

577

DECREASED FETAL ACTIVITY: A POSSIBLE INDICATION OF SUSCEPTIBILITY TO SIDS. Mark A. Pearlman, Gary Freed, Madeleine Weiser (Spon. by Milton H. Donaldson).

UMDNJ-Rutgers Medical School at Camden, Cooper Hospital/University Medical Center, Department of Pediatrics, Camden, New Jersey

Over the past decade, obstetricians have begun to utilize maternal perception of fetal movements in utero as a measurement of fetal well-being. Some have speculated that fetal movements may be a qualitative measure of placental perfusion. Recent findings of brainstem gliosis in victims of Sudden Infant Death Syndrome (SIDS) and other indicators of deficient brainstem function have led Naeye and others to postulate that intrauterine hypoxemia may be an important prenatal factor in such children. The possible correlation between decreased fetal movements and intrauterine hypoxemia led us to question mothers of infants who died of SIDS, as well as mothers of infants with observed apnea and cyanosis, about the movements of their children prior to delivery. A significant decrease in fetal activity was recorded only if there was a total absence of activity for 24 consecutive hours or longer during the pregnancy. Forty percent (8/20) of SIDS victims were retrospectively recalled by their mothers to have decreased intrauterine activity. Similar questioning of mothers of "near miss" infants led to a 43% (59/137) response indicative of an absence of fetal activity for at least 24 hours. Clearly this represents a very significant minority of the SIDS population. A prospective study of infants exhibiting decreased fetal activity is being designed to test this hypothesis. Identification of such previously unrecognized "at risk" infants may be effective in helping to prevent SIDS deaths.

578

DISCORDANCE BETWEEN MALE/FEMALE DEATHS DUE TO THE RESPIRATORY DISTRESS SYNDROME (RDS): IS IT REAL? Robert Perelman, Mari Palta, Russell Kirby, Philip Farrell.

Univ. of Wisc. and Wisc. Div of Health, Madison, Wisc.

Despite a marked diminution in national and Wisconsin (WISC) neonatal mortality rates (NNMR), RDS has remained the leading cause of death in 9 of 11 years previously analyzed, accounting for 19.5% of fatalities. Male/female (M/F) ratios of 1.35 for NNMR and 1.6 for RDS deaths support the contention that there is a distinct male disadvantage to premature birth. To better elucidate this assertion, we examined all relevant birth-weight-linked mortality statistics for the State of Wisc. from 1979 through 1982. 5.3% of the average 74,500 births/year in Wisc. (M/F ratio = 1.05) occurred at <2.5 kg. The data below

BW(gms)	MALES		FEMALES		M/F RATIO	
	RDS Deaths(%)	2°RDS	RDS Deaths(%)	2°RDS	NNMR	RDS NNMR
<1000	14.9	20.2	14.3	22.2	1.15	1.04
1001-1500	11.4	43.9	4.2	30.5	1.83	2.63
1501-2000	1.1	15.5	0.5	9.1	1.43	2.45
2001-2500	0.2	8.1	0.1	5.6	1.14	1.93

indicate that neonatal deaths secondary to RDS are consistently greater in males and that the discordance between males and females occurs most predominantly between 1-1.5 kg birthweight. These significant differences are independent of mode of delivery, maternal age, and associated diagnoses (i.e. asphyxia). This epidemiologic survey coupled with recent animal research suggests that delivery within a limited "window" during gestation increases male susceptibility to fatal RDS.

579

INFLUENCE OF INTRAUTERINE GROWTH AND BIRTHWEIGHT (BW) ON THE RELATIVE INCIDENCE (RI) OF NEONATAL INGUINAL HERNIAS (IH). Keith J. Peevy, Felicity A. Speed,

and Charles J. Hoff, Univ. of S. Ala., Coll. of Med., Depts. of Peds. and Medical Genetics, Mobile, AL. (Spon. by Robert Boerth)

We studied the epidemiology of IH in 358 neonates with BW < 2000 gm. All neonates who were free of chromosomal defects or major anomalies were included if hospitalized for >10 days. The relative incidence (RI) of IH as influenced by birthweight (BW), race, sex, and intrauterine growth (<10%tile (SGA), 10th-90th %tile (AGA)) was computed, and the significance of differences was determined by Chi-square analysis. The Table lists results:

BW(gm)	IH	No IH	RI	P-value
A11<1250	29	102	7.3	<.001
A11 1251-2000	10	256	1	
SGA<1250	15	28	7.8	<.001
SGA 1251-2000	3	77	1	
AGA<1250	14	74	4.0	<.004
AGA 1251-2000	7	179	1	
SGA<1250	15	28	2.8	<.014
AGA<1250	14	74	1	

There were no significant racial or sexual differences in the RI of IH. BW < 1250 gm. increases the RI of IH significantly in both SGA and AGA neonates. SGA neonates < 1250 gm. have a significantly higher RI of IH than AGA neonates < 1250 gm. Our data suggest that impaired intrauterine growth and prematurity are additive factors in increasing the RI of IH in very low birth weight infants, and 2) allow speculation that impaired intrauterine nutrition may alter the closure of the processus vaginalis.

