

61 MOTHER-INFANT FEEDING INTERACTION IN FULL-TERM SMALL-FOR-GESTATIONAL AGE (SGA) INFANTS. Mary K. Mullen, Cynthia Garcia Coll, Betty R. Vohr, Anna C. Murriel & William Oh. Brown Univ., Women & Infants Hosp., Dept., of Ped., Providence, RI. 02905

Follow-up studies have shown that some SGA infants do not catch-up in physical growth during the first 6 months. One possible causal factor is continued postnatal nutritional deficit. We hypothesized that a) SGA infants would exhibit less optimal feeding behaviors than AGA (appropriate-for-GA) infants, b) this would negatively affect maternal behavior during feeding, and c) non-optimal interactions would be associated with lower caloric intake. Fifteen term SGA (bw<10th%) and 15 term AGA (bw25th-90th%) infants matched for age, sex, GA, neonatal risk factors, maternal age, SES and parity were rated for non-optimal behaviors with reference to a feeding interaction during the first 3 days of life. Caloric intake was measured by the difference in infant weight before and after feeding. SGA infants scored lower on ratings of responsiveness ( $p<.05$ ), ease of feeding ( $p<.05$ ) and muscular tension ( $p<.01$ ), while mothers of SGA infants exhibited higher total frequency of non-optimal feeding behaviors ( $p<.001$ ) such as interruption of feeding and expression of concern. Positive correlations were found between infant non-optimal ratings and maternal non-optimal behaviors ( $p<.01$ ). After controlling for birth weight, linear regression showed caloric intake to be predicted by infant non-optimal ratings ( $p<.01$ ) and infant non-optimal behaviors ( $p<.05$ ). These data indicate the importance of including neonatal behavior in the risk assessment of potential growth failures in SGA infants.

62 FATHERS DURING LABOR: DO WE EXPECT TOO MUCH? Lauren Nagashima, Teresa Bertsch, Susan Dykeman, Susan McGrath, Terri DeLay, John Kennell. Case Western Reserve Univ., Rainbow B & C Hospital, Dept. of Pediatrics, Cleveland, Ohio

Childbirth classes emphasize fathers' active participation in labor and delivery (L&D), but how well do fathers fulfill this role? We compared fathers' behavior during L&D to trained labor companions' (doulas) by time-sampling behavior of 12 low-risk nullipara couples for 1 hour during early and/or late labor and behavior of 3 doulas with 27 mothers in another population. During mothers' contractions, fathers differed strikingly from doulas: In early labor, fathers watched fetal monitors more (15.5 vs 2.3%), were more often >3 ft. from mother (58 vs 17%), and stroked and held (S&H) mothers less (16 vs 75%). In late labor, fathers were more often >3 ft. from (88 vs 13%), offered fewer comfort items (2 vs 9%), and S&H less (11 vs 75%). Surprisingly, in a survey of 51 couples, including our 12 observed couples, we found very few correlations between an individual mother's expectations and perceptions of L & D and those of her partner. Fathers and mothers were unable to gauge the effects of their behavior on one another or to accurately perceive their partners' emotional state.

In spite of fathers' passivity during L&D, both partners felt the father's presence during L&D was vital. Should the father be expected to provide more than emotional support for his partner during L&D, or can a doula and the father work together to make the experience less stressful for the couple?

\* $p<.001$

63 RESPONSIVENESS OF PRETERM INFANTS TO ANIMATE AUDITORY AND TACTILE STIMULATION. Jerri Oehler. (Spon. by Jane E. Brazy). Duke University Medical Center, Dept. of Pediatrics, Durham, N. C.

Appropriately grown, preterm infants weighing less than 1500 grams and free of congenital anomalies were assessed three times a week from birth to discharge or transfer. The sample of 14 preterm infants was divided into 3 groups (well, moderately ill, and sick). Body movement, eye opening and movement, heart rate, smiles, hand-to-mouth activity, and "avoidance" signals of grimaces, cries, yawns, and tongue protrusion were assessed in response to (a) soft talking, (b) touching/stroking, and (c) the combination of talking and touching. Repeated measures analyses of variance of assessments performed from 30-34 weeks postconceptional age demonstrated that infants had significantly more eye opening and movement to the talking condition and significantly more body movement to the combination of talking and touching as well as to touching alone than during the pre-stimulus period. Significant effects of illness were found for smiles, hand-to-mouth activity, and "avoidance" signals. During all the stimulus conditions the well infants had significantly more smiles and hand-to-mouth activity. When talking was combined with touching, sick infants showed significantly more "avoidance" signals. The findings suggest that responsiveness to social stimulation develops quite early in development and soft talking reliably evokes increased eye opening and movement.

64 EMERGENCE OF STATE REGULATION IN V.L.B.W. PREMATURE INFANTS. John Paton, Barbara Fajardo, Margaret Browning, David Fisher. Michael Reese Hospital and Medical Center, University of Chicago, Department of Pediatrics, Dysfunctioning Child Center, Chicago.

