

Medications May Not Explain All

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representative of the U.S. population.

The investigators used propensity score-matching to balance the epilepsy and nonepilepsy cohorts with respect to baseline characteristics, risk factors, and panel differences associated with epilepsy, including age, gender, income, population density, geographic region, severe head injury, stroke, and the main effect of panel and interaction terms. To estimate the association of epilepsy with comorbidities, they calculated prevalence ratios using log-binomial generalized linear models, Dr. Ottman said.

Of the 3,488 people who reported having ever had epilepsy or a seizure disorder, 61% were female, the mean age was

48 years, 35% had a seizure or convulsion within the previous 12 months, and 27% reported having had a febrile seizure or convulsion as a child, Dr. Ottman said.

Using the propensity matched sample, the investigators determined that 33% of the epilepsy cohort reported ever having depression, compared with 26% of the nonepilepsy controls. Similarly, 22% of the epilepsy cohort, compared with 14% of the controls reported a history of anxiety disorder; 14%, compared with 7%, respectively, reported a history of bipolar disorder; and 13%, compared with 6% reported having previously been diagnosed with ADHD. Patients in the epilepsy cohort more frequently report-

ed sleep disorder and migraine than did those in the control group (20% vs. 14%; 28% vs. 21%).

Although the survey did not collect information on specific medications, "it is possible that some of the comorbidity in our study could be related to medications," Dr. Ottman said in an interview. "However, for several of the comorbid disorders we described, other studies have found significantly increased occurrences even before the first seizure, suggesting that medications do not explain all of the comorbidity." For example, she said, "the prevalence of depression is higher in people with epilepsy than in people without it, even before the first seizure occurs, and this is also true for migraine."

The precise mechanisms underlying the increased prevalence of certain CNS

comorbidities has not been established, but one explanation might be "shared pathogenic mechanism underlying epilepsy and the other disorders, possibly due to shared genetic susceptibilities or to common environmental risk factors," Dr. Ottman noted.

Clinicians should be aware of the potential for CNS-related comorbidities "so they can be sensitive to patients' reports of symptoms possibly reflecting other disorders and so they can consider medications that have been found to be effective in treating both epilepsy and some of the comorbid disorders," Dr. Ottman said. Comorbidities have been highlighted by the National Institute of Neurological Disorders and Stroke as a priority for epilepsy research "and we hope our research will increase awareness of comorbidities even further." ■

Dysfunctional Brain Areas May Fuel Inattention in Absence Epilepsy

BY DIANA MAHONEY

BOSTON — Interictal attention problems in children with absence epilepsy may be linked to functional aberrations in specific areas of the brain.

Matthew Vestal, a medical student and research fellow, and Dr. Hal Blumenfeld of Yale University, New Haven, Conn., and their colleagues found that, between seizures, the function of the medial and bilateral frontal cortices of patients with childhood absence epilepsy (CAE) was impaired during the performance of attention tasks.

This finding suggests that dysfunction in specific brain networks may play a role in the attention deficits in this population.

VITALS

Major Finding: Functional magnetic resonance imaging correlated with EEG in children with absence epilepsy and matched healthy controls.

Data Source: Results from Continuous Performance Task test done by 34 children (aged 7 to 8 years) and 21 healthy controls

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consciousness. In school-aged children, the disease is associated with attention problems and social dysfunction, he explained.

In 34 patients with CAE aged between 7 and 8 years and 21 age-, gender-, IQ-, and socioeconomically matched healthy con-

trols, behavioral performance during the CPT is measured by reviewing omission and commission errors and reaction time.

The investigators monitored all of the CAE subjects for seizure episodes with EEG during the CPT testing and adjust-

ed for all seizure-related fMRI signal changes during CPT.

Subjects in the CAE group made more omission errors than did the control subjects, although there was no difference between the groups in commission errors or reaction time. "Our hypothesis is that brain areas such as the frontal lobes and anterior insula, which are important for normal attention, are not functioning properly in these children," Dr. Blumenfeld said.

In both the CAE and control subjects, CPT-associated increases in fMRI blood-oxygen-level dependent (BOLD) signal were observed in the medial frontal cortex and the medial and anterior insula, whereas CPT-associated decreases in fMRI BOLD signal occurred in the bilateral medial and lateral parietal cortices.

