

NAUSEA AND VOMITING OF PREGNANCY - A FETO-PROTECTIVE MECHANISM AGAINST EMBRYOTOXINS?, Ernest B. Hook, Birth Defects Inst., N.Y.S. Dept. of Health, and Dept. of Ped., Albany Med. Coll., Albany.

Nausea and vomiting (NVP) occurs by some estimates in up to 80% of pregnancies. Pathologic sequelae in the fetus do not occur unless NVP results in the rare Hyperemesis gravidarum syndrome (HEG). Some studies suggest that the absence of NVP is an indication of greater fetal risk. The severity and frequency of NVP is greatest (in those without HEG) early in gestation during the "critical period". I suggest 1) NVP is directly fetoprotective by diminishing exposure to environmental embryotoxins, and 2) it evolved as an ubiquitous pattern in human gestation as a result of natural selection. Consistent with part one of this hypothesis are observations in about 3500 mothers in Albany, N.Y., 50% of whom were smokers before pregnancy. About 20% of these significantly diminished smoking patterns during gestation because of reduced desire to smoke as a consequence of NVP. Thus for at least one known embryotoxin, tobacco smoke, NVP is fetoprotective. The general hypothesis, if correct, raises questions about the wisdom of suppression of NVP during pregnancy, and the possibility of negative confounding in those studies that concluded anti-emetics were not teratogenic. (Supported in part by a grant from N.I.C.H.D., N.I.H.)

CORRELATIONS BETWEEN SCORES ON THE BRAZELTON NEONATAL ASSESSMENT SCALE, MEASURES OF NEWBORN SUCKING BEHAVIOR, AND BIRTH WEIGHT IN INFANTS BORN TO NARCOTIC ADDICTED MOTHERS. S.L. Kaplan, R.E. Kron, M.D. Phoenix, M. Litt and L.P. Finnegan. (Intr. by M. Delivoria-Papadopoulos) Phila. Gen. Hosp. and Depts. of Ped. and Psy. Univ. of Pa. Sch. of Med.

The Brazelton Neonatal Assessment Scale, consisting of 27 behavioral items and a short neurological examination, was administered to 22 infants born to mothers receiving methadone and to a control group of 11 infants without history of maternal narcotic addiction. Sucking performance was concurrently measured on 16 of the addict's babies. It was found that 10 of the behavioral items on the Brazelton Scale significantly discriminated between neonates born to narcotic addicted mothers and the controls. Correlations between the scores on these 10 Brazelton items and sucking measures (as for example rate of sucking) were computed. The correlations were highly significant ( $p < .001$ ) and ranged from 0.53 to 0.66. Thus over a third of the variance in the Brazelton score could be explained in terms of variation in measures of sucking behavior. An unexpected finding was that both the sucking measures ( $r = 0.67$ ,  $p < .001$ ) and the Brazelton items ( $r = 0.65$ ,  $p < .001$ ) were highly correlated with birthweight. We conclude that among infants born to mothers taking methadone, the severity of the neonatal withdrawal syndrome, as reflected in both these measures, is an inverse function of birthweight--with lower weight babies tending to be more behaviorally affected by maternal addiction.

EFFECTS OF STARVATION IN INFANCY ON SUBSEQUENT LEARNING ABILITIES: Klein, Pina S., Forbes, Gilbert B., Nader, Phillip R. Depts. Education and Pediatrics, U. Rochester, N.Y. and U. Texas, Galveston. Pyloric stenosis (PS) involves a period of starvation in infancy which is not related to poverty, and is easily correctable. Learning abilities of 50 subjects 4-14 years of age, who had PS were studied and compared to a) 44 of their siblings and b) 50 controls matched for age, sex, and parental education. Verbal skills, auditory and visual memory, spatial relations, visuo-motor coordination and achievement in reading and arithmetic were measured. Social and emotional adjustment was assessed by parent interviews, and teachers' checklists. Height, weight and head circ. were measured. Comparison was made of the three subject groups and between subjects who had varying degrees of starvation at different periods in infancy. PS causing a reduction of up to 10% of the expected body weight of the infant was not found to affect any of the measured abilities. Larger weight deficits, indicating a greater degree of malnutrition, were found to be associated ( $p .05$ ) with lower abilities in tasks of fine visuo-motor coordination and auditory sequential memory. Hence a temporary period of undernutrition in early infancy can affect subsequent learning ability.

INFANTILE PSYCHOGENIC WATER DRINKING. Michael Linshaw, Thomas Hipp and Alan Gruskin. (Intr. by V.H. Auerbach) Dept. Ped., Temple Univ., St. Christopher's Hosp. Child., Phila., Pa.

