1463 FREQUENT INTRACRANIAL PRESSURE(ICP) SWINGS IN PRETERM INFANTS DETECTED BY TREND MONITORING. H.Pierantoni, K. Bessard, L.Wright & S.Duara(Spon. by Allen Schwartz) Univ. of Md. Sch. of Med.,Univ. of Md. Hosp.,Dept.of Peds.,Balto.

Elevation of ICP & fall in cerebral blood flow is associated with many CNS problems in preterm infants. However, poor autoregulation in preterms makes major changes in ICP possible during routine care(RC). To detect the extent of changes, trend monitoring over 6 hrs. was done in 5 ventilated preterm infants at a mean±SEM BW of 1183±124 gms, GA of 30.2±1.6 wks, Apgar scores of 4/7 & post-natal age of 6.4±4.1 days for HR, $TcPO_2$ & ICP. Causes of change were 1) spontaneous (S) 2)manipulation (M) 3)invasive (I). Group results showed a mean±SEM $TcPO_2$ of 58.0±6.8mmHg that incr. to 119±3.7mmHg & decr. to 18.3±6.7mmHg ($p<.01$ and $p<.05$, respectively), ICP of 5.4±1.8cmH_2O that incr. to 24.8±4.8 cmH_2O $p<.02$, and HR of 143±13 beats/min, that showed no sig. change. Over 6 hrs, the mean duration of change and frequency of episodes causing change were:$TcPO_2$<50mmHg for 17.3±8.2 min with 3.0±1.8 S, 1.0±0.8 M, none I, $TcPO_2$>100mmHg for 13.6±6.1 min with 1.8±1.2 S, 0.8±0.8 M, none I, ICP 10-14cmH_2O for 4.4±2.0 min & >15cmH_2O for 5.5±2.5 min with 26.8±10.1 S, 10.0±3.0 M, 4.2±2.1 I,HR>180 beats/min for 63.2±38.9 min with 0.8±0.6 S, 1.6±0.8 M, 0.2 I & <100 beats/min for 0.3±0.1 min with 2.8±1.0 S, 2.6±1.3 M, 1.0±0.8 I. Results show that stable intubated preterm infants show significant change in ICP and oxygenation during RC, with the trend suggesting predominance of spontaneous episodes. An awareness of the frequency of spontaneous large changes in ICP with crying suggests that therapeutic intervention with sedation may be indicated in certain instances to minimize swings & sequelae.

1464 RENAL RESPONSE TO FUROSEMIDE (F) IN INFANTS WITH BRONCHOPULMONARY DYSPLASIA (BPD). T.F. Yeh, R. Jain, H. Patel, R.S. Pildes. Cook County Hosp. and Univ. of Ill., Dept. of Pediatrics, Chicago, Ill.

F. has been widely used in infants with BPD but the renal effects of F have not been well evaluated. Ten infants (mean±SD, B.W. 1069±405gms, G.A. 29±2.0 wks, postnatal age 159±62 days, wt. at study 3525±2946gms) with BPD were given two doses of F: 1mg and 2mg/kg IV in a 24 hr interval. Urine output (U/O), GFR, FE_{Na}, FE_K, FE_{Ca}, serum lytes and Ca were evaluated prior to study and 24 and 48 hrs following the onset of study. Management of BPD and fluid therapy were not altered during the study.

	0-24 P.T.D	0-24 hr	24-48 hr
U/O (ml/kg/hr)	2.2±1.2	3.1±1.3*	3.0±1.0*
GFR (ml/min/1.73m^2)	40.6±21.1	49.5±25.9	51.7±26.7
FE_{Na} (%)	0.40±0.24	0.80±0.84	1.20±0.87*
FE_{Cl} (%)	0.45±0.28	0.86±1.04	1.77±1.33*
FE_K (%)	13.8±9.5	18.1±8.0	22.9±10.4*
FE_{Ca} (%)	2.3±2.4	3.7±2.2*	3.4±2.2*
Serum Na (meq/L)	140±3.3	138±2.2	138±3.2
Cl (meq/L)	98.8±5.7	95.0±4.8	94.0±4.6*
K (meq/L)	5.0±0.6	3.8±0.4**	4.2±0.8**
Ca (mg%)	9.0±0.7	9.2±0.8	9.4±0.9

This study indicates that in infants with BPD, 1) F sign. increases diuresis, natriuresis, kaliuresis and Ca excretion 2) hypokalemia and hypochloremia occur associated with increased loss of K and Cl in urine 3) serum Na and Ca are normal despite increased urine loss 4) GFR remains unchanged. *$p<.05$ **$p<.01$

●1465 VARIABLE OXYGENATION DURING RECOVERY FROM OXYGEN INDUCED RETINOPATHY IN THE KITTEN. Dale Phelps and Arthur Rosenbaum, UCLA Center for the Health Sciences, Departments of Pediatrics and Ophthalmology, Los Angeles.

Premature infants who experience prolonged oxygen administration and apnea/bradycardia have an increased incidence of retinopathy of prematurity. Therefore, we predicted and tested the hypothesis that alternating hypoxia and hyperoxia would adversely affect the oxygen induced retinopathy developing after hyperoxic vascular injury in the kitten.

