COCAINE AND HEROIN IN UTERO EFFECTS

A study of 86 infants who were born to women with a history of cocaine and/or heroin use during pregnancy is reported from the Department of Pediatrics, Highland General Hospital, and the Division of Neonatology, Children's Hospital, Oakland, CA. The newborns were observed over a five day hospital period using a standardized abstinence scoring system and urine drug screening of both mother and infant. Urine tests were positive for cocaine only in 35, heroin only in 14, cocaine and heroin in 17, and 20 were negative. In the cocaine group 17% of the newborns had growth retardation and 27% were microcephalic. Microcephaly occurred in 17% of 12 infants in the heroin group, 20% of the 15 infants in the cocaine/heroin group, and in none of 20 infants in the urine negative cocaine history group. Of 985 newborns in the no drug group, 4% were microcephalic. The incidence of microcephaly was significantly higher in the cocaine group and in the cocaine/heroin group than in the no drug group. Cocaine and heroin were synergistic in causing abnormal behavior of withdrawal as assessed by the Finnegan scoring system which includes hypertonia, tremulousness, tachypnea, decreased sleep and feeding disturbances. (Fulroth R.et al. Perinatal outcome of infants exposed to cocaine and/or heroin in utero. AJDC August 1989; 143:905-910).

COMMENT. The authors conclude that infants exposed to cocaine and/or heroin in utero should be followed up closely after discharge from the nursery since growth retardation, microcephaly, and abnormal behavior may be suggestive of potential long-term neurologic or developmental problems. The cocaine induced microcephaly might be explained by impaired maternal nutrition, vasoconstriction in the placenta, and reduced fetal blood flow and fetal hypoxia. In this study 85% of mothers using cocaine reported the abuse of free base (crack) cocaine which causes significantly more vasoconstriction than that taken intranasally. None of the infants studied had the features of fetal alcohol syndrome.

METABOLIC DISORDERS

NIEMANN-PICK DISEASE TYPE C

The neurologic symptomatology in 22 patients with Niemann-Pick disease type C have been analyzed and reported from the Developmental and Metabolic Neurology Branch, National Institute of Neurological Disorders and Stroke, National Institutes of Health, Bethesda, MD. Three phenotypes are described: 1) an early onset, rapidly progressive form associated with severe hepatic dysfunction and psychomotor delay during infancy and later with supranuclear vertical gaze paresis, ataxia, spasticity, and dementia; 2) a delayed onset, slowly progressive form beginning in early childhood with mild intellectual impairment, supranuclear vertical gaze paresis and ataxia, and later associated with dementia, seizures and extrapyramidal deficits; 3) a late onset slowly progressive form beginning in adolescence or adulthood. The classic supranuclear disorder of gaze, initially and predominantly affecting vertical eye movements, is nearly pathognomonic for NPC. The biochemical disorder is a marked deficiency in

the ability of cultured fibroblasts to esterify exogenously supplied cholesterol. This deficiency may be assayed in confirmation of the diagnosis when presentation is atypical. (Fink JK et al. Clinical spectrum of Niemann-Pick disease type C. Neurology August 1989; 39: 1040-1049.

COMMENT. Mild intellectual impairment presenting as poor school performance was the most common initial neurologic abnormality. Additional presenting signs included ataxia, dysarthria, and impaired vertical gaze. Within three years of the initial deficit most of the patients had cognitive impairment, abnormal vertical gaze and ataxia. Saccadic paresis was manifested by a complaint of difficulty in reading or in descending stairs. Hepatosplenomegaly was first noted at varying ages from birth to 24 years with a mean age of six years. It preceded neurological abnormalities in one-half the patients and was found only in the early onset rapidly progressive group.

MITOCHONDRIAL ALTERATIONS IN RETT SYNDROME

Muscle biopsy findings in two patients with Rett syndrome are reported from the Departments of Obstetrics/Gynecology, Pediatrics, and Pathology, Medical College of Ohio, Toledo, OH. Muscle biopsy was performed at 32 months of age and at 3 years 7 months of age. Light microscopy revealed fibers of uniform size with normal histochemistry. Electron microscopy revealed mitochondrial alterations including distention, vacuolation, and membranous changes. (Ruch A. Mitochondrial alterations in Rett syndrome. Pediatr Neurol Sept/Oct 1989; 5:320-3).

COMMENT. Abnormal mitochondria have been reported previously in the muscle biopsies of two patients with Rett syndrome (Eeg-Olofsson O et al. Brain Dev 1988; 10:260). The findings presented in patients with Rett syndrome did not correspond to the typical "ragged red" fibers found in mitochondrial myopathies. There are no biochemical or pathological findings specific to Rett syndrome but further studies of mitochondrial functioning in muscle may be warranted.

INFANTILE MITOCHONDRIAL DISEASE

A detailed clinical, pathologic, biochemical, and genetic analysis of a case of lethal infantile mitochondrial disease is reported from the Departments of Biochemistry, Pediatrics, Neurology and Nephrology, Emory University School of Medicine, Atlanta, GA. During the first three months of life the child showed increasing lethargy, hypotonia, difficulty in feeding and growth retardation. On admission at three months of age there was respiratory failure, bradycardia, hypotension, and severe lactic acidosis. Over the next 21 days the condition rapidly deteriorated with a progressive hypertrophic cardiomyopathy, hepatic dysfunction, and generalized seizure activity. The patient died with bradycardia and hypotension at four months of age. There were abnormalities in the striated muscles, smooth muscle, heart and liver but not in the central nervous system. Biochemical analysis revealed a combined complex I and IV