1564 ONE YEAR FOLLOW-UP OF SMALL PREMATURE INFANTS <1250 gms) AFTER EARLY FUROSEMIDE (F) THERAPY. T.F. Yeh, D. Raval, T. Henek, R.S. Pildes. Cook County Hosp., Univ. of Ill., Dept. of Pediatr., Chicago, Ill.

Furosemide has been widely used in sick prematures but its long-term side effects have not been well evaluated. We examined 26 (12 control, C and 14 F) of 30 surviving infants (<1250gms) who were included in a previously controlled study. All infants had RDS and required mechan. vent. shortly after birth. Infants in F group were given 1 mg/kg I.V. F shortly after birth (0-8 hrs) and then q 24 hrs for a total of 3 doses. There was no sign. difference between C and F infants in B.W. (mean±SD), 993±98 vs 1114±126gms), gest. age (29.1±1.8 vs 29.1±1.5 wks), Apgar score, blood gases and pH before the study. The postconcep. age at time of follow-up for C group was 13.4±1.9m. and for F group 12.9±2.2.

	Physical Growth (<5%)			Hearing	Neuro. defects		Bailey (<50)	
	Wt	L	HC	Impairment	Major	Minor	MDI	PDI
C (12)	2	4	2	1	3	5	1	1
F (14)	4	6	3	1	2	4	1	1
p	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

There was no sign. difference between the groups in physical growth, hearing, neuro. and mental development. The MDI for C group was 78.1±16.9 and for F group 85.3±22.6; the PDI for C was 81.7±18.9 and for F was 74.9±14.6. Sign. handicaps (major neuro. defect and/or MDI or PDI <50) was seen in 4 infants (33%) in C group and 2 (22%) in F group. This study suggested that early furosemide therapy does not add sign. long-term morbidity to small premature infants.

●1565 **STUDIES OF CORTICAL METABOLITES IN POST-ASPHYXIATED NEWBORN INFANTS.** Donald P. Younkin,* Maria Delivoria-Papadopoulos, Hari Subramanian,* Joe C. Leonard,* Britton Chance.* Univ. of Pennsylvania, Depts. of Neurology, Pediatrics, Physiology, Biochem. and Biophysics, Philadelphia, PA. 19104

31-P NMR spectroscopy allows noninvasive measurements of phosphorus containing oxidative metabolites (ATP), phosphocreatine (PCr), inorganic phosphate (Pi), and phosphorylated monoester (PME). We used 31-P NMR to study cortical metabolism in 7 asphyxiated infants (mean gestational age (GA) 32 wks, birth weight (BW) 1430 gms). Although they had perinatal asphyxia, their neurologic and head ultra sound exams were normal at the time of spectroscopy (mean 27 D). One infant (BW 1400 gms, GA 30 wks) was studied postmortem. Babies were stabilized in an isolette and placed into a 1.9T superconducting magnet. Four hundred spectra were obtained over 20 min from the left temporal-parietal region. Human newborn cortical 31-P NMR spectra had large amounts of PME (>7m mole/kg fw); a high ratio of PME/ATP (1.60±.055); low phosphate potential, PCr/Pi (2.22±.95), pH = 7.1±.2. These results differ from newborn gerbils and mature dogs in which PME is small, PME/ATP ∿1.0, and PCr/Pi ∿ 7.5. In the postmortem baby, PME was present in equal concentrations, but PCr and ATP had been depleted. We have previously suggested that PME is primarily a sugar phosphate (G-6-P, R-5-P); however, its presence after death suggests that it is not metabolically active and probably represents either phosphoryl choline or phosphoryl ethanolamine which may be present for later myelin synthesis. PCr normally serves as a reservoir for rapid conversion to ATP; the low PCr concentration in human newborns suggests that they have little metabolic reserve and consequently may be more vulnerable to cerebral hypoxia/ischemia. (NIH T35-HD-07217-10A1 & NIH-HD-15973-01)

1566 PRENATAL ANTIHISTAMINE EXPOSURE AS A POTENTIAL CAUSE OF RETROLENTAL FIBROPLASIA (RLF). S. Zierler and D. Purohit. Harvard School of Public Health, Dept. of Epidemiology, Boston, MA. and Medical Univ. of S. Carolina, Dept. of Neonatology, Charleston, S.C. (Spon. by A.S. Nadas)

The occurrence of RLF was investigated on the basis of data collected in a large clinical trial on the management of patent ductus arteriosus in the premature neonate. An unanticipated association was noted between the occurrence of RLF and maternal use of antihistamines during the last two weeks of pregnancy (but not with earlier use). The incidence of RLF (of any grade) was .22 (19/86) among the exposed and .11 (324/2940) among the non-exposed ($p < 0.001$). This association was not confounded by birthweight or by total amount of oxygen supplementation, as reflected by either duration of ventilatory support or diagnosis of bronchopulmonary dysplasia. In addition, there was no confounding by episodes of exposure to high levels of oxygen concentration, as inferred from recorded episodes of apnea or bradycardia. Other medications had been used more often by mothers who had taken antihistamines than by those who had not (74% vs. 50%). None of these other medications, however, were associated with the occurrence of RLF. Indications for antihistamine use could not be examined as potential confounders, as such information had not been recorded.

No prior data directly bearing on a causal connection between antihistamine exposure and RLF have been reported. Biologic insights have not led to postulation of such a connection. Thus, our data, while provocative in raising the suggestion of a causal relation, nevertheless leave it quite uncertain.

