

Maternal Depression Predicts ADHD in Kids

BY DIANA MAHONEY
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BOSTON — A diagnosis of maternal depression any time between 1 year before and 9 years after giving birth is a risk factor for attention-deficit/hyperactivity disorder in school-age children, according to a study presented at a meeting of the Society for Research in Child Development.

In addition, the likelihood of an attention-deficit/hyperactivity disorder (ADHD) diagnosis in children is directly related to the chronicity of depression in the mother, said Anne Guevremont, M.Ed., a research fellow at the Manitoba Centre for Health Policy at the University of Manitoba, Winnipeg.

While previous studies have linked maternal depression to ADHD in children, none have specifically investigated whether and to what degree the timing of maternal depression has an impact on the relationship, Ms. Guevremont said.

Through computerized health care utilization files from the Manitoba health department, Ms. Guevremont and senior researcher Marni Brownell, Ph.D., reviewed data on a cohort of 12,323 children born between April 1993 and March 1994 whose mothers were living in Manitoba the year before the child's birth and for whom follow-up information was available until the child was 7-9 years old.

The investigators ascertained the presence of maternal depression by hospital or physician claims for this diagnosis and categorized the depression into one of five groups according to the child's age at the time of the mother's diagnosis: within 1 year before birth, within 1 year after birth, between 1 and 3 years old, 4-6 years old, and 7-9 years old.

Approximately 36% of the mothers in the study had a diagnosis of depression during at least one time period, Ms. Guevremont reported in a poster presentation. Among the children, approximately 5% had a physician diagnosis of ADHD when they were 7-9 years old, she said.

With respect to chronicity, the investigators considered each time period in which a mother had a diagnosis of depression and counted the total number of years that the mother had the diagnosis outside of that time period, according to Ms. Guevremont. "Approximately 16% of the mothers had a depression diagnosis in 1 year only, while 8% of the mothers received a depression diagnosis in 2 years and 12% in 3 or more years," she said.

In analyses of the effect of the timing and chronicity of maternal depression

on child ADHD, children with depressed mothers were approximately 1.5-2 times more likely to have an ADHD diagnosis than children of non-depressed mothers, said Ms. Guevremont, noting that the odds ratio was highest, at 2.18, for mothers diagnosed with depression in the year before the child's birth. This finding "confirms the need to look for maternal depression at every stage of motherhood, including the prenatal period," she said. "The prenatal period is an excellent time to screen for depression."

About 36% of the mothers had a diagnosis of depression in at least one time period. About 5% of the children had an ADHD diagnosis at 7-9 years old.

In addition, the chronicity of depression was significant in each model, and the odds of a child being diagnosed with ADHD were higher for each additional year a mother was diagnosed with depression, regardless of the timing of the diagnosis, said Ms. Guevremont.

The interaction between chronicity and timing was significant among children whose mothers were diagnosed in the year before birth, in the year after birth, or when the child was between 1 and 3. Children whose mothers were diagnosed during these periods and who had longer durations of depression were most vulnerable to an ADHD diagnosis, the results showed.

"Clearly, the number of years with a depression diagnosis is particularly important, and should be taken into consideration by clinicians caring for both mothers and their children," Ms. Guevremont said. "The earlier depressed mothers are recognized and treated, the better for the health of both the mother and her children. Intervention at multiple time periods is possible and needed." For example, in addition to prenatal screening, "another opportunity for screening is when mothers seek physicians for the children's behavior problems," she said.

The study is limited by the potential for underreporting of both maternal depression and child ADHD, Ms. Guevremont noted.

"Some physicians may not know a mother is depressed and therefore would not diagnose the condition if symptoms are not reported. Similarly, some children's behavior problems may not be reported to a physician," she stated. In addition, the study did not look at the effect of treatment methods for maternal depression on child ADHD diagnoses.

Among the study's strengths are its large sample size, availability of physician records of depression and ADHD diagnoses, and breadth of data enabling the study of maternal depression across a child's life span, "which [had] not been examined in previous studies," Ms. Guevremont said. ■

Video Training Tool Improves ADHD Symptoms in Teenagers

BY DIANA MAHONEY
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BOSTON — Working memory training can significantly improve symptoms in adolescents receiving medical treatment for attention-deficit/hyperactivity disorder, Dr. Bradley S. Gibson said in a poster presentation at a meeting of the Society for Research in Child Development.

