Obstructive Apnea May Cause Cognitive Deficits

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FORT LAUDERDALE, FLA. — Although some children with sleep-disordered breathing experience significant cognitive deficits, not all do, and identification of those at risk remains a clinical challenge, according to a sleep medicine expert.

There is a wide range in individual susceptibility, Dr. David Gozal said. "A child can have a mild [sleep] disturbance and be affected or have severe sleep apnea and be unaffected cognitively." Together with apnea severity and environmental factors, individual differences in susceptibility complete the triple-risk model of obstructive sleep apnea morbidity, said Dr. Gozal, professor and vice chair of research, department of pediatrics, University of Louisville (Ky.).

In general, increased apnea severity is associated with greater impairments in cognition. For example, Dr. Gozal and colleagues found significant neurocognitive deficits with higher apnea/hypopnea index (AHI) scores in snoring children (J. Sleep Res. 2004;13:165-72).

With increases in AHI severity, a child's IQ can decrease, Dr. Gozal said at a pediatric pulmonology meeting sponsored by the American College of Chest Physicians. For children with an AHI of 5 or more, for example, there is average loss of 6-8 IQ points. "If you are born with an IQ of 100, that can be the difference between going to college or not."

At any AHI level in the study, however, there were children without any cognitive deficit, again pointing to the individual variability, said Dr. Gozal, who is also a respiratory/sleep physiologist in the division of sleep medicine at Kosair Children's Hospital Research Institute, also in Louisville.

Specifically, significantly higher impairments in phonological processing, visual and auditory attention, and social problems were found among children with an AHI greater than 5, compared with those scoring 5 or less. High scorers also had significantly worse thought problems, delinquent or oppositional behavior, aggressiveness, externalizing of problems, and deficits in verbal comprehension ability.

In another study of 297 poorly performing first graders, there was a 6- to 9-fold increase in sleep apnea, compared with the general population (Pediatrics 1998;102:616-20).

The good news is that apnea treatment reversed some learning deficits. Some parents thank Dr. Gozal for improvements in their children's ability to learn following adenotonsillectomy.

In terms of potential misdiagnosis, there is some overlap between children with attention-deficit/hyperactivity disorder (ADHD) symptoms and those with obstructive sleep apnea (OSA) who demonstrate intrinsic daytime sleepiness. These patients can benefit from stimulant treatment, Dr. Gozal said.

The diagnosis of sleep apnea may be completely overlooked, since these patients improve with stimulants, similarly to children with ADHD who also are intrinsically sleepy. However, children with a formal diagnosis of ADHD-inattentive type who are not sleepy will be more likely to improve with addition of a norepinephrine reuptake inhibitor to treat their prefrontal cortex executive dysfunction, he said.

The way a child lives affects the way the sleep-disordered breathing affects them, Dr. Gozal said. "Physical activity is actually protective of our children when they have sleep apnea." For example, a walk in the park 30 minutes per day, 5 days a week, can prevent the onset of morbid consequences of apnea. In addition, higher home literacy levels are associated with a lesser likelihood of learning and behavioral deficits among children with sleep apnea, he said.

Given such individual variability in risk of adverse cognitive outcomes in these children, Dr. Gozal and his associates are searching for a prognostic marker. They found that elevated plasma C-reactive protein levels, an indicator of increased systemic inflammation, might indicate children with OSA are at greater neurocognitive risk (Am. J. Respir. Crit. Care Med. 2007;176:188-93).

They assessed 278 children and found high-sensitivity C-reactive protein (hsCRP) levels almost triple among children with cognitive deficits, compared with those without. Participants were 5- to 7-year-old children recruited from the community.

The mean hsCRP was 0.48 plus or minus 0.12 mg/dL in children with OSA and cognitive deficits, compared with 0.21 plus or minus 0.08 mg/dL in children with the condition and normal cognitive scores. This difference was statistically significant.

"We show in a community-based study of snoring and nonsnoring school-aged children, that children with OSA have increased levels of hsCRP and also exhibit decreased cognitive performances compared with control children," Dr. Gozal and his associates wrote. "Furthermore, hsCRP levels are significantly increased among patients with OSA and cognitive dysfunction, and this phenomenon persists even when after the severity of OSA is matched for the two cognitive function groups. Thus, hsCRP variation emerges as a predictive measure of risk for OSA-induced cognitive deficits in children." ■

Follow-Up Care for Lung Cancer Survivors Viewed as Less Than Ideal

HOLLYWOOD, FLA. — Cure rates for locally advanced lung cancer are increasing, but obtaining good follow-up care remains a challenge for the growing number of lung cancer survivors, Dr. Mark G. Kris told attendees at the annual conference of the National Comprehensive Cancer Network.

Lung cancer survivors are at very high risk—from 1% to 5% per year—for developing another primary cancer. As a result, they need careful surveillance and should be asked about their smoking status, which should be documented in the medical record at each follow-up office visit, said Dr. Kris, chief of the thoracic oncology service at Memorial Sloan-Kettering Cancer Center in New York.

Survivors of lung cancer are also at risk for other smoking-related illnesses, such as chronic obstructive pulmonary disease and heart disease, he continued, and should be followed accordingly. In addition, radiation to the chest accelerates cardiovascular disease. As a result, lung cancer survivors need careful cardiac monitoring, including stress testing and lipid monitoring.

Radiation also accelerates osteoporosis, for which Dr. Kris said lung cancer survivors need to be prospectively treated, regardless of their general bone density, to protect against bone loss.

—Fran Lowry