Abnormal brain ultrasounds in premature infants indicate future risk of psychiatric disorders

July 14 2011

Infants born prematurely are at risk for injuries to the white and gray matter of the brain that affect cortical development and neural connectivity. Certain forms of these injuries can be detected in the neonatal period using ultrasound, according to Columbia University Medical Center researchers.

Researchers who followed a group of premature infants until age 16 found that those with neonatal ultrasound abnormalities were at increased risk for specific psychiatric disorders, namely, attention deficit hyperactivity, tic disorders, obsessive compulsive disorder, and major depression—all of which are thought to arise from dysfunctions of the subcortical-cortical circuits. The findings were published in the July 2011 issue of the *Archives of General Psychiatry*.

Premature birth is a growing problem in the United States, adding to the significance of the findings. An increased appreciation of the relation between perinatal brain injuries and later psychiatric disorders could lead to earlier diagnosis and intervention by the pediatricians, psychiatrists, and neurologists who care for these children and adolescents. Future research may also explore the relation of perinatal brain injury to psychiatric disorders, such as schizophrenia, that more commonly come to clinical attention in adulthood

A research group at Columbia University Medical Center/New York

State Psychiatric Institute led by Dr. Agnes Whitaker, MD, evaluated more than 400 nondisabled adolescents who had been born prematurely and had had abnormal brain ultrasounds taken at birth. When the researchers administered questionnaires and cognitive tests to the subjects and interviewed their parents, they found a relation between perinatal brain injuries and certain psychiatric disorders at adolescence that could not be explained by other medical or social factors.

Although scientists have speculated for decades that early brain injury can have long-term psychiatric effects, these results provide the first strong empirical evidence of such a relation. "The study," says Whitaker, a clinical professor of psychiatry in the Department of Psychiatry at Columbia University and research psychiatrist in the Division of Child and Adolescent Psychiatry at New York State Psychiatric Institute, "is a beautiful example of interdisciplinary work. The team included researchers from neonatology, pediatrics, psychiatry, and epidemiology. It couldn't have been done otherwise."

Provided by Columbia University Medical Center