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MATERNAL BEHAVIOR DURING INTERACTION WITH PREMATURE INFANTS. E. Lawrence Hoder, Robert Hodapp, Barbara Ackerman, Keith Caruso, James Leckman (Spon. by T. Gross). Yale Univ Sch of Med, Yale-New Haven Hospital, Dept of Pediatrics, Yale Child Study Center, New Haven, CT.

A trend from infant oriented to non-infant oriented maternal behaviors has been described during the breast feeding (bf) of term infants over the first month of life. The present study describes maternal contact behavior in 10 mother-premature infant (m BW 1078gm) pairs during early bf and play interaction. Play sessions were begun when each infant was medically stable and continued weekly until discharge (with 1 follow-up visit). Bf was begun at a mean of 1300gm (mean age = 33 days) and observed weekly to discharge. 11 separate maternal behaviors were scored by a time sampling technique from 10 min videotape recordings of the sessions. Preliminary results (from 6 dyads) suggest (1) the total number of maternal behaviors during play and bf remain constant over time for each mother; but (2) the types of maternal behavior changes, shifting from infant oriented to non-infant oriented. For example, in examinations of play interactions at three points in time (1st play, last-in-hospital, follow-up), the percentage of time spent in en-face holding decreases over time (Friedman (2 df) = 6.58; $p < .05$), while maternal looking away behaviors increase (Fr (2) = 6.33; $p < .05$). Four in-hospital breastfeeding sessions were also compared: over time, maternal looking away behaviors increase (Fr (3) = 12.20; $p < .01$). Results indicate that the developmental sequence of interaction between premature infants and mothers is similar to that which occurs with term baby-mother dyads.

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DECLINE IN MENTAL DEVELOPMENT AND INFANT-MOTHER ATTACHMENT SCORES IN INFANTS OF SUBSTANCE ABUSE MOTHERS. Val Howell, Laura Wachsmen, Annabel Teberg, Sally Scheutz, Willis Wingert (Spon. by Paul Wu). USC Sch. of Med., LAC-USC Med. Ctr., Dept. of Peds., Los Angeles.

A cohort of 24 physically and neurologically normal infants followed in a special pediatric clinic designed for care of offspring of substance abusing mothers† was evaluated at ages 1 and 2 years with the Bayley Scales of Infant Development and with a modification of the Ainsworth-Bell Infant-Mother Attachment Scale. The 11 male and 13 female infants were from a low income Hispanic background. Mean Bayley Mental Scores (MDI) declined from 95.5 at 1 year to 87.3 at 2 years. At 1 year of age 80% of children had normal MDI scores (mean=95.5) and 20% had suspect scores (mean=83.0). When re-tested at age 2, 67% were normal (mean=87.3), 29% were suspect (mean=80.8) and 1 female infant was abnormal (67.0). Of the 7 infants with suspect scores, 5 were male and 2 were female. When infant-mother attachment behavior was evaluated at 1 year, 83% were found to be normal, 17% suspect or abnormal. Normal second year attachment behavior was found in 71% of the sample with 29% suspect or abnormal. All 7 children with suspect/abnormal attachment behavior at 2 years showed a decline in mental score from the first year. Four of these had fallen from normal to suspect category. In summary, infants of substance abuse mothers showed a decline in Bayley mental scores and a decline in appropriate attachment behavior over the first 2 years. Test results suggest that male infants may be more vulnerable to this decline. Health providers must recognize that these families need long term support. †Herion, PCP, polydrugs.

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PSYCHOSOCIAL ISSUES IN THE TREATMENT OF CHILDREN WITH SICKLE CELL DISEASE

Anita L. Hurtig, Ph.D., Linda S. White, M.A. and Thomas Miale, M.D. (Spons. by Ira M. Rosenthal, M.D.)

The impact of chronic illness on psychological development is a topic of much interest in current pediatric behavioral studies. This paper reports on the ongoing study in the Department of Pediatrics and the Comprehensive Sickle Cell Center of the University of Illinois Health Sciences Center to determine the psychosocial impact of sickle cell disease on a population of 150 children and adolescents, ages 8 to 16. The results of this study completed on ten patients, investigating the relationship between illness variables and personality, cognitive adjustment, family and school variables, reveal that a number of illness variables correlate significantly with personality and adjustment. Those illness variables include hemoglobin type, number and frequency of hospitalizations and ER visits, frequency and intensity of pain crises, type of disease involvement and presence or absence of transfusion. Adjustment and behavior showed a positive correlation with improved health status. However, beginning at age 12 an increase in hospitalizations and ER visits was accompanied by a significant reduction in self-esteem and social adjustment, family cohesion and sense of internal control. Our transfused population, in particular, showed poorer functioning on cognitive, personality and adjustment measures. These preliminary findings suggest that family, personality and school issues are affected by the disease process, and emphasize the need for early intervention with the family, school and medical establishment.