Psychogenic water drinking has been reported only in older children and adults. We shall report successful management of three young children with psychogenic water drinking. One infant, 2½ mo. old was extremely irritable unless the oral fluid intake ranged from 1200-2100 ml/day. Urine Osm. was 42 mOsm/L and serum Osm. was 272 mOsm/L. Urine output was 1705 ml/day. Serum Na was 132 mEq/L; serum K 5.2 mEq/L; BUN 8 mg%; serum Ca 10.5 mg% and 24 hr. Ca excretion less than 3 mg/kg/24 hr. During the water loading portion of a modified Carter Robbin's Test,  $CH_2O$  was +10.9 ml/min/1.73m<sup>2</sup>.  $CH_2O$  fell to -0.37 ml/min/1.73m<sup>2</sup> when 3% NaCl was infused. A 6 mo. old and a 2½ yr. old had polydipsia and polyuria without dehydration and were able, after overnight water deprivation, to concentrate their urines. An abnormal maternal child relationship in two patients, and a prescribed fluid diet in the third had led to excessive water ingestion through inappropriate maternal responses. Appropriate psychological advice coupled with restriction of fluid to estimated insensible water loss plus 25-35% of expected normal urine output resulted in a "cure" in all patients within 6 weeks.

In summary: Psychogenic water drinking in the very young appears to be a real entity and responds to parental counseling along with carefully monitored water restriction.

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INTELLECTUAL DEFICITS AFTER TRANSIENT TYROSINEMIA IN TERM NEONATES. Peter Mamunes, Paul E. Prince, Nancy H. Thornton, Patricia A. Hunt, Elizabeth S. Hitchcock, Dept. of Ped., Med. Col. of Va. and Bureau of Child Health of the Va. State Health Dept., Richmond, Va. (Intr. by William E. Laupus).

Previous studies of intellectual development in children who had experienced transient neonatal tyrosinemia (TNT) generally have shown no adverse effects from this disorder. However, the patients were usually premature with only modest tyrosine elevations persisting <1 mo. In contrast, this report presents the results of extensive psychological testing of 15 children (mean age 4.7±0.8 yrs) who had had moderately severe TNT (mean 25.0±9.4 mg%) for a mean duration of 50±14.4 days after uneventful term births. Their TNT was discovered through phenylketonuria screening and all had been fed a high protein evaporated milk formula. In comparison to carefully matched controls (for age, sex, socioeconomic status, locale and family background), the TNT group had significantly lower intellectual development by both the McCarthy Scales (77.1±16.5 vs 92.6±13.2,  $p = 0.008$ ) and the Illinois Test of Psycholinguistic Ability (92.3±13.3 vs 109.9±15,  $p = 0.002$ ). Additionally, the TNT group scored significantly lower in subtests of verbal abilities, fine motor skills and higher cognitive skills. However, visual perception, visual memory and visual reasoning were not significantly affected. These results indicate that severe, prolonged TNT is injurious to the developing central nervous system. Extensive public health measures are needed to determine the extent of this disorder and to reduce its occurrence.

BILATERAL CRYPTORCHIDISM AFTER SURGERY: PSYCHOLOGICAL FINDINGS AT LONG-TERM FOLLOW-UP. Heino F. L. Meyer-Bahlburg, Elizabeth McCauley, Carlos Schenck, (Intr. by Thomas Aceto, Jr.), State Univ. of New York at Buffalo, Sch. of Med., Children's Hosp. of Buffalo, Depts., Ped., Psychiatry, Buffalo, New York.

Published case studies suggest an association of cryptorchidism with psychopathology. To provide behavioral data for a psychiatrically unbiased sample, a study of all cases with bilateral cryptorchidism operated here between 1963 and 1970 was initiated; cases with additional congenital malformations or with mental retardation were excluded. Psychological follow-up of the first 10 cases took place an average of 6 years, 8 months after surgery and consisted of psychological tests and questionnaires and systematic semi-structured interviews which were taped and rated on behavioral scales.

Distribution of social class was unbiased. Mean Wechsler IQ was 103.4. The Cornell Index, a questionnaire measure of psychopathology, gave an average score of 7.80 (normal) with 3 patients being in the borderline range. From behavior ratings, only one patient could be classified as clearly psychopathologic. The group showed normal sexual orientation and low normal sex activity. Gender role behavior and gender identity were normal in 9 patients, borderline in one.

Conclusion: The prevalence of psychopathology in patients with corrected cryptorchidism is low.