"By knowing which brain areas are not working in [these] children, we hope treatments can be developed to improve the function of these areas and attention in these children," Dr. Blumenfeld stated. ■

Childhood Epilepsy Is Tied To Psychiatric Disorders

BY DIANA MAHONEY

BOSTON — Children with benign focal epilepsy with centro-temporal spikes had a higher incidence of psychiatric illnesses, attention-deficit/hyperactivity disorder (ADHD), and developmental delay compared with the estimated incidence in the general population, based on a retrospective study of electroencephalogram findings.

Children with benign focal epilepsy "are not sufficiently screened for psychological and other cognitive problems. The nocturnal seizures are often missed, unless the child generalizes; and most institutions don't have a good neuropsychiatry division to assess for learning difficulties. Subtle learning difficulties often go undetected," Dr. Shalaka Indulkar reported in a poster presentation at the annual meeting of the American Epilepsy Society.

Dr. Indulkar and colleagues reviewed consecutive routine EEGs from 1995 through 2004 for pediatric patients with benign focal epileptiform discharges. They identified 117 whose seizures were consistent with benign focal epilepsy with centro-temporal spikes (BECTS). These features included either typical brief hemifacial seizures associated with speech arrest, drooling, and preservation of consciousness; gurgling or grunting noises with loss of consciousness and terminating in vomiting; or nocturnal secondarily generalized seizures.

Data also included gener-

al demographics and neurologic, behavioral, and psychiatric disorders and used descriptive data and the Fisher's exact test for analysis.

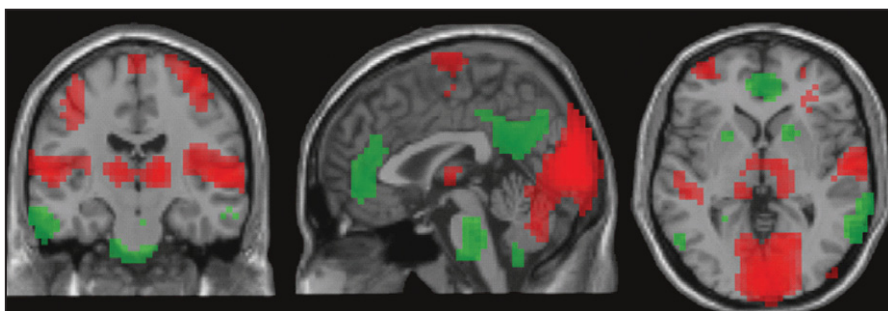
Of the 117 patients in the analysis, 51 were girls and 66 were boys. Mean age at initial diagnosis of EEG abnormality was 6.8 years, said Dr. Indulkar, a neurology resident at Cleveland Clinic.

The prevalence of coexisting psychiatric problems, including anxiety, schizophrenia, obsessive compulsive disorder, and depression in the study population was 9.4%, she reported, noting that this rate is substantially higher than the estimated 1%-4% seen in the general pediatric population.

ADHD was observed in 11% of the seizure population, compared with an estimated prevalence rate of 3%-7% in school-aged children in the United States. In addition, developmental delay, including pervasive developmental disorder, language disorder, and autism, was found in 10.2% of the seizure population, and tics were noted in 5.1%. "We also found a high incidence of children with migraine and headaches in the study population," Dr. Indulkar said.

In an interview, she said that "children with typical [BECTS] do not necessarily have abnormal EEGs in sleep, but they still may have learning difficulties, so the mechanism [for the CNS-related comorbidities] remains elusive."

Dr. Indulkar reported no relevant disclosures and said no specific funding was used to conduct the study. ■



COURTESY HAL BLUMENFELD, M.D., PH.D., AND RACHEL BERMAN

Absence seizures overlapped with areas of increased (red) and decreased (green) brain activity in a 12-year-old girl during fMRI imaging of attention tasks.

If confirmed, the findings could lead to the development of innovative regional therapies targeted at improving impaired attention in CAE, which in turn could improve patients' quality of life by minimizing school performance deficits, injury potential, and the social stigma associated with attentional problems, Dr. Blumenfeld said in an interview.

Absence seizures are characterized by 3- to 4-Hz spike-wave discharges on electroencephalogram (EEG) that cause impaired con-

trols, the investigators performed functional magnetic resonance imaging correlated with electroencephalography while the participants completed the Continuous Performance Task (CPT) test of attentional vigilance, Mr. Vestal reported at the annual meeting of the American Epilepsy Society.

The CPT test involves showing subjects a string of letters on a computer and instructing them to press a button whenever they see a particular stimulus letter.