

137

EFFECT OF FORMULA PROTEIN CHANGE ON CRYING BEHAVIOR. Ronald G. Barr, Judy Wooldridge, Cathy Tansey, & Joel Adelson. McGill University, Montreal Children's Hospital, Dept. of Pediatrics, Montreal, Canada.

To determine whether protein change affects crying behaviour and whether this could be mediated by change in intestinal gas production, 32 normal 4-wk-old infants entered a randomized controlled trial consisting of two 8-day feeding periods (FP1 & FP2). During FP1, all infants received cow's milk-lactose formula. During FP2, control infants continued cow's milk but experimental infants received soy-lactose formula. Parents blind to the study hypothesis recorded 6 behaviors (including cry/fuss) by pretested diaries. To monitor gas production, breath hydrogen (H2) samples were taken over 4 hr. on days 1,4 & 7 of FP1, and 2,3,6 & 8 of FP2. Mean duration (min/24 hr) and frequency (episodes/24 hr) of cry/fuss behavior and average 4-hr H2 excretion (ppm) were calculated for each feeding period. Compared to FP1, cry/fuss duration in FP2 was reduced 14 min/24 hr on soy, and 7 min/24 hr on cow's milk, a non-significant interaction (groups x formula period ANOVA: F=.35;df 1,30;p=.56). Similarly, there was no significant reduction for cry/fuss frequency (.3 vs .7 fewer episodes/24 hr for soy and cow's milk, respectively: F=.14;df 1,30;p=.71). Finally, H2 decreased 9 ppm after change to soy, compared to a 3 ppm increase on cow's milk in FP2, also non-significant (F=2.34;df 1,30;p=.14).

Conclusion: The change in formula protein from cow's milk to soy did not reduce duration or frequency of cry/fuss behavior at 4-6 wks of age, nor did it reduce intestinal gas production. The findings do not support use of soy protein to change cry behavior in normal infants.

38

FOLLOW UP STUDY OF MACROCEPHALIC DEVELOPMENTALLY DELAYED PRESCHOOLERS. JoAnn Bergoffen and Ruth K. Kaminer (sponsored by Herbert J. Cohen). Albert Einstein College of Medicine, Department of Pediatrics and Rose F. Kennedy Center, Bronx, New York.

Of nine developmentally delayed preschool children with macrocephaly identified at an inner city developmental evaluation clinic, eight were still macrocephalic on follow up. Evaluations consisted of parental and child interviews, assessment of academic progress, and physical and neurodevelopmental examinations.

Follow up examinations revealed an unexpected finding of acceleration of growth in height for the group as a whole. Academic placement of children initially diagnosed as having borderline intelligence was at grade level with performance above expectations in reading and spelling and below in arithmetic on the Wide Range Achievement Test (WRAT) and on the Test of Early Language Development (TELD). These children were without major behavior problems. Children who initially tested as mildly retarded were in special classes receiving added therapies, tested below grade and age expectations on the WRAT and TELD, and had significant emotional difficulties. Those who initially tested as moderately or severely retarded were in special classes, had no academic gains and were noted to have significant behavior problems.

Our data suggests that: (1) Macrocephaly tends to persist; (2) These children surprisingly display an accelerated rate of growth in height; (3) Initial intelligence testing was prognostically discriminating; (4) Emotional and behavior problems were common in this cohort of children.

39

NEUROBEHAVIORAL ASSESSMENT OF DISCHARGED LBW INFANTS FED TWO DIFFERENT PROTEIN LEVELS AND COMPARED TO HEALTHY TERM INFANTS. Ileana Blasini, Thomas Picone, Jose Molina, Carlos Perez, Rafael Zapata. Univ Puerto Rico Med School, Dept of Peds, Carolina, PR; Ross Labs, Med Dept, Columbus, OH; Abbott Labs, Med Dept, Carolina, Puerto Rico (Spon. by William C. MacLean, Jr.)

The Brazelton Neonatal Behavioral Assessment Scale (BNBAS) was used to examine 2 groups of infants discharged from the NICU at ~2000 g and at 40 weeks postconceptional age (~6 weeks later) who were fed formulas containing 1.9 or 2.2 g protein/100 kcal. Birth weight, gestational age, age at time of exam or energy intake did not differ between groups. The BNBAS cluster scores were calculated for each infant and compared to a group of healthy term infants examined on the second postnatal day.

g pro/100 kcal:	Discharged LBW Infants		Term Infants
	1.9	2.2	2.2
(n)	(11)	(10)	(13)
Habituation	5.2±2.0	5.0±1.3	5.8±0.3
Orientation	3.8±1.5	4.9±1.6	4.6±0.3
Autonomic Stability	4.0±0.8	3.8±1.5	7.2±0.5
Range of State	3.6±1.2	4.2±1.3	7.2±1.1
Regulation of State	6.2±1.3	6.6±1.6	4.6±0.6
Motor Performance	4.7±1.0	4.7±0.8	6.6±0.3
Overall Score	31.1±7.8	33.7±8.0	41.9±3.0

Blood urea nitrogen concentrations of 1.9 and 2.2 g protein formula-fed LBW infants were 2.8±0.4 and 4.4±0.4 (p<0.01) respectively. In discharged LBW infants, neurobehavioral outcome was not related to the protein level of the diet in this range at either examination time and was similar to performance of in-hospital LBW infants fed 2.2 g/100 kcal described by Bhatia et al (Ped Res 20:p159A, 1986). Overall score of term infants on this scale was significantly better, although regulation of state was better in the discharged LBW infants. We conclude that performance scores for most of the variables tested by the BNBAS are suboptimal in discharged LBW infants.

