1021 SELECTED RENAL FINDINGS IN ASPHYXIATED NEWBORNS. W. E. Sexson and J. E. Rawson (Introduced by Blair E. Batson), Department of Pediatrics, University of Mississippi Medical Center, Jackson.

Seven babies with intrauterine asphyxia were compared to eleven infants with normal intrauterine and post partal courses. Asphyxia was defined as an Apgar score of five or less at one and five minutes, in the absence of prematurity, congenital anomalies, or maternal drug administration. No asphyxiated infant had clinical renal failure as is seen in some asphyxiated infants. Infants had comparable gestational ages and birth weights. Total intake over the first 24 hours was the same. The time before the first voiding was longer in the asphyxiated group (11 hours versus 20 hours). The serum and the first voided urine specimen were evaluated biochemically in the first 24 hours. Comparison of the two groups reveals that the serum sodium concentrations were equivalent, however, serum potassium concentrations were slightly higher in the non-asphyxiated group. Serum osmolality was equivalent, but urine osmolality was significantly higher (310 milliosmoles versus 238 milliosmoles) in the asphyxiated group. Urine potassium concentration was increased dramatically in the asphyxiated group (36 milliequivalents per liter versus 4.1 milliequivalents per liter). These data may reflect altered renal blood flow or an asphyxia-related tubular dysfunction.

1022 LIGHT ENHANCED BILIRUBIN TOXICITY IN CULTURED LYMPHOCYTES. S. Shankaran, R. L. Poland and S. N. Cohen, Dept. of Ped. Wayne State Univ. Sch. Med. and Children's Hospital of Michigan, Detroit.

Bilirubin toxicity was studied in cultured human lymphocytes using as indicators: cell lysis (reduction in cell count measured on the Coulter Counter) and ATP release (luciferin-luciferase method). Cells were incubated in the dark in bilirubin (B) solutions (25 mM) containing varying concentrations of albumin (A) to achieve B/A molar ratios (MR) between 0.13 and 2.5. At the end of 60 min., there was no apparent cell lysis over control values with MR <0.45. There was a linear correlation between MR and cell lysis with MR >0.45 ($r=.82$, $p<.05$). Identical cell suspensions were exposed concurrently to standard bilirubin lamps for 5 min. Linear correlations were maintained ($r=.90$, $p<.05$) but the rate of cell lysis was enhanced threefold. Cell counts were lower than control after 5 min. of light and continued to fall for 1 hour after light was discontinued.

ATP concentrations in the cells and the supernatant were measured in a similar series of cell suspensions exposed to bilirubin lights for 5 min. ATP concentrations rose in the supernatant and fell in the cells as cell lysis occured. Cell counts and ATP release experiments were carried out with a constant B/A MR(0.45) in the presence of increasing concentrations of sulfisoxazole. Cell counts decreased and ATP concentrations in the supernatant increased with increasing drug concentrations. Both effects were enhanced under lights. These methods demonstrate light enhanced bilirubin toxicity and may also provide a useful screening test for the effects of drugs on binding of bilirubin to albumin.

1023 FACTORS PREDICTING OUTCOME OF NEONATAL INTENSIVE CARE IN DETROIT. S. Shankaran, S. Spector, D. Faigenbaum, and R. L. Poland, (Spon. by S. N. Cohen), Dept. of Pediatrics, Wayne State Univ., Sch. Med. and Children's Hospital of Michigan, Detroit.

18 infants <1800 Gms who were discharged from our NICU between July 1972 and July 1973, returned for evaluation of growth and development (mean age 3.55 yrs). A physical examination and general cognitive index (GCI), using the abbrev. McCarthy scales, were administered. Mean B.W. of the group was 1267 Gms, G.A. 31.5 wks, SGA 5/18, males 13/18, black 10/18, 5 min. Apgar score ≤4 5/18, major neonatal disease 7/18, low socioeconomic class 8/18, single parent home 7/18, no medical follow-up 8/18. Results: One patient was ≤3rd percentile in ht, wt, and H.C. 3 others were ≤3rd percentile only in wt. One patient had hemiparesis. Neurological status did not correlate with neonatal disease. Mean GCI was 87 (<I.S.D. below expected mean). An age-adjusted analysis of covariance revealed:

Factors	GCI
Race: Black:White	78:98 ($p<.05$)
Follow-up Poor:Good	74:98 ($p<.01$)
Socioeconomic: Low:High	77:95 ($p<.05$)
Marital status: S:M	77:93 ($p<.05$)
H.C.: <10th perc:>10th perc.	72:93 ($p<.05$)

Sex, gestational age category, hospital course and Apgar score were less significant. Economic status proved to be a consistently high predictor for the McCarthy score. Thus, factors other than Apgar score and neonatal disease played a part in predicting outcome of these high risk, low birth weight infants.

