1356 BIRTH WEIGHT VARIABLE IN REGRESSION ANALYSIS TO PREDICT INTERNAL LENGTH OF UMBILICAL CATHETERS IN SICK NEWBORNS. Harikrishna Shukla, Angelo Ferrara. New York University Medical Center, Dept. Peds., N.Y., N.Y.

Shoulder umbilical length (SUL) &/or total body length (TBL) have been traditional parameters used to estimate internal umbilical catheter (cath) length. To improve these estimates & to act quickly in emergencies when traditional measurements may be difficult to measure or calculate from nomograms, the reliable weight variable in predicting internal length was used. 35 Sick NB with inserted UA lines (using Dunn's Graph of SUL) & cath tips between T6 & T10 vertebra, by (x-rays) were studied. Independent variables measured on each patient included SUL, TBC, birth weight, distance between suprasternal notch & symphysis pubis, total cath length before insertion & external length of cath after insertion. Dependent variable was calculated portion of cath within the patient.

POINT OF REFERENCE	r*	t**	EQUATION
Shoulder Umbilical	0.88	10.6	$Y = 0.84 X + 3.5$
Total Body Length	0.93	14.5	$Y = 0.35 X + 0.13$
Supra Ste-Sym Pubis	0.94	15.6	$Y = 0.8 X + 0.8 X + 2$
Birth Weight (in Kg)	0.95	17.5	$Y = 2.5 X + 10.0$

Results: (1) All r* values between point of reference & internal length were excellent ($p < .001$); (2) No significant diff. between pairs of r values; (3) Application of regression equation ($Y = 2.5 X + 10$) prospectively on 8 patients showed inserted cath tip between T6 & T10; (4) Similar regression analysis for 10 umbilical venous cath insertion with tips above diaphragm showed r value of 0.98, equation $Y = 1.5 BW + 5.5$.

1357 CAN HGB A_{1C} PREDICT A PRE-DIABETIC (DB) STATE IN MOTHERS WITH LGA INFANTS? Judy Saslow, Michael Graff, Angelo Ferrara. New York University School of Medicine, Department of Pediatrics, New York, N.Y.

Hgb A_{1C} can be used to predict pre DB in pregnancy. Hgb A_{1C} were measured in mothers of infants with BW > 3.8 kg &/or hx of maternal DB (Class A or B). All 75 mothers in the study had infants > 2550 gm (3.98 ± .45 kg). Based on weight & maternal DB, 3 groups were available for comparison (Table 1). Maternal Hgb A_{1C} was measured by 48 hrs of delivery (by chromatography). Historical reported Hb A_{1C} levels for pregnant DB (≥ Class B) is 7.96 ± 1.23% & for pregnant controls 5.39 ± 0.31% (Ped. Res. 17:200, '83). Results: (1) By ANOVA there was no difference in mean Hgb A_{1C} levels among the 3 study groups with infants > 3.8 Kg. ($F_{2,57} = 0.45$ NS), (2) Among DB mothers with NB < 3.8 Kg, there was no difference between the mean Hgb A_{1C} levels of Class A & B. ($F_{1,13} = .29$ NS), (3) LGA NB (Gr. I) have a significantly high Hb A_{1C} level (similar to DB) compared to historical controls. ($F_{1,68} = 57.5$, $p < .005$). Increased maternal Hgb A_{1C} with LGA NB can be suggestive of pre-DB state.

TABLE 1 - Hb LEVELS (%) BY WEIGHT & DIABETIC-SPECIFIC GROUP

	Group I LGA Infants no hx diabetes	Group II Infants of Class A diabetics	Group III Infants of Class B diabetics
Mean Wt (Kg)	> 3.8 Kg (N = 53)	< 3.8 Kg (N = 8)	> 3.8 Kg (N = 5)
±SD	4.16 ± .30	3.42 ± .25	4.0 ± .06
Mean Hgb A _{1C} (%) ± SD	7.93* ± 1.35	7.50** ± 1.03	7.44* ± .98
			7.19* ± 1.07
			7.40* ± .20

* $F_{2,57} = .44$ NS ** $F_{1,13} = .29$ NS

1358 EVALUATION OF DEXAMETHASONE IN THE PREVENTION OF SEVERE BRONCHOPULMONARY DYSPLASIA. Keith Barrington, Neil Finer. University of Alberta, Royal Alexandra Hospital, Department of Neonatology, Edmonton, Alta., CANADA

In view of previous studies suggesting that steroids may be of benefit in reducing the severity of bronchopulmonary dysplasia (BPD), we administered a brief, rapidly tapered course of dexamethasone (.5 mg/kg/day for 3 days followed by .25 mg/kg for 2 days, and then a single dose of .25 mg/kg 48 hr later) to 8 neonates (Birth Weight 580 - 1490 gm, Gest 26 - 29 wk) with evidence of early BPD beginning at 17 - 24 days of age; 4 infants received 2 separate courses. All infants were intubated requiring IMV or required an $F_{IO_2} > .4$ having been previously ventilated. There was a significant improvement in alveolar-arterial oxygen gradient (A-a)DO₂ seen over the 7 day period beginning within 6 hours of starting therapy ($F_{4-55} = 2.84$, $p < .05$).