In the first U.S. investigation of the Cogmed Working Memory Training system—a computer-based training program developed at the Karolinska Institute in Stockholm—Dr. Gibson and his colleagues administered the program to 12 adolescents aged 12-14 years who had been previously diagnosed with ADHD. The investigators observed significant decreases in inattention and significant improvements in both the working memory and other executive functions.

The findings validate those reported in 2005 by Cogmed developer Dr. Torkel Klingberg and colleagues (*J. Am. Acad. Child Adolesc. Psychiatry* 2005;44:177-86) showing that the intensive training on a battery of verbal and visual-spatial working memory tasks significantly improved symptoms in a sample of Swedish children (aged 7-12 years) diagnosed with ADHD, compared with a placebo group, said Dr. Gibson of the University of Notre Dame (Ind.).

In the current study, the Cogmed program was administered to the students in the computer laboratory of their Midwestern middle school. All of the students received stimulant medication before and during the study. Each student completed

25 1-hour training sessions comprising 11 verbal and visual-spatial working memory exercises over the course of 6 weeks, Dr. Gibson said.

Before and after the intervention, the students were assessed using standardized tests of verbal and spatial working memory and of abstract, nonverbal reasoning. Additionally, parents and teachers completed Vanderbilt ADHD Diagnostic Rating Scale checklists.

"The results indicated significant improvement compared to baseline in all three of the cognitive measures," Dr. Gibson reported. Additionally, "there were significant decreases in inattentive and hyperactive/impulsive symptoms as rated by parents, and a significant decrease in inattentive symptoms as rated by teachers," he wrote.

Dr. Gibson pointed to changes in fluid intelligence—the ability to solve problems or adapt to new situations in real time—as a possible mechanism of action. "Working memory improves fluid intelligence, and fluid intelligence appears to reduce ADHD symptoms," he noted.

In addition to validating the earlier Swedish study, the current findings, while limited by the study's small size and lack of a placebo control arm, extend the earlier work by "showing that working memory training can enhance some individuals more than others, and more importantly, by showing that individual differences in working memory enhancement are critical for predicting how much the symptoms of ADHD can be improved," Dr. Gibson wrote. ■

Treating Obstructive Sleep Apnea Surgically May Improve ADHD

Surgical treatment of mild obstructive sleep apnea in school-aged children diagnosed with attention-deficit/hyperactivity disorder and mild obstructive sleep apnea resulted in big improvements in ADHD symptoms, compared with those treated with methylphenidate alone, investigators reported.

"Recognition and surgical treatment of underlying mild sleep-disordered breathing in children with ADHD may prevent unnecessary long-term methylphenidate usage and the potential side effects associated with drug intake," Dr. Yu-Shu Huang, of Chang Gung Memorial University Hospital, Taipei, Taiwan, and colleagues wrote (*Sleep Med.* 2007;8:18-30).

Dr. Huang and colleagues examined the effect of three treatment options on 66 children with ADHD and mild obstructive sleep apnea confirmed by polysomnography treatment with methylphenidate, under supervision of the child's psychiatrist; systematic adenotonsillectomy, in children with adenotonsil hypertrophy confirmed by a pediatric otolaryngologist; or a wait-and-see approach, with regular follow-up but no treatment.

The study population was recruited from

among school children, aged 6-12 years, who were referred to a child psychiatry clinic for behavioral problems suggestive of ADHD. All children received a thorough clinical evaluation, and an ear, nose, and throat specialist performed an otolaryngologic examination. Children were given comprehensive neuropsychological tests, including the Test of Variables of Attention (TOVA), to evaluate ADHD. Parents completed questionnaires concerning their children's behavior (Child Behavior Checklist) and quality of life in children with obstructive sleep disorders (OSA-18).

All 66 children with ADHD had apnea-hypopnea index scores between 1 and 5 (mild apnea) before treatment. Twenty-seven children received methylphenidate, 25 were given an adenotonsillectomy, and 14 had no treatment.

Both the adenotonsillectomy group and the methylphenidate group had far better posttreatment scores on neuropsychological assessments of ADHD than did the no-treatment group or the control group. "The results support the need to treat OSA first when identified in the presence of an ADHD clinical presentation," Dr. Huang wrote.

—Barbara J. Rutledge