1024 NECROTIZING ENTEROCOLITIS SYNDROME IN SYMPTOMATIC INFANTS WITH CONGENITAL HEART DISEASE. A.James Shapiro, Rae-Ellen Kavey, Barbara C. Dangman, Welton M. Gersony College of P&S, Columbia University, Dept of Pediatrics, N.Y.,N.Y.

Recent studies suggest an association between congenital heart disease (CHD) and necrotizing enterocolitis (NEC) in term infants. To examine this relationship, the records of 76 infants less than 6 weeks of age with CHD requiring cardiac catheterization (CC) and/or surgery (S) during the last 2 years were reviewed. 18 patients (23%) had symptoms of ischemic bowel disease, including abdominal distention, bloody or bilious gastric aspirates, and bloody stools. Only 3 were premature. 7 patients had documented NEC: 5 had intramural air (IA) on abdominal x-ray; 2 others had pathology-proven lesions. 3 infants died from NEC.

Of the 18 infants with evidence of ischemic bowel disease, 9 had cyanotic CHD. 5 of these 9 had hypotension during CC or S. 6 had NEC with IA or positive pathology. One pt. developed symptoms before CC, 4 after CC alone, and 4 after CC and S. The other 9 cases occurred among 18 infants who had surgical resection of coarctation, with cross-clamping of the aorta. 2 displayed symptoms after CC and 7 after S. In general, these pts. had a similar, but milder symptom complex; only 1 developed IA.

In summary, symptoms of ischemic bowel disease were seen in 23% of 76 infants with CHD; 7 pts. (9%) had documented NEC. Experience with 7 other pts. indicates that post-coarctectomy syndrome in infants may be a form of this disease. Early recognition and therapy of NEC syndrome may reduce the morbidity and mortality among infants with CHD who require early CC and/or surgery.

1025 EFFECTS OF FRESH FROZEN PLASMA INFUSIONS ON COAGULATION SCREENING TESTS IN SICK NEONATES. Melinda S. Snyder, Richard L. Weaver, Christine A. Johnson; (Spon. by Jimmy L. Simon); Bowman Gray School of Medicine of Wake Forest University, North Carolina Baptist Hospital, Dept. of Pediatrics, Winston-Salem.

It is commonly stated that transfusion of fresh frozen plasma (FFP) in a volume of 10-20 cc/Kg. will correct non-platelet related coagulation defects in sick neonates. We studied 23 neonates in our Intensive Care Nursery who received 10-15 cc/Kg. of FFP for treatment of hypotension associated with respiratory distress syndrome. Gestational ages of infants studied ranged from 27-37 weeks. Prothrombin time (PT), partial thromboplastin time (PTT), and fibrinogen were performed prior to plasma infusion, and again 15-30 minutes following infusion. Three infants were felt to have disseminated intravascular coagulation and were excluded. Eleven of the 20 remaining infants had pre-infusion PT's >16 seconds (sec.). Of these 11, 4 infants corrected to 16 sec. or less, while 7 showed almost no change in PT values. Eighteen of the 20 infants studied had initial PTT values >70 sec. Of these 18, only 5 infants corrected PTT values to <70 sec. after infusions. Post-infusion, 4 infants (22%) still had PTT's >90 sec. Our preliminary data would suggest that, at least in sick infants with hypotension, FFP infusion may not result in dramatic improvement in coagulation parameters. Sick infants who receive FFP for bleeding problems should have careful monitoring of coagulation parameters, since therapy more aggressive than FFP infusion may be required.

1026 INTERMITTENT PHOTOTHERAPY: EFFECT ON INTRACELLULAR DNA. William T. Speck, Regina M. Santella and Herbert S. Rosenkranz. Col. of Physicians and Surgeons, Columbia University, Babies Hosp., Department of Pediatrics, New York, New York 10032.

Our previous investigations on phototherapy have indicated that this procedure might involve a genetic as well as a carcinogenic hazard by virtue of its ability to modify the intracellular DNA of human cells in tissue culture. Because of this observation techniques for modifying the phototherapy regimen have been advocated. Thus, it has been suggested that intermittent phototherapy might be a safer alternative. Current studies in this laboratory indicate, however, that varying the "on-off" cycle does not prevent DNA damage. On the contrary, the DNA of human cells exposed to an intermittent illumination regimen (30 min off-on cycle) was more damaged than the DNA of cells exposed to the same light dosage administered continuously. It appears that the enhanced DNA degradation is a reflection of the DNA repair process. In this connection it is noteworthy that permanent changes (genetic or carcinogenic) probably are a consequence of such DNA repair (e.g. error-prone repair, misrepair). Thus, intermittent phototherapy may not be a satisfactory alternative in view of its potential effect on DNA repair processes.