	0 hr	6 hr	24 hr	72 hr	168 hr
(A-a)DO ₂ (torr)	164	123.5	104	100	90
+ S.D.	64.1	63.9	59.1	44.1	57.4

Six infants were successfully extubated during steroid therapy. All infants with Northway stage II disease improved but when there was roentgenographic evidence of cysts or fibrosis, 4 of 5 courses failed to show improvement (X^2 -Yates = 5.186, $p = .023$). No sepsis was noted during therapy.

A short course of low dose steroids prior to the roentgenographic appearance of cysts and fibrosis may reduce lung damage associated with intubation and high oxygen concentrations and may reduce the ultimate severity and morbidity of BPD. Further controlled prospective studies are required.

1359 THE PERINATAL COURSE OF METHADONE MAINTAINED AND NON-METHADONE MAINTAINED POLYDRUG ABUSERS, Joseph K. Izes, Sandra L. Tunis, and Loretta P. Finnegan, Thomas Jefferson University, Department of Pediatrics, Philadelphia, PA

Methadone maintenance is important for the management of pregnant, opiate dependent women usually at risk obstetrically. Controlled daily doses of methadone may decrease perinatal complications related to the use of street drugs. This study was a retrospective comparison of the perinatal courses of 46 methadone maintained (group 1) and 46 non-methadone maintained (group 2) drug dependent women who were matched for age and race. The mean age was 26 years and the sample was 78% black, 20% caucasian, and 2% Hispanic. Urine toxicologies confirmed reduced use of illicit drugs such as heroin, and the use of licit drugs such as diazepam and amphetamines by all women. Obstetrical histories, complications and delivery methods are compared as were gestational ages, birth weights, Apgar scores and neonatal complications. Analysis revealed that group 1 women attended prenatal clinic twice as often as did group 2 women (X visits = 7.6 vs. 3.4, $t = 5.47$, $p < .001$). They also reported significantly fewer spontaneous abortions ($t = 2.03$, $p < .05$) prior to the most recent pregnancy. Although 1 minute Apgar scores did not differ, 5 minute scores were significantly lower in offspring of methadone maintained women ($X = 8.4$ vs. 8.9, $t = 1.99$, $p < .05$). No other significant differences were noted. These data suggest that in a setting of comprehensive care and methadone maintenance, opiate addicted, polydrug abusing women have an impetus toward obtaining prenatal care and can experience no more perinatal difficulties than similarly supervised non-opiate polydrug abusers.

1360 REGIONAL DISTRIBUTION OF BLOOD FLOW WITH HYPOVOLEMIC HYPOTENSION IN THE NEONATAL LAMB. J. Timothy O'Neill, Stephen M. Golden, Errol R. Alden (Spon. by Gerald W. Fischer). Department of Pediatrics, Uniformed Services University, Bethesda, MD.

We studied the blood flow (BF) to and vascular resistance (VR) of vital tissues in 7 anesthetized newborn lambs in response to hypovolemic hypotension. BF was measured with radioactive microspheres injected into the left ventricle; blood pressure (BP) and arterial blood samples were taken from axillary arteries. BP was reduced by phlebotomy in three steps in each lamb.

	Baseline	1	2	3
BP (mmHg) ¹	BP > 70	70 > BP > 60	60 > BP > 40	40 > BP
	93 ± 3	65 ± 2	44 ± 2	34 ± 2
	Blood Flow (ml/mm/100g)			
Brain	55 ± 9	56 ± 7	48 ± 7	33 ± 5
Heart	234 ± 36	192 ± 6	272 ± 61	201 ± 29
Adrenal	383 ± 47	584 ± 64*	569 ± 75*	292 ± 87
Kidney	107 ± 13	38 ± 15**	45 ± 23*	12 ± 8*
Spleen	59 ± 17	12 ± 8	8 ± 3*	2 ± .7
Sm. Intest.	87 ± 18	37 ± 10	69 ± 16	35 ± 13
	n = 11	n = 5	n = 7	n = 4

Calculated VR decreased in the heart, brain and adrenals and increased in the kidney and spleen. However, VR in the small intestine was not changed with hypotension. These data indicate that in the neonatal lamb the vascular response of the intestine to hypotension may be different than that of other abdominal visceral organs. Supported by USUHS grants C08631 and C08626.

† 1361 SEQUELAE OF EARLY-ONSET GBS NEONATAL MENINGITIS. Kwei Chin, Pamela Fitzhardinge, Univ. of Toronto, Hospital for Sick Children, Dept. of Pediatrics, Toronto.

Early onset group B streptococcal (GBS) meningitis is reputed to have a high mortality rate of 58%. Outcome data have been reported on only very small samples. From 1974-82 27 infants with early onset GBS meningitis (< 7 days) were referred shortly after birth to our hospital. Diagnosis depended upon positive CSF culture. Six (22%) infants died. Prospective studies on 20 survivors included full neurological, visual and psychometric evaluations. Bayley scores were obtained on 14 at 18 mos.; Wechsler on 4 at 5 years. Two were assessed clinically at 12 mos. Seven were preterm; 14 were male. The outcome is not related to gestational age, sex, or neonatal course. (Table)

	total	Normal*	Abnormal CNS	Psychometric Scores	
				< 50	51-69
				70-85	> 85
20	14 (70%)	2** (10%)	2	1	3
					14

* Psychometric score > 85 and no significant CNS, hearing or visual defect.

** (1) spastic quad + hydrocephalus, DO < 50, hearing loss and squint

(2) spastic quad, DO < 50

The mortality rate is lower than previously reported with a combined mortality and morbidity rate of 46%. Only 3 (15%) of the survivors were severely handicapped.