Following 65 hrs of 80% oxygen on day 3 of life, each of 15 litters (67 kittens) were randomly divided between room air recovery and recovery in an incubator where the FiO_2 varied from 10% to 43% within each 18 min. period. Fifteen litters would permit us to detect a mean difference in scores of 2 points, α = 0.05, with a power of 80%. After 3 weeks in the recovery phase, the retinopathy was scored on a scale of 0 (normal) to 13 (worst) by two masked investigators.

The mean retinopathy score from the room air recovered controls in one litter was compared to the mean score from the experimental kittens in the same litter. Unexpectedly, the scores in the experimental group were significantly better than the room air matched littermates, [$\bar{d}$ = 4.0±3.1, (SD), paired t test, $p<0.001$] [or Sign test, 14/15 litters were better, $p<0.01$].

We found that variable oxygenation resulted in a less severe retinopathy than stable oxygenation (room air = 21%) during recovery. The clinical implications of this finding are not known, except to speculate that variable oxygenation may not be a contributing factor to retinopathy of prematurity in the human.

†1466 C-REACTIVE PROTEIN (CRP) AND α_1-ACID GLYCOPROTEIN (AGP) IN THE DIAGNOSIS OF NEONATAL NECROTIZING ENTEROCOLITIS(NEC).Alistair G.S. Philip,Léon Sann and Françoise Bienvenu,Depts. of Pediatrics, Maine Medical Center, Portland, and Hôpital Debrousse, Lyon, France.

Many neonates are investigated for non-specific findings which suggest NEC, but few prove to have this disorder.Pneumatosis intestinalis (PI) is frequently absent in NEC(J.Pediatr. 1982,136:618). Tests to distinguish infants with NEC from others are urgently needed. Working independently in the USA and France, we have found that CRP and AGP (orosomucoid) may be helpful in diagnosing NEC, as well as in neonatal sepsis.

Twenty neonates with NEC had sequential determinations of CRP and/or AGP. All had PI or perforation (4 cases). Birth weight, gestational age and clinical onset ranged from 700 to 3500 grams, 27 to 41 weeks and 2 to 34 days respectively. In 19 out of 20, increased levels of CRP and/or AGP were seen at or within 24 hours of the onset of clinical features suggesting NEC. At onset, mean level of CRP was 6.4 mg/dl (n=15) and of AGP was 110 mg/dl (n=18). All cases had further increases in either CRP or AGP. Only 6 had an associated bacteremia at onset. Prolonged elevations of AGP were seen in 11 cases. Of these, 4 had intestinal stenosis (barium enema), 3 had late sepsis, 2 had peritonitis and one had abscess/adhesions seen at necropsy. Three additional infants with NEC (evaluated later) had prolonged elevations of AGP and had intestinal stenosis.

We conclude that in the absence of documented sepsis, increased levels of CRP and/or AGP support a diagnosis of NEC and may provide prognostic information.

1467 COMPARISON OF FOUR BILIRUBIN BINDING TESTS.Ronald L. Poland,Eugene E. Cepeda,Gayatri Garg. Dept. of Pediatrics, Wayne State University and Children's Hospital of Michigan, Detroit.

We have compared the results of four bilirubin binding tests performed simultaneously on blood samples collected from jaundiced newborn infants with serum bilirubin concentrations ranging from 7.3-34.4 mg/dl. Data from 176 blood samples were correlated using the Pearson (r) and Spearman(rho) correlation coefficients. Salicylate saturation index (SSI) correlated with the HBABA dye binding test (HABA)(r= -.16,rho= -.14, $P<.05$), the horseradish peroxidase apparent unbound bilirubin concentration (AUBC)(r=.45, rho= .48,$P<.001$), and the direct yellow fluorescent dye binding test (DY7)(r= -.43, rho= -.57, $P<.001$). Each test correlated significantly with the others using parametric and non-parametric methods. However,none of the bilirubin binding tests correlate well enough with another that one test could be used clinically to predict the value of the other.

The clinically derived thresholds ("danger points") for each binding test did correlate with those of the others when regression lines were drawn using the least squares method.

We conclude that the four tests measure similar, but not identical, properties of icteric infant sera and that correlations are not close enough to allow the results of one test to predict another. It is not possible to tell which test predicts clinical risk to bilirubin toxicity most reliably by this analysis. Only SSI and HABA have undergone clinical validation using long-term outcome of infants as the endpoint, each with one published study.

1468 COST CONTAINMENT IN PERINATAL CARE. Jeffrey J. Pomerance. UCLA School of Medicine, Cedars-Sinai Medical Center, Department of Pediatrics, Los Angeles, California.

Although costs of perinatal care have been addressed extensively in recent years, little has been said about containing these costs. In cost containment, emphasis should be given to: 1) prevention; and 2) effective/successful therapy, as unsuccessful therapy compounds the cost.

A cost-effective approach to the antenatal period would include: appropriate antenatal referral of high risk patients; an anticipatory approach to the prevention of prematurity; prevention and/or antenatal treatment of congenital anomalies; and prevention of antenatal asphyxia.

A cost-effective intrapartum approach would include: selection of delivery site by record of outcome (Level I, II, III, or home); use of fetal monitoring; and, continuous availability of on-site personnel for emergency Cesarean section and/or neonatal resuscitation.

Postnatal cost-effective management would include: optimizing cost/benefit ratio of the physical plant, patient tests and procedures; optimizing patient load in an outcome oriented manner; limiting eligibility for neonatal intensive care; and, patient discharge whenever home care is safe and less expensive.