1387 THYROID STATUS OF LOW BIRTH WEIGHT (LBW) INFANTS AFTER ACUTE NEONATAL INTRACRANIAL ULTRASOUND (US) ABNORMALITIES. Mamerto Garcia, Mehmet Y. Dincsoy, Soo Jae Kim, Foazia Siddiq, Young M. Kim, Mariano Castro-Magana, Susan Tuck. (Spon. by Norman L. Gootman). Health Sciences Center, SUNY at Stony Brook, Nassau County Medical Center, Departments of Pediatrics and Radiology, East Meadow, NY.

Acute intracranial disturbances such as periventricular (PVH), intraventricular (IVH), parenchymal hemorrhages (PH) and ventricular dilatation (VD) are, theoretically, expected to disturb the hypothalamo-pituitary-thyroid axis in LBW infants. This possibility is particularly true since both intracranial hemorrhage and abnormal values of thyroid hormones are common in LBW infants. Thyroid status of 71 LBW infants who had State recall for repeat thyroid screening was the subject of this study in which we had 30 infants with abnormal and 41 normal cranial US. Gestational ages ($\bar{X}$) of infants with normal US,VD and the hemorrhage were 31.9, 32.5 and 30.1 wks, respectively. Comparative hormonal status of the groups follows:

($\bar{X}$±SEM):	n	Gest(wk)	Apgar 5	TSH	T4(µg%)	FT4(µg%)	T3(ng%)
PVH,IVH,PH	14	30.1	6.6	4.0±0.5	8.0±0.5	1.12±0.10	149±37
VD	16	32.5	8.2	5.7±1.9	8.1±0.6	1.14±0.12	101±16
Normal US	41	31.9	8.0	6.6±1.3	8.6±0.5	1.25±0.07	105±10

There appears to be a trend towards a lower TSH (µu/ml), T4 and Free T4 with an increasing intracranial involvement, yet the values are not significantly different. The results may be interpreted as a slightly lesser activity of hypothalamo-pituitary-thyroid axis in LBW infants probably secondary to the factors developmental in nature and/or neonatal sicknesses.

●1388 EFFECT OF PHENOBARBITAL ON CEREBRAL BLOOD FLOW AND ARTERIAL BLOOD PRESSURE IN THE NEWBORN BEAGLE.

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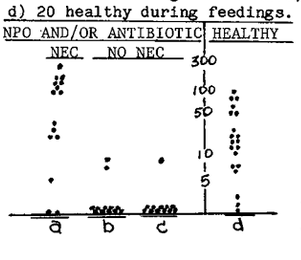
Phenobarbital sodium (PBS) in anticonvulsant dosage has been administered to high risk newborn prematures in an effort to prevent intraventricular hemorrhage (IVH). The hypothesis has been that PBS may prevent increases in arterial blood pressure (ABP) and cerebral blood flow (CBF). Using radioactive microspheres, we have assessed the effect of PBS at serum concentrations of 24.9 ± 5.0 ug/ml on regional CBF during steady state (SS), during hypovolemic hypotension (HH), during blood reinfusion (RE), and during phenylephrine induced hypertension (PH) in ketamine anesthetized beagle puppies from 24-84 hours of age. There were no significant differences for CBF in steady state with or without PBS (n=9, n=8), or during moderate HH (ABP decreased 35-40%) with or without PBS (n=9, n=8). With PBS blood flow increased to all regions during RE (significant in all but cortex and white matter, n=8); controls had similar increases in all regions during RE, significant in all but the thalamus (n=9). Blood flow during PH increased in all regions with or without PBS (n=5, n=8). Steady state ABP was 64.2 ± 9.8 mmHg. ABP after PBS was 42.5 ± 8.3 mmHg ($p < .01$). Thus, in the newborn puppy, PBS at anticonvulsant concentrations reduced arterial blood pressure but did not alter the response of cerebral blood flow. Its effect on the incidence of periventricular hemorrhages in the newborn beagle is under current study.

†1389 BREATH HYDROGEN IN PREMATURE INFANTS. Guillermo Godoy, Joseph Philips, Jean Price, Kim Coffman, Malinda Young, Christopher Truss, Clinton Joiner, George Cassady. Divisions of Perinatal Med. and Gastroent; Depts. of Pediatrics and Medicine. University of Alabama at Birmingham. Breath hydrogen (H_2) analysis is used to evaluate carbohydrate absorption, gut motility and perfusion and the number and location of bacteria in the bowel. As these same factors are important in the development of necrotizing enterocolitis (NEC), we tested the hypothesis that breath H_2 could be a useful diagnostic tool in NEC. NEC was defined by the presence of clinical signs and pneumatosis. Feeding intolerance episodes were defined by the absence of pneumatosis and rapid resolution of clinical signs after being NPO and on antibiotics. Samples were collected during expiration and analyzed by gas chromatography. Results are shown below: a) 15 infants with NEC, b) 12 with feeding intolerance, c) 12 fed but on antibiotics, and d) 20 healthy during feedings.



Infants with NEC had higher levels than infants also on antibiotic and/or NPO without NEC. NEC infants with undetectable H_2 levels (2" false negatives") were on antibiotics and/or NPO since birth. These findings suggest that breath H_2 may be a useful tool in the early differentiation of infants with NEC from those with feeding intolerance or other gastrointestinal disorders.

●1390 THE USE OF BARBITURATE THERAPY IN SEVERE PERINATAL ASPHYXIA: A RANDOMIZED CONTROLLED TRIAL: Ronald N. Goldberg, Frederick L. Bloom, Charles R. Bauer, Pedro Moscoso, Richard Curless, Barbara Burke, Eduardo Bancalari. Department of Pediatrics, University of Miami, Miami, FL.

