA.

We previously reported that blood in the lateral ventricle of the newborn dog acutely impairs cerebral blood flow (CBF). The current study sought to clarify the mechanism for these changes in perfusion. For the first two groups of puppies autologous blood was infused into the lateral ventricle to maintain an intraventricular pressure (IVP) of approximately 50 mmHg for 20 minutes; CBF was determined at the end of the infusion in one of these groups and following return of the IVP to near baseline level in the other (mean time-25 min). For a third group of puppies normal saline (NS) was infused for 20 min. prior to CBF determination and a fourth group served as controls. CBF was measured by [^{14}C] iodoantipyrine autoradiography.

	Control	Blood	Blood-Recovery	Normal Saline
IVP (mmHg)	4± 2	52± 3*	7± 5	51± 2*
MABP (mmHg)	70± 9	69±10	69± 6	98± 9*
CBF (cc/100gm/min)				
Cortex	31± 7	10± 3*	37± 9	30±10
Caudate Nucleus	37±10	10± 5*	45± 8	35±12
Brainstem	49±10	21±10*	48±12	79±18*
PWM°	8± 3	2± 2*	8± 1	8± 3

Mean±SD; *p<.01 vs control; °periventricular white matter

The transient decrease in CBF following blood infusion appears to be due to the elevated IVP and reduced perfusion pressure. The reason mean arterial blood pressure (MABP) did not increase to maintain CBF following blood infusion as seen following NS infusion is not clear.

1337 SELECTION OF INFANTS WITH PERSISTENT FETAL CIRCULATION (PFC) FOR EXTRACORPOREAL MEMBRANE OXYGENATION (ECMO). Mary P. Bedard, Fred Splittgerber, Robert O. Bollinger, Marc Cullen, Esmond Arrindel, Michael D. Klein, Ronald L. Poland. Wayne State Univ. Sch. of Med. and Children's Hosp of Mich., Depts. of Peds. and Surgery, Detroit, MI.

To help establish criteria for initiating ECMO in our institution, the records of 79 patients with PFC requiring ventilation before ECMO was available were reviewed for the following criteria: 1) AaDO2 over time, and 2) Neonatal Pulmonary Insufficiency Index (NPII), which relates pH and FiO2 over time (both were evaluated for the first 60 hrs of life). All patients were outborn. 16/79 (20%) died, 2/16 of severe birth asphyxia after PFC was medically controlled. We could not recognize non-survivors in the first 6 hrs of life in this group. An AaDO2>600 torr for 12 hrs occurred in 23 patients. 14/23 (61%) died (88% of all deaths). 17 infants had an AaDO2>600 for 18 hrs. 13/17 (76%) died (81% of all deaths). The NPII correlated well with the AaDO2 up to 60 hr ($p<0.001$), but did not predict non-survival as accurately as the AaDO2. The combination of both predictors was no better than the AaDO2 alone. Identification of infants between 6 and 12 hrs of age needs to be studied.

A review of the literature revealed a mortality of 30% for 47 infants with PFC who underwent ECMO. Since the mortality was 60% in our patients when the AaDO2>600 for 12 hrs (vs 94% reported elsewhere, J.Ped. Surg. 19:380, 1984), this appears to be an acceptable criteria for initiating ECMO. However, each institution should choose ECMO criteria based on their own experience with medical management after a similar analysis of risk vs benefit.

1338 ANTENATAL NECROSIS OF THE CEREBRAL WHITE MATTER. R. Bejar, P. Wozniak, K. Utley, J. Jakobowski, R. Coen. Univ. of Calif. San Diego, Dept. of Ped.

Multifocal necrosis (MFN) of the white matter is a common cause of severe neurological sequelae. MFN is considered a perinatal event. Pathologic reports describe an acute phase (coagul. necrosis) & a chronic stage (multiple cavitation of the white matter) 2 weeks later.

Ultrasonic & pathologic data are presented in 15 infants to show MFN occurring before labor & birth. Gest. age ranged from 23-39 wks (median - 31wk) & BW 640-2900 gm (median - 1300 gm). Ultrasound studies were performed on day one, then serially. Eight patients had cavitation on day one & 7 patients developed cavities by day 4. Postmortem studies in 3 infants (GA 23-35 wk) performed <2 wk after birth demonstrated cavities estimated to be 4 weeks or older. Thirteen pregnancies were abnormal.

PRENATAL COMPLICATIONS

	Total
N of Preg	14
Mat. inf.	5
PROM	6
Chorio	6
Abruptio	5
Hydrops	2
Triploid	1
Heart Malf.	2

RDS was present in only one pregnancy, suggesting intrauterine stress.

Five patients were followed with neurodevelopmental examinations (median age - 10 mos). All were neurologically abnormal (spasticity, quadriplegia, seizures).

Formation of MFN & neurodevelopmental outcome may be determined during gestation & not influenced by events occurring during labor, delivery, and the neonatal period.