NEPHROLOGY

1567 SIX-YEAR FOLLOWUP OF NEONATAL RENOVASCULAR (NRH) HYPERTENSION. Raymond D. Adelman, University of California, Davis School of Medicine, Department of Pediatrics, Sacramento, California.

Neonatal hypertension is often associated with renal artery thrombosis after use of umbilical artery catheters. Although infants with NRH usually respond to medical therapy, their prognosis is unclear; longterm followup of 11 infants is presented.

Mean birthweight was 2914 gm; pre-treatment blood pressure, 161/100 mmHg, and age of onset, 7.8 days. 9 of 11 infants had umbilical artery catheters. A renal abnormality was noted on renal scan or angiography in 9 of 11 infants. 7 of 10 infants studied had elevated peripheral plasma renin activity (PRA). All infants became normotensive with diuretic and/or antihypertensive agents and remained so when weaned off drugs. 2 infants died at 3 months of age of SIDS and pneumonia. The remaining have been followed for 5.5 to 7.5 years. 2 children, neither small for gestational age, have heights and weights below the 5th percentile for age. One child has a creatinine clearance of 62 ml/min/1.73 m^2. PRA in 8 children studied is normal. Renal ultrasound, intravenous pyelography, and renal scan demonstrate persistent renal abnormalities in 7 of 9 children.

Neonates with NRH responded well to antihypertensive medication, remained normotensive off medications, but had significant abnormalities in renal size and function which persisted over a 6 year period. Because their ultimate prognosis is unclear, longterm followup of infants with NRH is indicated.

●1568 PROGNOSTIC SIGNIFICANCE OF PROTEINURIA AND HISTOLOGIC ALTERATIONS AT DIAGNOSIS OF IGA NEPHROPATHY IN CHILDREN. Sharon P. Andreoli, Jerry M. Bergstein, Moo Nahn Yum, I.U.M.C., Dept. of Ped. and Path., Indpls, IN.

Laboratory and histologic findings at the time of biopsy were correlated with outcome in 17 children with IgA nephropathy. Eight children had less than 1 gm of proteinuria per 24 hrs (P) (group I) and 9 children more than 1 gm of P (group II) at the time of biopsy. Light microscopic findings (% crescents, activity score [maximum = 10], chronicity score [maximum = 12]) and pattern of IgA staining (mesangial only [M] or mesangial and glomerular basement membrane [M + GBM]) of the two groups were compared. The number of glomeruli showing crescent formation was higher in group II biopsies (28.1 + 21.0%) (mean + S.D.) than in group I biopsies (1.4 + 2.0%) ($P < .01$). The activity score was 2.4 + 1.4 for group I biopsies and 5.0 + 2.1 for group II biopsies ($P < 0.01$). The chronicity score was .75 + 1.0 for group I biopsies vs. 3.9 + 1.7 for group II biopsies ($P < .01$). None of the group I biopsies but 78% of group II biopsies demonstrated M + GBM deposition of IgA. After a mean follow up of two years (range 1 month to 6 years) all group I children have normal renal function and only one has P>1 gm; in contrast, 4 of 9 of group II children have decreased renal function (3 require dialysis) and 8 of 9 have P>1 gm. We conclude that children with P>1 gm at the time of diagnosis of IgA nephropathy have more severe histologic alterations including a high frequency of crescent formation and a greater incidence of GBM deposition of IgA. Such children are at risk to have persistent proteinuria and to develop renal insufficiency.

1569 DIAGNOSTIC SIGNIFICANCE OF BETA 2-MICROGLOBULIN IN THE ASSESSMENT OF NEONATAL RENAL FUNCTION. Farahnak K. Assadi, Eunice G. John, Dharmapuri Vidyasagar, Parvin Justice and Linda Fornell. University of Illinois College of Medicine, Department of Pediatrics, Chicago, Illinois.

Serum and urinary beta 2-microglobulin (β_2M) levels were measured by enzyme immunoassay in 28 normal neonates at days 1 to 2 and 3 to 4 of life in relation to gestational age (GA) and postnatal age (PNA). There were 10 preterm (P) and 18 term (T) infants with a mean GA of 34.5 and 39.1 weeks respectively. The serum β_2M, glomerular filtration rate (GFR) and filtered load of β_2M increased with increasing GA and PNA. No correlation was found between the serum β_2M levels and the GFR as measured by endogenous creatinine clearance. Urinary β_2M increased with increasing PNA. In both P and T infants the increase in β_2M excretion paralleled an increase in filtered β_2M. The β_2M excretion in relation to GA showed a variable response. There was no correlation between serum and urinary β_2M levels. Fractional excretion (%FE) β_2M decreased as a function of both the GA and the PNA. A significant inverse correlation was found between %FE β_2M and GA for infants <37 weeks, ($r=0.9716$, $P<0.005$). The fall in %FE β_2M reached a plateau at 0.7% by 38 weeks of gestation. The highest %FE β_2M (8.65%) was observed in infants of 32 weeks gestation, yet had the lowest filtered load of the protein. We conclude that 1) serum β_2M level is a poor predicator of GFR in neonates <4 days of life. 2) glomerulotubular balance for β_2M is established in infants with GA of 37 weeks or more. 3) %FE β_2M can be used as a marker to assess the renal functional maturation in neonates in the early days of life.