

1368

PERSISTENCE OF IMMUNOLOGIC FACTORS FROM HUMAN MILK IN THE INTESTINAL TRACT OF VERY LOW BIRTH WEIGHT INFANTS  
R.M. Goldblum, R.J. Schanler, C. Garza, and A.S. Goldman, The University of Texas Medical Branch, Galveston and Baylor College of Medicine, Houston, Departments of Pediatrics.

The use of banked human milk for premature infants is frequently based on the potential importance of its immunologic components. We therefore examined the persistence of some immunologic factors from human milk in the stools of recipients. Balance studies were performed at 3 and 7 wks. in very low birth infants appropriate for gestational age fed either their mother's milk fortified with dialysed, lyophilized human milk protein (33 balances) or a modified cow milk formula (11 balances). SIgA, SIgA antibodies to *E. coli* 0 antigens, lysozyme and lactoferrin were quantitated on aliquots of milk and aqueous extracts of total stool collected during the 96-hour balance periods.

No differences were found in weights of stools collected from the two groups. The content of immunologic factors (mg/96h) was

	SIgA	SIgA Abs.	Lysozyme	Lactoferrin
Human milk fed	75±69	14±22%	.17±.22	66±72.4
Cow milk fed	5±6	0	.02±.26	.28±.26

The amount of each factor was significantly greater ( $p < .002$ ) in the stools of human milk fed infants.

These studies indicate that a significant portion of immunologic factors provided by fortified human milk persists throughout the intestinal tract of the premature infant. Further studies will be required to examine the protective effect of these factors on those infants.

1369

OUTCOME OF NEONATAL SYSTEMIC CANDIDIASIS. N.L. Golden, J.S. Richardson, P.M. McMillan, P. Haland, M.L. Kumar. Case Western Reserve Univ., Cleveland Metropolitan General Hospital, Departments of Pediatrics, Medicine, and Communication Disorders. Cleveland, Ohio. (Spon. by S. Kalhan)

16 premature infants born between 1978 and 1982 were diagnosed as having systemic candidiasis and treated with Amphotericin B. 5 infants died and one was lost to follow up. The remaining 10 had a mean gestational age of 27 weeks and a mean birthweight of 900 grams. Candidiasis was diagnosed at a mean age of 11 weeks. 3 infants had meningitis. All were treated with total mean doses of 21.1 mg Amphotericin B and 2.3 gm 5FC for an average of 27.7 days. Complications of therapy included thrombocytopenia (2) and transient renal abnormalities (8). The 10 survivors were matched for age, race, sex, gestational age, birthweight, and family socioeconomic status with 10 control infants and re-evaluated at a mean age of 21 months. Development was measured with Bayley Scales and compared using a paired t test. Mean mental and motor scores were 92.6±21.2/91±22.2 for study infants and 89.8±12.5/86.5±12.1 for controls ( $p = NS$ ).

## SUMMARY OF ABNORMALITIES AT FOLLOW UP

Abnormalities	Study Group (10)	Control Group (10)
Growth	9	4
Neurological Function	3	2
Hearing	1	0
Vision	7 (RLF)	1 (RLF)
Development (Bayley < 70)	2	0
Renal Function	1	0

This study suggests that neonatal candidiasis should be promptly treated because outcome may be good.

1370

RAPID RATE VENTILATION (RRV) POTENTIALLY REDUCES BAROTRAUMA (BT) SOURCES IN RDS. Felipe Gonzalez and Peter Richardson, (Spon. by P. Bray), Department of Pediatrics, University of Utah Medical Center, Salt Lake City.

It has been suggested that RRV with short inspiratory time reduces barotrauma. We have shown that during RRV of a normal lung the peak inspiratory (PIP) and mean airway (Paw) pressures transmitted to the trachea were reduced, however, inadvertent PEEP and alveolar overdistention (AO) were produced. We were concerned that similar phenomena would occur in RDS. Therefore we measured tracheal PIP (PIP<sub>t</sub>), PEEP<sub>t</sub>, Paw<sub>t</sub>, functional residual capacity (FRC), PaO<sub>2</sub> and PaCO<sub>2</sub> in 13 rabbits inoculated with N-nitroso N-methylurethane (which produces alveolar epithelial necrosis, atelectasis and hyaline membranes), paralyzed with Pavulon, intubated with a 3.0 mm ID ET tube and mechanically ventilated (Baby Bird<sup>®</sup>) at 30, 60 and 90 BPM, with constant inspiration:expiration time of 1:2, constant PIP, and PEEP, and 0.5 FiO<sub>2</sub>. From 30 to 90, BPM PIP<sub>t</sub> and Paw<sub>t</sub> decreased significantly from 26±2(SE) to 21±2 and 10.5±0.5 to 9.7±0.5 cm H<sub>2</sub>O ( $p < 0.01$ ). PEEP<sub>t</sub> increased from 4.0 to 4.8±0.2 cm H<sub>2</sub>O but FRC remained unchanged. Although PEEP<sub>t</sub> increased, this increase was offset by the decrease in PIP<sub>t</sub> such that Paw decreased. PaO<sub>2</sub> increased significantly from 103±11 to 117±11 mm Hg even though Paw<sub>t</sub> decreased. PaCO<sub>2</sub> decreased significantly from 43±4 to 24±2 mm Hg even though driving pressures (PIP<sub>t</sub>-PEEP<sub>t</sub>) decreased. We conclude that RRV of this RDS model does not lead to inadvertent PEEP or AO and results in the reduction of several potential sources of BT.

