

**1390** CARDIORESPIROGRAPHIC(CR)STUDY IN NEONATES OF ADDICTED MOTHERS(NAM). Rossella V. Parini, Maura Franzetti, Daniela Primi, Chiara Vegni and Antonio Marini. (Spon. by Fabio Sereni). Newborn Unit, University of Milano, Italy.

CR monitoring (with a Corometrics 512) was performed during the first 12 days of life in 8 heroin and morphine exposed NAM and in a group of 11 normal controls (C). All neonates were born at term from an uneventful delivery. NAM were all given phenobarbital, which per se does not increase in the neonate the risk of apnea (Pediatrics, 60, 426, 1977), to treat withdrawal symptoms. Long and short term heart rate variability, mean maximum and minimum heart rate of the 512 beats intervals, apneas (A) of 6"-10" and >10" were recorded at 1-2/3-7/8-12 days of life in 3 four-hour periods for each infant. No differences were found between the two groups except for A >10" at 3-7 and 8-12 days as shown in the table:

	1-2 days	3-7 days	8-12 days
NAM A >10" (n/h)	1.5 ± 0.4	0.7 ± 0.6 *	1.3 ± 2.3 *
C A >10" (n/h)	0.5 ± 0.7	0.0	0.0

\* p .05 (Wilcoxon test).

While no differences were found in cardiac parameters, the persistence of apneas >10" beyond the first days of life in NAM compared to C, confirms the finding of a deficient respiratory drive in NAM (J. Pediat. 96, 983, 1980) and may be related to their increased risk of SIDS.

**1391** DIFFERENCES IN CAPILLARY AND VENOUS SAMPLING FOR NEONATAL NEUTROPHIL COUNTS. Keith J. Peevy, Charles Hoff, and Phyllis H. Grant. (Spon. by R.D.A. Peterson), University of South Alabama Medical Center, Departments of Pediatrics and Medical Genetics, Mobile, Alabama.

Thirty normal, term neonates had venous and warmed heelstick capillary blood collected at 4 hours (Day 1) and 24-28 hours (Day 2) of age for determination of total neutrophil counts (TNC), immature neutrophil counts (INC), immature to total neutrophil ratio (INC/TNC), and hemoglobin concentration (Hgb). Order of collection of specimens was randomized, and no significant difference was noted between variables in order of collection. Therefore, results were pooled for statistical evaluation.

Day 1 capillary TNC (mean 10,400±4400 cells/mm<sup>3</sup>) were significantly different from Day 1 venous TNC (mean 8200±3800 cells/mm<sup>3</sup>) when evaluated by the paired T-test (p<.001). Day 2 capillary TNC (mean 9800±3400 cells/mm<sup>3</sup>) were also significantly different from Day 2 venous TNC (mean 8700±3300 cells/mm<sup>3</sup>) (p<.005). Regression analysis on capillary and venous TNC for both days showed highly significant correlation (r=0.81, p<.001). Values for capillary Hgb (Day 1 mean 19.2±1.6 gm/dl; Day 2 mean 18.1±1.8 gm/dl) and venous Hgb (Day 1 mean 17.6±1.5 gm/dl; Day 2 mean 17.3±1.7 gm/dl) also differed significantly (p<.001). No significant differences between capillary and venous values were found for INC or INC/TNC ratios.

Our data show that venous TNC are significantly lower than capillary TNC. Thus, reference values for neonatal TNC based on capillary sampling may lead to misinterpretation of TNC performed on venous blood.

**1392** THE EFFECTS OF BIRTH WEIGHT AND INTRAUTERINE NUTRITIONAL STATUS ON THE PROTEIN METABOLISM OF HUMAN PREMATURE INFANTS. P. Pencharz, M. Masson, F. Desgranges, A. Papageorgiou. (Spon: T. Heim) The Hospital for Sick Children, Toronto; and The Jewish General Hospital, Montreal, Quebec, Canada.

The effects of birth weight (BW) and intrauterine nutritional status (NS), appropriate for or small for gestational age (AGA or SGA), on whole body protein turnover (Q), synthesis (S) and breakdown (B), and skeletal muscle protein breakdown (SM) were examined in forty enterally fed growing premature infants.

BW(g)	n	NS	Q(mgN/kg/hr)	S	B	SM
-----g/kg/d-----						
1861±79	10	AGA	99±9	13.5±1.2	10.1±1.3	0.53±0.07
1849±51	10	SGA	137±11	19.1±1.5	15.8±1.4	0.56±0.10
1081±69	10	AGA	108±8	15.2±1.2	11.7±1.3	1.31±0.33
1142±62	10	SGA	123±10	17.4±1.5	13.6±1.4	1.15±0.37

Q, S and B were 26%, 26% and 35% higher in SGA infants compared with AGA infants (p<.01). Lower birth weight (<1500 g) neonates had significantly higher rates of skeletal muscle protein breakdown (p<.05). The increased protein turnover rates in the SGA infants is consistent with studies in older infants who were shown to have increased turnover rates during recovery from undernutrition. Since all the infants were growing and in positive nitrogen balance, the increased rates of SM are interpreted as indicating an increased rate of skeletal muscle turnover in the very low birth weight infants, which may reflect rapid maturation and remodelling of the muscle tissue.

