Chronic Rhinitis, ADHD & Concentration

Patrick McKeown
Chronic rhinitis and ADHD

• “These children do not sleep well at night due to obstructed airways; this lack of sleep can adversely affect their growth and academic performance. Many of these children are misdiagnosed with attention deficit disorder (ADD) and hyperactivity.”

Chronic rhinitis and ADHD

• “Allergic rhinitis has a far more negative impact on the health of the child than just a simple sneeze. Sleep disturbances, poor school performance, and hyperactivity are all mental complications seen in many children related to their nasal allergies.”

Blaiss MS.
Chronic rhinitis and ADHD

- Parent questionnaires from 3019 children to assess sleep-disordered breathing in five-year-old children.
- "parent-reported hyperactivity (19%) and inattention (18%) were common, with aggressiveness (12%) and daytime sleepiness (10%) reported somewhat less often. SDB symptoms were present in 744 (25%) children."

Chronic rhinitis and ADHD

• “Children with sleep disordered breathing symptoms were significantly more likely to have parent-reported daytime sleepiness and problem behaviors, including hyperactivity, inattention, and aggressiveness.”

Chronic rhinitis and ADHD

"most children with ADHD displayed symptoms and skin prick test results consistent with allergic rhinitis. Nasal obstruction and other symptoms of allergic rhinitis could explain some of the cognitive patterns observed in ADHD, which might result from sleep disturbance known to occur with allergic rhinitis."

Chronic rhinitis and ADHD

- “A clear correlation between ADHD and sleep disorders" and "by improving these children's sleep, the symptoms of ADHD are diminished and thus avoid the need to administer psychostimulants.“

*Rev Neurol.* 2006 Feb 13;42 Suppl 2:S37-51. [Attention deficit hyperactivity disorder and sleep disorders].

Chronic rhinitis and ADHD

"Children undergoing evaluation for ADHD should be systematically assessed for sleep disturbances because treatment of sleep disorders is often associated with improved symptomatology and decreased need for stimulants."

Chronic rhinitis and ADHD

In a paper entitled, "A practical approach to allergic rhinitis and sleep disturbance management," Davies et al. comments that "sleep quality can be significantly impacted by nasal congestion. This may lead to decreased learning ability, productivity at work or school, and a reduced quality of life."

A practical approach to allergic rhinitis and sleep disturbance management. Davies MJ, Fisher LH, Chegini S, Craig TJ.
Chronic rhinitis and ADHD

- "inattention and hyperactivity among general pediatric patients are associated with increased daytime sleepiness and---especially in young boys---snoring and other symptoms of SDB. If sleepiness and SDB do influence daytime behavior, the current results suggest a major public health impact."

Hyperventilation and performance

• A study by the US Air Force School of Aviation investigating unexplainable aircraft accidents tested the abilities of jet fighters to use coordination apparatus after a short period of hyperventilation.

Hyperventilation and performance

- The results showed that mental performance deteriorated by 15-30% when the concentration of carbon dioxide in the blood was significantly reduced following hyperventilation.

Hyperventilation and performance

- reduced levels of carbon dioxide detrimentally affected performance that required attention, causing progressively slower reaction times and an increase in errors.

Hyperventilation and performance

• Students with high anxiety had lower levels of carbon dioxide and a faster respiration frequency than students with low anxiety

• Ley R, Yelich G. Fractional end-tidal CO₂ as an index of the effects of stress on math performance and verbal memory of test-anxious adolescents. *Biol Psychol.* 2006;(Mar;71(3)):350-1