†1371

THE PREVENTION OF RESPIRATORY DISTRESS SYNDROME IN PREMATURE INFANTS: EFFICACY OF ANTENATAL AMINOPHYLLINE TREATMENT VERSUS PRENATAL GLUCOCORTICOID ADMINISTRATION. Bruno Granati, Pasquale V. Grella\*, Andrea Pettenazzo, Laura Di Lenardo\* and Firmino F. Rubaltelli. (Spon. by Philip D. Walson) University of Padova, Clinica Pediatrica and \*Clinica Ostetrica, Italy.

Antepartum administration of Aminophylline (AF) to pregnant animals resulted in accelerated and increased pulmonary maturation as well as in decreased morbidity and mortality from RDS in premature offspring. The present study was undertaken to evaluate the effect of antenatal AF treatment on the frequency of RDS among premature infants born of women who were treated (18) and to compare this group with a bethamethasone (GC) treated group (16 women) and with a control (C) one (40 women). Statistical significant differences were noted between the AF and GC groups and the C group in the incidence of RDS (AF=11%; GC=0%; C=45%) and in the frequency of perinatal deaths (AF and GC=0%; C=25%). Furthermore a significant difference was noted between the AF group and the GC and C groups in the incidence of neonatal signs of infection (AF=0%; GC=50%; C=37.5%). The authors conclude that antenatal AF treatment may be as effective as GC in the prevention of RDS in premature infants with, for the moment, no side effects.

1372

RISK FACTORS FOR SIDS IN NICU GRADUATES. Robert D. Guthrie, Vicki Darrow, Nora E. Davis, Donald R. Peterson and David E. Woodrum. Univ. of Washington Sch. Med. Depts. of Pediatrics and Epidemiology, Seattle, WA and Univ. of Pittsburgh Sch. Med. Dept. of Pediatrics, Pittsburgh, PA.

An epidemiological study of discharges from the Univ. of Washington Neonatal Intensive Care Unit (NICU) between 1977 and 1981 was conducted to ascertain whether certain clinical conditions and/or demographic factors were associated with an increased risk of SIDS. SIDS infants (n=27) were identified from autopsy results and/or coroners' reports to the SIDS Coordinating Center, Seattle, WA and were compared on 10 selected clinical and 7 demographic factors (DF) to all NICU graduates who did not die from SIDS (n=2251 controls). The prevalence of SIDS in NICU graduates was 11.8/1000 discharges compared to 2.6/1000 births in King County, WA. SIDS was significantly increased compared to NICU controls in infants born to single or black mothers and in infants who developed apnea of prematurity (A) in the NICU ( $p < .05$  by Chi Square). The sensitivity, specificity and positive predictive value of selected factors are shown below:

	Sing.Mom	Black	>3 DF	Apnea	A+>1 DF	A+>3 DF	CLD	Seiz.
Sensitivity(%)	48	22	56	52	52	41	11	11
Specificity(%)	80	91	71	69	69	88	95	97
Predict.Value(%)	2.8	3.0	2.2	2.0	2.0	4.1	2.5	3.8

NICU discharges generally had a sixfold increased risk of SIDS and infants with apnea plus 3 or more of the selected demographic factors had a twentyfold increased risk compared to all live born infants.

1373

A PERINATAL DILEMMA—MANAGEMENT OF THE LIVEBORN FETAL INFANT (FI) (BW <750gm, GA >20wks). M.Hack, A.A.Fanaroff, CWRU, RB&C Hosp, Dept. Peds, Cleve, OH

An ethical dilemma exists regarding the delivery room resuscitation of the FI. To determine current practice and outcome, we evaluated all 32 inborn FI born from 7/82-6/83 [mean BW 604gm (range 300-740gm), mean GA 24.6wks (range 21-30wks)].

	DELIVERY ROOM		TRANSPORTED TO NICU	
	Died (n=18)	Survived (n=8)	Died (n=6)	Survived (n=8)
Mean BW(gm)	540 (300-740)	633 (610-740)	633 (610-740)	728 (710-740)
Mean GA(wks)	23.8(21-30)	24.8(24-26)	24.8(24-26)	26.1(23-30)
Sex-male(%)	12 (67%)	6 (100%)	2 (33%)	2 (25%)
C.Section(n%)	-	-	-	4 (50%)
Appar 1'(5')min.	1.5(1.3)	2.5(3.8)	2.5(3.8)	2.5(5.0)
Intubated(n)	1	1	1	8

Deaths in the delivery room occurred at a mean of 1 2/3 hrs and in the NICU at a mean of 4 hrs. Cause of death in 12/24 was fetal infection associated with chorioamnionitis. All 8 survivors were intubated at birth; 7 had RDS and/or BPD, 5 required respiratory support for >2 mo. (range 2-12) and O<sub>2</sub> for 2-18 mo. 5 had sepsis and 6 had intraventricular bleeds (1 Cr.I, 3 Cr.II, and 2 Cr.IV). Mean hospital stay was 168 days (range 92-365) with cost of care \$175,302 (range \$80,000-\$400,000). 3 remain in chronic care facilities; 5 require social welfare.

These data confirm the enormous wastage and long term morbidity of the FI. With current practice, survival is feasible only with immediate intubation of infants >700gm. Rather than extending life supportive measures to even smaller infants, emphasis should be on recognition and treatment of chorioamnionitis.