

### † 511 TOTAL PARENTERAL NUTRITION-RELATED CHOLESTASIS IN INFANTS

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This study estimated the proportion of infants on total parenteral nutrition (TPN) who developed cholestasis. Risk factors associated with the development of this disease were identified. Data were abstracted from medical records of 624 infants  $\leq 30$  days of age who were treated with TPN. A case of TPN-related cholestasis was defined as an infant whose serum level of direct bilirubin was  $\geq 1.5$  mg/dl subsequent to initiation of TPN. Risk factors were assessed using multiple regression logistic analysis. Forty-six of the 624 infants in the cohort (7.4%) were classified as having TPN-related cholestasis. Even though the proportion of infants with TPN-related cholestasis was small, specific risk factors were identified. The multivariable analysis indicated that cholestasis was associated with intracranial hemorrhage (IH) and patent ductus arteriosus (PDA), conditions seen primarily in premature infants, and with sepsis and gastrointestinal (GI) conditions requiring surgery, seen in both term and preterm infants. Two distinct processes appear to have occurred: 1) in infants who experienced PDA or IH (conditions associated with hypoxia) where TPN may be the necessary trigger for the development of cholestasis, and 2) in infants with GI surgical conditions or sepsis, where cholestasis may develop with or without parenteral infusions.

### † 512 HEMOPHILUS INFLUENZAE TYPE B (HIB) POLYSACCHARIDE VACCINE: SAFETY AND IMMUNOGENICITY OF PRP AND PRP-D CONJUGATE VACCINES IN CHILDREN 16-24 MONTHS, CD Berk-

owitz, JM Zahradnik, JO Hendley, R Barkin, PA Brunell, K Meier, M Marcy, J Samuelson, L Gordon, JI Ward, Dept. Ped., UCLA Sch. of Med., Harbor-UCLA Med. Ctr, Torrance, CA, Baylor Col. of Med, Houston, Univ. of Virginia Hosp., Charlottesville, Univ. of Tex. Health Sci-Ctr, San Antonio, Univ. of Colorado, Health Sci-Ctr, Denver, Children's Hosp. of Phila., So. Cal. Kaiser Permanente Med. Gp., Panorama City, CA, Connaught Labs., Swiftwater, PA.

A multicenter study of the relative safety and immunogenicity of the purified heat-sized Hib polysaccharide (PRP) and conjugate (PRP-D) vaccines was conducted in 475 children 16-24 months of age. No serious reactions occurred in either group. Except for fewer febrile reactions in the PRP-D group ( $p < .05$ ), other reactions were similar for both vaccines.

Reaction	PRP-D (N=251)		PRP (N=224)		Significance
	No.	(%)	No.	(%)	
Temperature 37.8-39°	51	(20.6%)	64	(29%)	$p < .05$
Erythema	5	(2.1%)	1	(0.4%)	n.s.
Tenderness	10	(4%)	5	(2.3%)	n.s.
Irritability	31	(12.4%)	25	(12.8%)	n.s.

Immune responses were measured by RIA (ug/ml) and are summarized below:

Vaccine	Pre	Post	Significance	% Response $\geq 1$ ug/ml
PRP-D	0.032	3.14	$p < .001$	73%
PRP	0.030	0.218		30%

Although PRP is soon to be licensed for use in older children, PRP-D is at least as safe and significantly more immunogenic.

### ● 513 The stability of childhood accidents: Can accidents in preschoolers predict accidents in school-age children? P. Bijur, S. Stewart-Brown, J. Golding, D. Rush, Albert Einstein College of Medicine, Dept. of Pediatrics Bronx, NY; Univ. of Bristol, Dept. of Child Health, Bristol, UK.

The pediatrician routinely collects data on the occurrence of accidents. Can these data be used to predict later accidents? Are there other characteristics of children and families that improve prediction? We used cohort data on 10,394 British children collected at ages five and ten to assess the stability of accidents requiring medical attention between birth and five and accidents between five and ten reported by the mother. Pearson product-moment correlations were used to assess stability. Other predictors at age five of later accidents were identified through a stepwise multiple regression performed on half the sample and replicated on the second half. The correlation between accidents in the two time periods was .18. Of the children with three or more accidents reported at five, 15% had three or more accidents reported at ten, compared with 2.4% of those with no early accidents. Accidents before five were the best predictors of accidents to age ten followed by male sex, aggressive behavior, young maternal age, many older and few younger children. Family characteristics not associated once the other variables were included were social class, crowding, maternal distress, marital status, and overactive behavior at age five. While only 7% of the variance was explained by early accidents and the other characteristics, the relative risk of three or more accidents from five to ten was 6.3 for those with three or more preschool accidents compared with those with no early accidents.

