●1519 ANTENATAL PHENOBARBITAL FOR PREVENTION OF NEONATAL INTRAVENTRICULAR HEMORRHAGE. Seetha Shankaran, Eugene Cepeda, Nestor Ilagan, Federico Mariona, Mustafa Hassan, Rupinder Bhatia, Mary Bedard, Ronald Poland and Enrique Ostrea. Wayne State Univ. Sch. of Med., Hutzel Hosp and Children's Hosp of Mich., Dept. of Ped and OB/GYN, Detroit, MI.

A prospective randomized controlled study was performed evaluating the effects of antenatal phenobarbital (PB) on neonatal intraventricular hemorrhage (IVH). Forty-six pregnant women in labor <35 wks gestation were assigned to control (n=22) or treatment groups (n=24); the treatment group received 500 mg PB by slow intravenous infusion prior to delivery. Echoencephalograms were performed on all infants. The time between dose of PB and delivery was 5.6 ± 4.6 hrs (all values mean ± SD). Maternal PB levels at delivery were 8.72 ± 2.01 µg/mL and cord serum PB levels were 8.85 ± 1.57 µg/mL. The infants in the control group and those in the PB treated group did not differ regarding delivery route, presentation, Apgar scores, ventilatory support, episodes of acidosis, hypoxemia, hypercarbia, hypotension and fluid therapy in the first 3 days. The results indicate a significant decrease in mortality and occurrence of moderate and severe IVH in the PB treated group as compared to the control group.

Infant Data	Control(n=23)	Treatment(n=25)	p Value
Birthweight (gm)	1380 ± 595	1377 ± 531	NS
Gestational Age (wks)	30.3 ± 2.9	30.4 ± 2.4	NS
Subependymal Hemorrhage	7	8	NS
Moderate or Severe IVH	6	0	<.05
Survived	15	23	<.05
Death Due to IVH	4	0	<.05

1520 HEXOSAMINIDASE: A MARKER FOR NECROTIZING ENTEROCOLITIS. Karen E. Shattuck, C. Joan Richardson, David K. Rassin, Thom E. Lobe, Department of Pediatrics, University of Texas Medical Branch at Galveston, Texas.

Hexosaminidase (HEX) activity in serum is used to diagnose Tay-Sach's and Sandhoff's Diseases, and has been suggested as a marker for diagnosis of neonatal necrotizing enterocolitis (NEC). In this study, serum HEX activity was determined in 19 neonates with NEC. Ten infants, gestational age ⩽34 weeks, had onset of NEC at 18.5±12 days (mean ± SD) and 20% mortality. Nine infants, gestational age ⩾35 weeks had onset of NEC at 3±1 days and 22% mortality. Infants with NEC had lower serum HEX activity than controls. Because of possible association of NEC with perinatal asphyxia (PA) we examined the relationship among HEX, NEC and asphyxia. Serum HEX activity was lowest in infants of ⩽34 weeks gestation with both NEC and PA. In contrast, infants ⩾35 weeks gestation who had NEC but no PA had lower serum HEX activity than control infants or infants with PA and NEC.

Serum HEX Activity in nmol/hr/ml serum (mean ± S.D.)

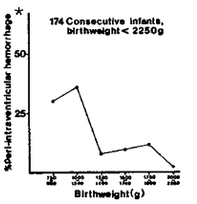
Gest. Age/ Post. Age	Control	Control/ No PA	Control/ With PA	NEC	NEC/No PA	NEC/with PA
⩽34 wks/ 2 wks	1347±469 n=32	1249±440 n=19	1094±255 n=13	1134±469 n=7	1189±306 n=4	799±320 n=3
⩾35 wks/ 1 wk	1976±1069 n=22	1846±880 n=16	2346±1315 n=6	1260±359 n=7	1085±170 n=5	1718±22 n=2

Earlier reports of increased serum HEX activity in infants with NEC did not consider normal developmental increases of enzyme activity with increasing gestational and postnatal age.

1521 INDICATIONS FOR CRANIAL ULTRASOUND IN THE NURSERY. Maureen E. Sims, George Halterman, Naveen Jasani, Paul Y.K. Wu, Univ. of So. Calif. Sch. of Med., LAC-USC Medical Center, Dept. of Pediatrics, Los Angeles.

To determine the indications for routine cranial ultrasound in the nursery, we reviewed the scans of 813 inborn neonates. The neuropathology was separated into intracranial hemorrhage (ICH) or congenital structural anomalies (CSA), and the patients were grouped according to clinical status. We also evaluated a subset of 174 consecutive births of ⩽2250 g BW to determine the indications for cranial ultrasound scanning based on specific BW. The results are listed below*. The 813 patients scanned were categorized using the first applicable diagnosis in the listing below and were listed only once:

CLINICAL STATUS	N	ICH	CSA	%pos
Prematurity	523	127	15	27%
Dysmorphology	40	1	18	48%
Term,1'&5'Apgars<7	50	7	1	16%
Seizures,Apgars⩾7	18	4	0	22%
Macrocephaly	16	0	4	25%
Split sutures	50	0	1	2%
Abn. Neurol. Ex.	20	1	0	5%
Jitteriness	17	0	0	0%
Cephalohematoma	19	0	0	0%
Other	60	1	4	8%



We conclude that routine cranial ultrasound is indicated for infants with BW<2kg, dysmorphology, Apgar scores<7, seizures, and macrocephaly, but not routinely for the term non-asphyxiated infant with jitteriness, abnormal neurological examination, cephalohematoma, or split sutures.