40

LIFE EVENTS, SOCIAL SUPPORT, AND CARDIOVASCULAR REACTIVITY IN ADOLESCENCE. W.Thomas Boyce, Barbara Sibley, Beth Chesterman. University of California, San Francisco, Department of Pediatrics

Exaggerated cardiovascular reactivity(CVR) to stress has been documented in subsets of adult and childhood populations and has been proposed as a possible mediating link between behavioral risk factors and coronary heart disease. Because little previous work has examined the relationship of CVR to environmental stressors, we studied psychosocial correlates of heart rate(HR) and blood pressure(BP) reactivity in 25 adolescent males ranging in age from 12 to 18.

CVR was assessed using a standardized protocol in which HR and BP were periodically measured as subjects completed 3 tasks: mental arithmetic, a competitive video game, and a cold pressor test. A structured interview and physical exam, completed prior to CVR testing, provided measures of demographic variables, height, weight, stressful life events(LE), and family social support(SS).

Mean CVR across tasks was bimodally distributed, with a small subpopulation of subjects displaying hyperdynamic HR and BP responses. Age and body mass index (wt/ht<sup>2</sup>) were correlated with systolic BP reactivity (r=0.48, p<0.01; r=-0.30, p=0.08), and SS was inversely associated with diastolic reactivity (r=-0.37, p<0.05). Unexpectedly, LE was strongly and inversely related to mean BP and HR reactivity (r=-0.47, p<0.01; r=-0.40, p<0.05), with the most LE reported by subjects with the least CVR. Possible explanations for this finding include: a) an "inoculation" effect, in which LE serve as opportunities to learn effective means of coping with stress, and b) an effect of exaggerated CVR on the actual cognition and reporting of such events.

41

FOOD AVERSION: A TEAM APPROACH TO INFANT/TODDLER EATING DISORDERS. Jacquelyn L. Chamberlin, Michele M. Henry, Juanita D. Roberts, Amy L. Sapsford, Sherry E. Courtney (Spon. by Maurice D. Kogut) Wright State University, Children's Medical Center, Department of Pediatrics, Dayton, Ohio.

Some infants surviving long term care in an intensive care nursery may develop physical and behavioral problems which disrupt feeding and result in chronic eating disorders. A pilot project was initiated to provide nutritional/behavioral management and mutual problem solving, with the goal of attaining normal oral intake while maintaining growth. Six children ages 12-27 months(M) and their families were included. Four children were recovering from bronchopulmonary dysplasia, one had craniofacial anomalies, and one had an undefined neuromuscular disorder. Group meetings were held for 10 months. Changes in feeding method: tube(T), oral(O); food type: strained(S), soft (SF), table(Tb); and weight velocity(WV) in grams/day are shown:

Case	Start of Group Meetings				End of Group Meetings					
	Age(M)	%T	%O	%Type	WV	Age(M)	%T	%O	%Type	WV
1	24	80	20	Tb	7.1	33	0	100	Tb	1.5
2	18	0	100	Sf	3.3	27	0	100	Tb	4.9
3	13	100	0	0	3.6	22	92	8	Tb	5.8
4	27	NA*	NA	NA	3.8	36	NA	NA	NA	5.2
5	24	85	15	Tb	3.3	33	0	100	Tb	-0.7
6	12	0	100	S	8.6	21	0	100	Tb	9.7

Positive changes in feeding method, food type, or weight velocity were made with each child. The results suggest interaction of parents/professionals in a group support/outpatient format may be an effective approach to early eating disorders.

42

MATERNAL ACQUAINTANCE WITH ADOPTED AND BIRTH INFANTS. Marilyn M. Chan, Carol A. Kirgis, Kaye Coleman, Charles W. Ralston, and Gary M. Chan. Dept. of Nursing and Pediatrics, University of Utah, Salt Lake City.

The purpose of this study was a) to investigate the effects of teaching mothers unique behavioral cues of their adopted infant and b) to learn if there is a difference between mothering of adopted and birth infants. A pretest, post-test experimental prospective design was used with random assignment of mother-adopted infant dyads. Dyads were randomized into experimental and non-experimental groups. Infants were tested using Massie's "Mother Infant Attachment Indicators During Stress". A teaching session of specific behavioral cues was given to only the experimental group. Post-test scoring was evaluated by a blind observer; interrater reliability agreement was 0.90. Mean age of the 17 adoptive mothers was 33±4 years; of the adopted infants was 11±9 weeks. Age matched birth mothers formed the control group. The mean age of the 13 birth mothers was 31±5 years; of the birth infants was 8±9 weeks. Differences demonstrated between birth and adopted dyads were: affect (p<.07), holding (p<.03), infant gazing (p<.05) and maternal gazing (p<.002). Differences between adoptive and birth mothering were reflected in holding (p<.08), touching (p<.05), and vocalizing (p<.03). All mothers were interviewed and the qualitative analyses demonstrated seven themes. We have found a difference in the maternal-adopted infant dyad when compared to birth mother-infant dyads. Mothering of adopted infants may also be changed temporarily by a specific teaching intervention.