The possible cerebral sparing effects of thiopental were evaluated in 32 severely asphyxiated neonates assigned to either a thiopental treatment (T) or a control (C) group which received standard medical therapy. All infants required assisted ventilation and had neurologic manifestations of asphyxia. Two of the following 3 criteria were also required: 1) Evidence of fetal distress 2) 5' Apgar ≤4 and 3) Base Excess <-15 mEq/L at ≤1 hr of age. (T) was begun at a mean of 2 hrs. It was given as a constant infusion delivering 30 mg/kg within 2 hrs and was continued at a lower dose for 24 hrs. Seizures occurred in 76% (T) and 73% (C) at a mean age of 1.6 and 2.5 hrs, respectively. Hypotension requiring treatment occurred in 88% (T) and 60% (C). Developmental assessments were performed at 12 mos. of age or greater in 17 infants and at 6 mos. in 2.

$\bar{X}$±SD	n	B.W.	G.A.	Apgars 1'/5'/10'	Base Excess	Died (n)	Bayley Scale (n)	MDI/PDI
(T)	17	3208(892)	40(2)	1/2/4	-18.5(5)	5	10	79/76
(C)	15	2999(994)	39(2)	1/3/4	-15.0(8)	3	9	82/79

There were no significant differences in neurologic, cognitive or motor outcomes between groups. Deteriorating performance over time was a consistent trend in both groups. Treatment of the severely asphyxiated neonate with thiopental at these dosages and postnatal age does not appear to have a cerebral sparing effect, and may be associated with significant hypotension.

●1391 EFFECTS OF LEUKOTRIENE ANTAGONIST FPL57231 ON THE EARLY HEMODYNAMIC MANIFESTATIONS OF GROUP B BETA STREPTOCOCCAL SEPSIS (GBS) IN PIGLETS. Ronald N. Goldberg, Cleide Suguihara, Murray M. Steitfeld, Beatriz Runkle, Eduardo Bancalari. Dept. of Peds., Univ. of Miami, Miami, FL.

To evaluate the cardiovascular effects of FPL57231 on the early phase of GBS, paralyzed, mechanically ventilated piglets received a continuous IV infusion of GBS ($4x10^8$ org/kg/min) while aortic (AoP) and pulmonary artery pressures (Ppa) were measured q 15 min ('). Cardiac output (CO) was measured by thermodilution. Control animals (C) (n=3) ($\bar{X}$±SD;wt,3026±385g;age 10±2d) received only GBS. Treatment aninals (T) (n=4) (wt,2646±493g;age 11±3d) received 1 mg/kg/min x 120' of FPL57231, begining 15' after infusion of GBS began. (*p<.05;**p,<.001)

		Base	15'	30'	45'	60'
Ppa	C	15±5	45±3	41±2	40±2	38±6
(mmHg)	T	14±5	40±6	34±5	30±7*	26±8
CO	C	.22±.04	.11±.03	.12±.03	.12±.023	.11±.02
(L/min/kg)	T	.28±.05	.16±07	.19±.04**	.22±.02**	.24±.02**
PaO2	C	78±11	40±5	40±4		41±3
(mmHg)	T	85±7	48±4	55±7*		70±13*

AoP was not statistically different during this period for (C) or (T). Calculated pulmonary and systemic (SVR) vascular resistences were both lower in (T) ($p<.03$) from 30' - 60'. SVR was not statistically different for (C) or (T) when base was compared to 60'. pH deteriorate ($p<.01$) by 60' in (C), while there were no significant pH change in (T). (C) survived 113±26' vs 187±50' ($p=.07$) for (T). These data suggest that leukotrienes may affect the early cardiovascular manifestations of GBS.

†1392 ENHANCED URINARY LACTOFERRIN EXCRETION IN PREMATURE INFANTS FED HUMAN MILK. Randall M. Goldblum, Richard J. Schanler, Cutberto Garza, and Armond S. Goldman. Departments of Pediatrics, The University of Texas Medical Branch, Galveston, and Baylor College of Medicine, Houston.

Premature infants (PI) fed human milk fortified with human milk proteins (FHM) excrete larger amounts of certain immunologic factors in the stool than PI fed isocaloric cow's milk formula (CMF) (Pediatr. Res. 18:423A, 1984). We therefore questioned if FHM feeding would affect the concentration of these factors in other biological fluids. Lactoferrin, lysozyme, and secretory IgA (SIgA) antibodies to E. coli O antigens were measured in urine; and lactoferrin, lysozyme, total IgA, SIgA, IgG, IgM, C_3 and C_4 were measured in sera of 3 and 7 week old infants during 96h balance periods. Serum levels of all immunologic factors were similar in FHM and CMF fed infants. Urinary excretion of lactoferrin was greater in the FHM fed PI.

		Urinary Excretion (Mean±SEM)	
Group	N	Lysozyme (µg/d)	Lactoferrin (mg/d)
FHM (3 wk)	18	23.9± 5.5	1.18±0.41†
(7 wk)	15	34.2±10.0	1.14±0.34†
CMF (3 wk)	7	18.8± 5.0	0.01±0.003
(7 wk)	9	13.4± 2.7	0.02±0.008

†ANOVA (natural log transformation of data) $p<0.01$

In addition, SIgA antibodies to E. coli were detected in the urine of five FHM fed PI, but none of the CMF group.

This data suggest that premature infants absorb and excrete into urine some immunologic component from FHM, or that FHM induces the infants' synthesis of certain mucosal defense factors.