580

WHY NICU LENGTHS OF STAY DIFFER FROM FEDERAL GUIDELINES. Ronald L. Poland, Robert O. Bollinger, Mary E. Bedard, Sanford N. Cohen. Wayne State Univ. Sch. of Med. and Children's Hosp. of Mich., Dept. of Ped., Detroit, MI.

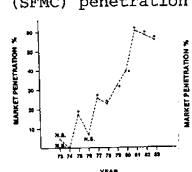
Length of stay data for 3124 high-risk newborns admitted to a Children's Hospital NICU over 6 yrs were compared to Federal DRG-related mean and outlier lengths of stay. Federal figures markedly underestimated lengths of stay for these infants. The Federal mean (17.9 d) for infants <1000 g at birth (DRG-386) differs markedly from the 66.5 days we found. Almost 60% of our infants exceeded the federal outlier figure of 38 days. 90% of our infants >2500 g with major diagnoses (DRG-389) stay beyond the federal mean (4.7 d) and 27.5% beyond the Federal outlier. Major surgery added 4.5-28 days to the hospital stay of our infants. Bronchopulmonary dysplasia accounted for the longest stays.

Most of the discrepancy is explained by the Federal use of the geometric mean which emphasizes low values in a distribution and minimizes high ones. When the distribution of length of stay is bimodal, as it is for the highest risk and smallest infants, then the geometric mean is a poor measure of central tendency. The population admitted to a tertiary care NICU differs from the general neonatal population in that it contains fewer early deaths and more infants with complicated, severe problems. The Federal guidelines divide infants into only three birthweight groups and fail to include important factors (e.g. major surgery, outborn status, or the need for ventilation) as criteria. These omissions and abbreviations led to a patient classification system for prospective payment of hospital costs that is bound to discourage hospitals from providing care for high-risk newborns.

581

USING THE VLBW MARKET PENETRATION RATE TO EVALUATE PERINATAL EDUCATIONAL PROGRAMS. William F. Powers and Laurilynn McGill, U. of Ill. Col. Med. at Peoria, Dept. Peds., and Ill. Dept. of Public Health (IDPH), Springfield. (Spon. by William Segar)

1001-1500g babies (VLBW) born in perinatal centers have 5-15% mortality, whereas VLBW referred to ICUs after birth die much more often. Regionalized perinatal programs should try to shift site of VLBW births to perinatal centers. Measuring birth site shift is a way to assess outreach program efficacy. Illinois has well defined perinatal regions and IDPH gathers nearly current perinatal data. We used IDPH data to calculate the number of VLBW births expected in regional hospitals based on the distribution of all births. This number is a potential "market" for perinatal (antenatal) referral. We then counted the actual number of VLBW born in the center, correcting for number expected based on distribution of all births. This number represents "penetration of the VLBW market, and market penetration rate was then calculated. Market penetration started near zero, but as outreach began, this rate increased (Fig. 1). Fig. 2 compares our center's (SFMCC) penetration into its regional market to that of other



centers. Maximizing VLBW births in perinatal centers should be a goal of regional programs. Calculating the VLBW market penetration rate measures how well centers attain this goal.

582

ETHNIC DIFFERENCE IN PERINATAL OUTCOME: BLACKS, HISPANICS AND WHITES: Tonse N. Raju, Ann Winegar, Steve Miller, and Dharmapuri Vidyasagar, University of Illinois Hospital, Department of Pediatrics, Chicago, Illinois.

Although urban Hispanics (H), share many socioeconomic disadvantage with the blacks (B), Hispanic perinatal and neonatal mortality rates (PMR and NMR) are superior to black, and similar to white (W) rates. To delineate contributing factors for these differences between ethnic groups, we compared prenatal, socio-economic, and health status of 6211 H, 8381 B and 17,084 W mothers delivering in our network in 1982-83. RESULTS: Some variables of significantly different distribution (P<0.0001) were: Medicaid and selfpayment; H=64%, B=81%, W=22%, Teenage pregnancy (<19 yrs), H=14%, B=25%, W=6%, Smoking, H=12%, B=34%, W=26%, Anemia, H=4%, B=13%, W=2%. NMR and PMR (per 1000) were similar between H and W: H=6.05 and 14.2, W=5.2 and 11.7; but higher in black: 11.9 and 22.7 (P<0.0001). Low and very low B.Wt rates (<2500 and <1500 gr), were: H=6.3 and 1.1%, White=6.7 and 1.2%, and B=13.7 and 2.7% (P<0.0001). Since weight specific death rates were similar between groups, we determined the source of NMR, PMR variation using a logit chi-square, which revealed that when all adverse factors, including socio-economic and ethnicity were held constant, the single most influencing factor on NMR was the birthweight distribution (Chi-square 1402, P<0.0001). Conclusion: Although health and socio-economic status varied widely between ethnic groups their influence on NMR and PMR are indirect; through their influence on birthweight distribution. A better birthweight distribution in H. favored better NMR, and a two fold increase in low and very low b. wt. rates in blacks increased their NMR by two fold.