**1393** THE EFFECTS OF MATERNAL COUNSELLING ON BREASTFEEDING PATTERNS OF HIGH RISK NEONATES. Gilberto R. Pereira, Hal Hochfield, Page Gould. Div. of Neonatology, (Spon. by D. Cornfeld), Children's Hospital of Philadelphia and University of Pennsylvania School of Medicine, Philadelphia, PA.

Breast milk has been recommended for feeding high risk neonates due to the psychological, nutritional and immunological advantages of breastfeeding (BF). In order to assess the influence of maternal counselling, we studied the BF pattern of 503 mothers of infants admitted to the neonatal ICU for 2 periods of 6 months prior to and following initiation of counselling. A special group of certified counsellors, who successfully breastfed their own sick neonates, were available by phone to all mothers. With counselling there was a significant increase in the number of mothers who engaged in BF (32/242=13.2% to 92/261=34.8%, p<.001) and significant decrease in the number of mothers who stopped BF during infant's hospitalization (9/23=39.3% to 8/94=8.5%) (p<.001). Duration of BF after hospital discharge was similar pre and post counselling (mean ± SEM 9.8 ± 5.4 vs. 10.1 ± 6.5 months) (NS), and higher than national rates of BF reported for full term infants. Demographic data were comparable for both study groups and showed that BF mothers were predominantly white (95 and 93%), privately insured (87.5 and 78%) and in the age range of 20 to 30 years (98 and 92.5%). The results of this study demonstrate that special counselling can effectively increase the rate of BF among mothers of high risk neonates and that special efforts in counselling mothers of younger ages and lower social economic groups is presently needed.

**1394** HOME USE OF THEOPHYLLINE FOR PERSISTENT APNEA IN HIGH RISK PREMATURE INFANTS. G.R. Pereira, D.A. Dransfield, R.Y. Ting. (Spon. by W.W. Fox). Div. of Neonatology & Child Development & Rehab, Child. Hosp. of Phila. and Dept. of Peds. of Univ. of Pa. Sch. of Med., Phila., PA.

Apnea and bradycardia reoccurred in 10 premature infants after multiple attempts to discontinue theophylline therapy prior to hospital discharge. Cardiorespiratory studies showed central apnea to occur in 10 infants, obstructive apnea in 1 and mixed apnea in 4. Anemia and hypoxia were excluded as possible causes of apnea in all infants. Other clinical data included: Mean ± SEM birthweight=1.47±0.12 kg and gestational age=30.5±0.76 and the following diagnoses: severe RDS (9), birth asphyxia (9), PDA (6), jaundice (8), RLF (2), meningitis (1). All infants were discharged on theophylline (range serum levels 8.1-11.6 ug/dl). At discharge, all but one infant was apneic free and that one required home cardiorespiratory monitoring. As outpatients all infants had monthly dose adjustments and serum theophylline levels maintained at mean ± SEM 7.6±0.8 ug/dl. All infants had uneventful clinical courses during house stay. Hospital readmission at 7 to 9½ months of age showed: 1) No reoccurrence of apnea after discontinuation of theophylline; 2) Appropriate growth velocity for prematures; 3) Normal developmental assessment with 50% correction for prematurity in all but one infant. The preliminary results of this study indicate that long term theophylline therapy had no detrimental effect on early growth and development and that it is a safe treatment for prolonged apnea in high risk premature infants.

**1395** THE INFLUENCE OF AGE ON URANYL NITRATE (UN) NEPHROTOXICITY. Juan C Pelayo, Peter M Andrews, Philip L Calcagno, Gilbert M Eisner & Pedro A Jose. Georgetown Univ. Med. Ctr., Depts. of Peds, Med, Physiol & Biophys & Anat. Washington, D.C.

The newborn is more resistant to the nephrotoxic effects of aminoglycosides. To determine if this resistance extends to other nephrotoxins, we studied the effects of UN (10 mg/kg IV) on renal function in dogs 1-2 wks (I) and 3-5 wks (II) of age during initiation (2 hrs) and in the maintenance phase (24 hrs after UN). Age matched controls received saline(S). The results are:

Group I	S n=5	2 hrs n=5	24 hrs n=5
GFR <sup>a</sup>	0.29±0.05 <sup>b</sup>	0.24±0.05	0.15±0.04*
RPF <sup>a</sup>	1.74±0.09	1.37±0.16	2.00±0.17
V ul/min	16.60±3.50	26.66±5.56	11.80±4.56
FENA %	1.05±0.40	1.56±0.32	4.60±2.49
Group II	S n=5	2 hrs n=5	24 hrs n=5
GFR <sup>a</sup>	0.31±0.05	0.24±0.06	0.00±0.00*#
RPF <sup>a</sup>	1.73±0.14	1.96±0.20	1.83±0.09
V ul/min	36.15±11.85	29.49±8.19	1.23±0.52*#
FENA %	0.49±0.18	0.58±0.12	36.17±18.63*#

a=ml/min/100 g body wt, b=mean±SEM, \*p<.05 24 hrs vs 2 hrs or S. # = p<.05 I vs. II.

2 hrs post UN, there was extensive vacuolation only of the pars convoluta and greater in II than in I. 24 hrs post UN there were no distinct morphological changes (light & electron microscopy). Conclusion: very young puppies are more resistant to some nephrotoxins than older puppies and adult dogs.