1522 A COMPARISON OF THE PUPILLARY AND CARDIOVASCULAR EFFECTS OF VARIOUS MYDRIATIC AGENTS IN THE NEWBORN INFANT. Bruce D. Sindel, M. Douglas Baker, M. Jeffrey Maisels, Joel Weinstein. Penn St Univ Coll of Med, M.S. Hershey Med Ctr, Dept of Pediatrics (Newborn Medicine) and Surgery (Ophthalmology), Hershey, PA.

We conducted a randomized, blind study of pupillary dilating capabilities and associated systemic cardiovascular effects of 3 solutions. Thirty babies <1500gms at birth were studied at 6-8 weeks. Group A (n=10) received phenylephrine 2.5% and tropicamide 1.0%; Group B (n=10) received phenylephrine 2.5%, tropicamide 0.5% and cyclopentolate 0.5%; Group C (n=10) phenylephrine 1.0% and tropicamide 1.0%. One drop was placed in each eye and repeated 5 minutes later. Pupillary dilation was measured with a metric ruler by direct observation at one hour. BP and heart rate were monitored, using an oscillometer, immediately prior to the instillation of the drops and at 5 minute intervals for the following 60 minutes. BP and heart rate increased transiently in all groups but returned to baseline values within 15 min. No significant differences were found between groups. "Postdrop" pupillary size was largest in Group A but the differences were not significant. On exposure to bright light, the pupillary size in Group C was significantly smaller than Groups A or B (7.35±0.59mm, 7.23±0.38mm and 6.75±0.57mm in Groups A, B and C, p<.01). Nevertheless dilatation was adequate in 9/10 Group C babies. Solutions containing 2.5% phenylephrine are most effective for use in LBW infants and are free from significant cardiovascular side effects. However, solutions containing 1% (phenylephrine) provide adequate dilation in most babies.

†1523 THE RELATIONSHIP BETWEEN APNEA AND GASTROESOPHAGEAL REFLUX (GER) TO THE UPPER ESOPHAGUS IN NEONATES. Bruce D. Sindel, M. Jeffrey Maisels, Thomas V. N. Ballantine. Penn St Univ Coll of Med, M.S. Hershey Med Ctr, Depts of Pediatrics and Surgery, Hershey, PA.

In some infants, apnea and bradycardia (A&B) may be associated with GER, presumably because gastric contents come into contact with the larynx and its chemoreceptors or because aspiration occurs. We studied 22 infants in our NICU who had no demonstrable GER, severe BPD or pneumonia. All had A&B. Simultaneous recordings of heart rate, chest wall impedence, nasal air flow and esophageal pH at the level of the 1st or 2nd thoracic vertebra were obtained for 6 or 12 hours. Two infants were eliminated because of pH probe malfunction. Results:

BIRTHWEIGHT:	<1500g	1500-2499g	>2500g
Number of patients	9	6	7
GER associated respiratory change	2	0	0
Central apnea	2	1	1
Obstructive apnea	0	2	0
Central and obstructive apnea	2	0	0
Periodic breathing	0	0	2
Bradycardia alone	0	1	0
Multiple short apnea (<15 secs)	2	0	1

All but two infants had some reflux episodes but no associated A&B spells were found. In the absence of specific clinical signs, GER is unlikely to be a cause of apnea in most infants.

1524 GASTROESOPHAGEAL REFLUX (GER) TO THE PROXIMAL ESOPHAGUS IN NEWBORN INFANTS. Bruce D. Sindel, M. Jeffrey Maisels, Thomas V. N. Ballantine. Penn St Univ Coll of Med, Dept of Pediatrics and Surgery, M.S. Hershey Med Ctr, Hershey, PA.

GER and aspiration may be associated with apnea and may aggravate chronic lung disease in some infants but there is little information on GER in the newborn. We studied GER to the proximal (rather than distal) esophagus since this would detect refluxed material that might reach the larynx and its chemoreceptors or be aspirated. We studied 9 infants without clinical GER or risk factors felt to increase GER. The gastric pH was <4 in all patients. The tip of the probe was placed at the level of the 1st or 2nd thoracic vertebra. All babies were fed dextrose water to maintain a low gastric pH and were positioned supine or on their sides for the duration of the study. Gestational age ranged from 25-41 wks., birthweight 780-3920 g and postconceptional age 34.4-48.8 wks. Results (mean±SD):

% time pH <4	# Episodes GER/h	# Episodes GER >5 min long/hr	Longest GER Episode (min)
16.16±17.33	1.33±0.88	0.37±0.33	34.85±44.10

When compared with published data of GER to the distal esophagus in older children, GER to the proximal esophagus in newborns is a much more frequent event.