1501 **CORRELATION OF MATERNAL AND NEONATAL WHITE BLOOD COUNT (WBC) AND TOTAL NEUTROPHIL COUNT (TNC).** Henry Rozycki, Stephen Baumgart, Gary Stahl. (Spon. by M. Norman). Dept. of Peds., Wilmington Med. Ctr., Wilmington, DE., and Univ. of Pa. Sch. of Med., Dept. of Peds., Children's Hosp. of Phila., Phila., PA.

During normal labor, stress-induced corticosteroid release is thought to result in an observed rise in maternal WBC and TNC. However, it is not known whether maternal steroid release or other factors during labor cause a rise in neonatal WBC and TNC. We examined the relationship between maternal and neonatal WBC and TNC. Twenty-one mother-infant pairs delivering at Wilmington Medical Center were identified where both mother and infant had a WBC within 12 hours of delivery. No known factors which affect either the maternal or neonatal WBC were present. WBC were determined by Coulter S counter and corrected for nucleated RBC's. TNC were calculated from differential counts and the WBC. WBC and TNC of each mother-infant pair were compared by linear regression analysis.

	MATERNAL (MEAN ±SD)	INFANT (MEAN ±SD)	CORRELATION COEFFICIENT	P
WBC	14,071±4,256	15,226±6,133	0.258	NS
TNC	10,138±4,219	8,905±4,339	0.328	NS

Our preliminary impression is that the neonatal WBC is not affected by transplacental passage of steroids or other factors that affect the maternal WBC during normal labor. Further data will be required to confirm this impression.

1502 **IMPROVED SENSITIVITY OF DELAYED WHITE BLOOD COUNT (WBC) FOR DETECTING NEONATAL SEPSIS.** Henry Rozycki, Gary Stahl, Stephen Baumgart. (Spon. by M.Norman) Dept. of Peds., Wilmington Med. Ctr. (WMC), Wilmington, DE., and Univ. of Pa. Sch. of Med., Dept. of Peds., Children's Hosp. of Phila., Phila., PA.

The neonatal WBC has been shown to be a sensitive indicator of systemic bacterial infection. However, the age of onset of WBC abnormality has not been determined. The purpose of the present study was to determine the value of an early vs. late WBC in identifying septic infants. Twenty-eight infants (weight 2.43 ±1.11 kg, age 36±5 wks mean ±SD) with culture proven sepsis in the first 72 hrs of life were identified from a review of all births over a four year period at WMC. There were 21 cases of group B Strep., 2 each of E.Coli, Pseudomonas and H.flu., and 1 of S.Pneumo. Abnormal WBC were identified using Manroe's data[1]. Twenty-two of 28 infants had an abnormal initial WBC at 6.7±9.8 hrs of life. Six of 28 had a normal initial WBC at 2.2±1.1 hrs with a follow-up WBC at 28.6±22.6 hrs which was abnormal. The mean time of all abnormal WBC (22 initial and 6 follow-up WBC) was 11.3±18.8 hrs. There was a significant difference between the time of a normal WBC in the 6 infants compared with the time when WBC were abnormal in all septic infants ($t=7.813$, $p < .005$). WBC was normal in 21% of septic infants before 5 hrs of life. In cases of suspected neonatal sepsis, a WBC obtained soon after birth may not detect a significant number of bacteremic infants and should be repeated serially after 11 hrs of life if needed to confirm a clinical diagnosis of sepsis.

1. Manroe et al.: J. Peds, 95:89, 1979.

†**1503** SKELETAL MUSCLE ATROPHY INDUCED IN NEWBORNS BY CHRONIC PANCURONIUM TREATMENT Michael L. Rutledge, Edith P. Hawkins, and Claire Langston, (Spon. by Milton J. Finegold). Baylor College of Medicine, Texas Children's Hospital, Department of Pathology, Houston, Texas.

As the survival of preterm infants has improved, several previously unrecognized complications of prematurity and its therapy have been identified. Pancuronium (Pavulon), a neuromuscular blocking agent, has been used to paralyze infants in order to facilitate ventilator therapy. We have recently seen abnormalities in the skeletal muscle fibers at autopsy of two 30-31 week gestation infants, each of whom received pancuronium in standard doses (0.1 mg/kg) for more than 4 weeks. The psoas and other skeletal muscles showed microscopic changes consistent with disuse atrophy. Morphometric studies of psoas muscle using a computerized video analysis system were performed. The least diameter of 100 fibers from each case was counted. As controls, psoas from 18 infants dying within one week of birth were examined, 9 were matched for age at birth (30-31 weeks) and 9 for age at death (35-36 weeks). Ideal controls, infants born at 30-31 weeks who died at 4 weeks and did not receive pancuronium, were not available. The mean fiber diameters of the 30-31 week (4.1 μ ± 0.3) and the 35-36 week controls (5.1 μ ± 0.7) were significantly different ($p<0.01$). Those of the cases treated with pancuronium (3.3 μ ± 0.7) were significantly smaller than either control group. Prolonged pancuronium therapy in premature infants may lead to skeletal muscle atrophy, which may be the cause of temporary hypotonia and may be confused with neurologic disease. The long-term implications are not known.