Behavioral observations of state were made for 24 low birthweight healthy premature infants at 32 and 36 weeks gestational age. Each observation lasted for 2-4 hours between feedings and included on a 30-second interval basis an assignment of state (quiet sleep, active sleep, drowse and alert) and a coding of related behaviors. Heart rate and respiratory pattern were also monitored mechanically. After the 32-week observation, 12 of the infants (intervention group) were transferred from the open floor intermediate special care nursery which is busy, bright and noisy, to a small nursery room where day/night cycles are maintained, noise and activity levels are significantly reduced, and nursing care is on a more individualized basis. Twelve infants (control group) remained in the open floor nursery. Developmentally expected improvements in state behavior from 32 to 36 weeks (increase in overall quiet sleep, longer mean interval of REM during active sleep, and less startle/tremor behavior) were greater for the intervention babies compared to the control group. Additionally, we are looking at each subject's change over time for specific improvements in state behavior that comprise our group comparisons and the overall coordination of these specific state behaviors for each subject to arrive at an index of state regulation at each age. This approach to data analysis may more clearly identify individual responses to environmental support or injury.

65 EFFECT OF INTRAUTERINE GROWTH RETARDATION ON PREMATURE INFANTS OF SIMILAR GESTATIONAL AGE. Ivette C. Pena, Annabel J. Teberg and Karen Finello (Spon. by PYK Wu), Univ. of Southern Calif. Sch. of Med., LAC-USC Med.Ctr, Dept. of Pediatrics, Los Angeles.

Previous evaluation of 35 SGA and AGA very low birth weight infants (VLBW) of similar birth weight (BW) showed differences in developmental quotient but none in neurologic outcome at one year of age (Ped. Res. 20:165A, 1985). To determine the effect of gestational age (GA) on the outcome of the VLBW infant, 20 SGA infants were compared to 20 AGA infants matched for GA, year of birth, race, gender and socio-economic status. Anomalies and intrauterine infections were excluded. SGA infants had a mean GA of 30.8 wks and a mean BW of 1006g. AGA infants had a mean GA of 30.6 wks and a mean BW of 1294g. All infants were evaluated at term, at 20 and 40 wks corrected for prematurity. Results showed that at birth the SGA infants were lighter, shorter with smaller head circumference ( $p<.005$ ). In the nursery the SGA infants required respiratory assistance for longer periods ( $p<.005$ ) and remained in the hospital longer ( $p<.001$ ). More SGA infants were classified as neurologically suspect and abnormal at 20 wks. ( $p<.01$ ) and at 40 wks. ( $p<.005$ ). The Gesell developmental quotient was lower in the SGA infants reaching significance at 40 wks ( $p<.001$ ). At one year of age 30% of the SGA and 5% of the AGA demonstrated neuromotor handicaps ( $p<.05$ ). In conclusion, comparing the neurodevelopmental outcome of the VLBW infants by similar GA rather than by BW demonstrated the increased risk of intrauterine growth retardation for the immature brain.

66 EFFECT OF MODERATE HYPERBILIRUBINEMIA ON ORIENTING RESPONSES & CRY IN TERM INFANTS. Gherardo Rapisardi, William J. Cashore, Betty R. Vohr, Debra Karp, Mark Peucker, and Barry M. Lester. Brown Univ, Women & Infants Hosp, Dept Peds, Providence, RI; Univ Florence, A. Meyer Hosp, Neonatal ICU, Florence, Italy

Brazelton auditory orienting responses and acoustic cry patterns were evaluated in 10 moderately jaundiced term infants, (BR=15.2±2.5 mg/dl, Mean±S.D.) and 11 non-jaundiced infants (BR=4.1±1.1 mg/dl). The groups did not differ in birthweight, gestational or postnatal age, or 5 min. Apgar score. Jaundiced infants scored lower on auditory orienting items, (4.7±1.25 vs 5.64±0.55,  $p<0.02$ ) and on the global orientation cluster (4.96±0.92 vs 5.9±0.53,  $p<0.01$ ). Cries were recorded during blood sampling, and analyzed by computing the log magnitude spectrum in 25 msec blocks for each cry unit; summary measures were computed across the 25 msec blocks of each cry unit. In jaundiced infants, the first cry utterance showed an increase in average first formant during dysphonation (AVDF<sub>1</sub>=1876±376 Hz vs 1434±470 Hz,  $p<0.05$ ), and in the summation of first formant during dysphonation (SumDF<sub>1</sub>=2102±324 Hz vs 1192±786 Hz,  $p<0.005$ ). 9 of 10 jaundiced and 4 of 11 non-jaundiced infants had episodes of hyperphonation, and jaundiced infants had greater variability (S.D.) in the maximum fundamental frequency of hyperphonation (Max HFO) for the entire cry ( $p=0.03$  for S.D. Max HFO vs non-jaundiced infants). In summary, moderate hyperbilirubinemia decreases the global capability for orienting responses, and increases the frequencies and variability of some acoustic cry characteristics in term newborns.