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INFANTS EXPOSED TO METHADONE IN-UTERO: VARIABLES RELATED TO DEVELOPMENTAL OUTCOME, Karol A. Kaltenbach, and Loretta P. Finnegan, Thomas Jefferson University, Department of Pediatrics, Philadelphia, PA

Existing data on the developmental outcome of infants exposed to methadone in-utero consistently reveal performance on the Bayley Scale of Mental Development (MDI) to be well within the normal range. While these results are encouraging, they are based on group means. Little attention has been directed at intragroup differences that may be related to developmental outcome. In this study, six-month MDI scores for 68 infants exposed to methadone in-utero were examined in relation to maternal methadone dose at the time of the infant's birth, birth weight, and length of infant hospitalization. The mean MDI score for the total group was 103. A significant correlation (.29, $p < .05$) was found between birth weight and MDI for the total group indicating that the higher the birth weight, the higher the MDI. Of particular interest in this study were infants with MDI scores < 90 (9 infants) and those with MDI scores > 110 (12 infants). A significant correlation (-.43, $p < .05$) was found between maternal methadone dose and MDI for infants with scores < 90 and > 110 in that lower doses were associated with higher six-month scores. No relationship was found between length of hospitalization and MDI scores. These results suggest the necessity of examining within-group differences when identifying risk factors and the importance of clinical management and prenatal care in facilitating positive developmental outcome for infants born to women maintained on methadone.

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FOLLOW-UP OF PREMATURE INFANTS WITH INTRAVENTRICULAR HEMORRHAGE. Stephen Kardos, Barbara M. Ostfeld, Richard H. Smith, Elizabeth Bond, Richard A. Reutter, I. Mark Hiatt, Victor Zapanta, Claudio Ruiz, Edwin Soto, Robert Novo, Thomas Hegyi, UMDNJ-Rutgers Medical School, St. Peter's Medical Center, Department of Pediatrics, New Brunswick, NJ and Monmouth Medical Center, Department of Pediatrics, Long Branch, NJ.

Severe developmental delay was observed to correlate with the severity of IVH in a group of premature infants. Twelve infants with IVH were divided into two categories based on extent of involvement. Six infants in Group I (BW: 830-1460g, GA: 26-31 weeks) suffered from Grade I and II IVH, and six infants in Group II (BW: 720-1400, GA: 25-29 weeks) had Grades III and IV. Early evaluation at 5-6 months postconceptional age with the Bayley Scales of Infant Development's motor scale showed Group I to score at 127±19 and Group II at 88±31 age corrected scores ($P < 0.05$).

Repeated measures of 3 Group I infants and 4 Group II infants at 14 to 16 months showed a corrected PDI of 118±8 for Group I and 77±32 for Group II infants. Within Group I mean deterioration between the two evaluations was 3.7; within Group II 11.9.

In this group of infants, severe delay in motor development significantly correlated with IVH grade and further deterioration was noted with increasing postnatal age.

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THE FALLACY OF "CATCH-UP" GROWTH IN PREMATURE INFANTS Walt Karniski (Spon. by Allen Root) Dept. of Pediatrics, Univ. of South Florida College of Med., Tampa.

Growth data of 111 premature infants followed for 3 years were analyzed to determine if there is validity to the concept of "catch-up" growth. Weight, height and head circumference were recorded at each visit and converted to Z scores $((X-X)/SD)$ to facilitate comparison of differing age and sex. The age of a child at each visit was "corrected" for prematurity by subtracting the number of weeks premature from the post-natal age to generate a "post-conceptual age." "Post-conceptual age" was used to create new Z scores for all growth parameters at each visit. RESULTS: Growth data evaluated in the traditional manner suggested "catch-up" growth by one year of age. However, data corrected for "post-conceptual age" tended to resemble the growth of full-term children. The corrected growth data of AGA children almost completely approximated normal expected growth, whereas SGA children still demonstrated abnormal growth at 3 years of age, despite correction. SGA females tended to approximate normal growth after correction, whereas SGA males did not. The most significant finding of this study was that when corrected data were plotted on conventional growth charts, the apparent "catch-up" growth was found to be a statistical illusion created by charting growth of premature infants using post-natal age instead of post-conceptual age. This finding has important implications for the follow-up of premature infants and may affect the interpretation and diagnosis of failure-to-thrive.