### 514 THE INFLUENCE OF SOCIOECONOMIC FACTORS ON THE OCCURRENCE OF FETAL ALCOHOL SYNDROME.

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Although alcoholism is widespread among women in the reproductive age group of all socioeconomic levels in U.S., FAS has been reported almost exclusively from poor families. This study compares the incidence of FAS in the children of two distinct income groups of chronic alcoholic mothers. These two groups consisted of mothers and their offspring. Group I; 36 mothers and 109 offspring from Hollingshead' & Redlich's classification of class I-II, and group II; 48 mothers and 133 offspring from class V. Several parameters were studied. There was a highly significant difference in the incidence of FAS among the two groups; 4.5% of children in group I, and 70.9% children in group II had full or partial FAS. The mean birth weight of group I children was -1SD, while group II fell into -2SD. Other parameters studied including neonatal complications, congenital malformation rate, failure to thrive, small head circumference, mental retardation, developmental lag and number of hospitalization were all significantly greater in group II children. 21% of group I children, and 71% of group II children had attention deficit disorder. Children, over the age of 12 showed a high incidence of alcohol abuse (28% in group I, 75% in group II). There was a drop in educational level in both groups, as compared with their mothers. In conclusion, partial and full FAS were more prevalent among the low socioeconomic classes.

### ● 515 THE INHERITANCE OF HDL<sub>2</sub> CHOLESTEROL AND ITS POSSIBLE ROLE IN CORONARY HEART DISEASE. Joann N. Bodurtha, Richard M. Schieken, Lindon J. Eaves, Walter E. Nance, Jere P. Segrest

Although the HDL lipoprotein fraction is thought to protect against coronary heart disease (CHD) the roles of the HDL subfractions are less well understood. We have studied the genetic and environmental influences on quantitative measurements of the HDL<sub>2</sub> and HDL<sub>3</sub> cholesterol subfractions in 42 pairs of normal adolescent monozygotic (MZ) and dizygotic (DZ) twins and their parents who were ascertained from local schools. The lipid determinations were performed by single vertical spin centrifugation and data were also obtained on blood pressure family history of CHD, and other physical and environmental attributes. Overall, boys had higher HDL<sub>2</sub> levels than girls (38.8 + 5.39 vs 35.4 + 5.69mg/dl). Both paternal and maternal HDL<sub>2</sub> levels were significantly correlated with those of the twins but the spousal correlations were not significant. The intrapair correlations for total HDL cholesterol and the HDL<sub>2</sub> and HDL<sub>3</sub> subfractions were all significant ( $p < .05$ ) for MZ but not DZ twins. Twins with 2° relatives dying of stroke or CHD before age 55 had lower HDL<sub>2</sub> levels ( $p < .05$ ), while self-reported physical activity in girls correlated with increased HDL<sub>2</sub>. Our data suggest that genetic factors have a major influence on levels of HDL<sub>2</sub> in adolescents. Low levels of HDL<sub>2</sub> in twins may identify families at risk for CHD, while physical activity, especially in girls, appears to raise HDL<sub>2</sub> which may reduce risk.

### 516 MULTIVARIATE EVALUATION AT BIRTH OF THE RISK OF NEONATAL HYPERBILIRUBINEMIA IN BLOOD-GROUP COMPATIBLE INFANTS. E. Bottini, E. Carapella, P. Lucarelli, R. Pascone, E. Bonci, M. Orzalesi. Depts. of Genetics and Child Health, University of Rome and Sassari, Italy. (Spon. by H.D. Modanlou).

The aim of this study was to identify at birth possible risk factors for neonatal hyperbilirubinemia (arbitrarily defined as a maximum serum bilirubin level 10 mg/dl in the first week of life) in infants compatible with their mothers in both the Rh and ABO system. A set of 21 genetic, developmental and environmental maternal and neonatal variables have been analysed in 162 consecutively born infants of both sexes. In males, cord bilirubin level, haptoglobin phenotype, anesthesia in labor and birth-weight contributed significantly to the separation of infants with hyperbilirubinemia. In females, maternal ABO blood-group, gestational length, cord bilirubin level, anesthesia in labor, Acid Phosphatase-1 and Phosphoglucosylase-1 phenotypes and smoke during pregnancy significantly contributed to the same separation. A group of infants with less than 1% risk of hyperbilirubinemia, including 25% of males and 40% of females, could be separated at birth using the above listed variables. Our results suggest that there are differences between males and females in the relations among the variables considered and in their predictive value for the development of hyperbilirubinemia. (Supported by CNR, MPI and Regional Funds).