=**1504** INTRA-AMNIOTIC THYROXINE (IA T_4) IN THE PREVENTION OF RDS. J. Sack, J. Feldman, G. Barkai, A. Lusky, M. Modan, M. Brish, S. Mashiach, B. Goldman. (Spon. by Gerald W. Fischer). (Sackler School of Medicine, Tel Aviv University, Sheba Medical Center, Tel Hashomer, Israel.

We have previously reported on the decrease of the microviscosity after IA T_4 treatment suggesting enhancement of lung maturity. In the present study we report on the outcome of non-selected 856 pregnancies in 4 groups of patients. (1) No treatment; (2) intra-amnotic T_4 500 ug (1 to 3 injections, a week apart); (3) betamethasone (B) (1 to 4 courses); and (4) combined IA T_4 + B. There was no significant difference in the age and weight at birth in the 4 groups.

	No RDS	RDS	Died RDS	Died Other	Total
No treatment	456	28	17	24 (16)*	525
IA T_4	71	8	1	0	80
Betamethasone	181	12	3	4	200
B + IA T_4	47	2	1	1	51

There was no significant difference in the incidence of RDS or the mortality from RDS between the 4 groups; there was a significant difference ($p < 0.05$) in the overall mortality (*after congenital letal malformation were excluded). These data suggest that: (1) T_4 and/or betamethasone therapy may decrease RDS and non-RDS related mortality and (2) the intra-amnotic route of T_4 represents a safe, effective method of hormone administration. This approach deserves further investigation as a tool to help us understand and treat fetal abnormalities during the intrauterine period.

†**1505** LIFE THREATENING COMPLICATIONS OF BROVIAC CATHETERIZATION. F. Sadiq, S. Devaskar, T. Weber, and W. Keenan. St. Louis University School of Medicine, Cardinal Glennon Children's Hospital, Dept. of Peds. and Peds. Surgery, St. Louis, MO

The use of broviac catheters (B) for parenteral alimentation of very low birth weight infants is increasing. Thrombosis (T) and sepsis (S) are life-threatening complications of B use. 57B were inserted in the last year. Echocardiogram (Echo) and if necessary venograms were done for evidence of T. Blood cultures through the B and peripheral vein were done if there was clinical suspicion of S. Of the 57B inserted there were 8(14%) T episodes and 18(31%) S episodes. Mean catheter days (MCD) before T was noted were 47.5 days.

nB	G.A.(weeks)	Wt(kg)	nS	nT	MCD
57	28.8±0.5	0.99±0.14	18(31.6%)	8(14%)	47.5±11.6 (±S.E.M.)

Four patients developed right atrial T one of whom had repeated episodes of severe bradycardia which resolved as T improved. Another had significant superior vena cava (SVC) syndrome related to a large T. Two patients had T limited to the SVC and were diagnosed by venograms. Symptomatic T was treated with urokinase (1500-20,000U/kg/hour for 1 hr to 10 days, n=7),heparinized (n=3) and/or removal of B(n=1). In one infant on urokinase, T embolized causing pulmonary infarction. S was treated with appropriate antibiotics and/or removal of B. As shown B are associate with significant morbidity and should be used with caution. If B are used serial Echo are recommended to monitor for T episodes. Urokinase can be used to successfully treat T episodes.

1506 *RED CELL DISTRIBUTION WIDTH (RDW) IN THE NEWBORN. ABNORMALITIES IN THE INFANTS OF DIABETIC MOTHERS.* *P. David Sadowitz and Frank A. Oski. SUNY, Upstate Medical Center, Dept. of Pediatrics, Syracuse, New York 13210.*

The distribution of red cell volume now is displayed in histogram form on many commerdical hematology instruments. Measured as coefficient of variation, and reported as RDW, the heterogeneity of distribution of red cell size (anisocytosis) has become a useful means of classifying anemias in adults. Norms for the RDW, and its diagnostic utility, have not been established in the pediatric population.

We prospectively evaluated 90 term infants to establish normal values for the RDW and then studied 2 additional groups; 16 infants of diabetic mothers (IDM) and 22 premature infants (34-36 wks gestation). The mean hemoglobin, MCV and RDW for these groups are shown below:

	Hb	MCV	RDW
Term (90)	*19.8 ± 1.91*	*107.8 ± 5.0*	*18.1 ± 1.31*
IDM (16)	*20.2 ± 1.62*	*109.6 ± 10*	*23.8 ± 1.94*
Premature (22)	*18.1 ± 2.4*	*111 ± 8.1*	*17.8 ± 2.1*

The RDW was significantly greater in the IDM group where all RDW values were greater than 22. All other infants had values less than 20.2. The RDW in the IDM group was unrelated to the infant's hemoglobin concentration or to the maximum bilirubin concentration attained.

An increased RDW in the newborn should be regarded as a clue to the presence of diabetes in the mother and possibly reflects accelerated intrauterine erythropoiesis or red cell fragmentation occasioned by a microangiopathy.