

## Rule out these causes of inattention before diagnosing ADHD

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Inattention and distractibility are highly prevalent, and can exist secondary to a number of underlying causes. When a patient (or the patient's family) asks whether he (she) might have attention-deficit/hyperactivity disorder (ADHD), you must perform a comprehensive assessment to rule out other medical and psychiatric disorders that might be manifesting as inattention. It is important not to miss a diagnosis of ADHD, and it is vital not to mistake another medical or psychiatric condition as ADHD.

Pay attention to components of the differential diagnosis while you are evaluating a patient with possible ADHD.

**Medical conditions.** Several disorders can present with cognitive, attentional, and executive functioning deficits that resemble the presentation of ADHD. These include absence seizures and other types of seizures, Lyme disease, HIV infection, and encephalopathy.<sup>1</sup>

People who have completed chemotherapy (particularly children) often exhibit attentional and executive functioning deficits similar to those found in ADHD.<sup>1</sup>

**Anxiety disorders,** the most prevalent of psychiatric disorders, correlate highly with difficulty concentrating. Chronic stress can have negative effects on hippocampus- and prefrontal cortical-based memory and cognitive functions.<sup>2</sup> Be cautious, therefore, when diagnosing ADHD in a patient who suffers from significant, acute, or inadequately controlled anxiety—especially one who does *not* have a history of a childhood onset of attentional difficulties.

On the other hand, untreated ADHD can lead to anxiety symptoms.

**Drugs.** A number of substances of abuse—marijuana, cocaine, ecstasy, and caffeine—can produce symptoms of poor attention or impulsivity, similar to what is seen in ADHD, through their effects on the hippocampus and prefrontal cortex.<sup>3,4</sup> MRI studies of the brains of 8-year-olds prenatally exposed to cocaine have found changes in frontal lobes suggesting potential long-term effects on attention and impulse control in these children.<sup>5,6</sup>

Use of certain medications, such as anticholinergics, also can contribute to attentional difficulties in some patient populations.

**Abuse or trauma.** Difficulty concentrating is one of the core symptoms of posttraumatic stress disorder (PTSD). Rule out PTSD and recent abuse or trauma when assessing for ADHD. Children with recent trauma often present with agitation, restlessness, and behavioral disturbance—symptoms that mimic ADHD.

**Mood and adjustment disorders.** Difficulty concentrating also is a criterion for major



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depressive disorder. On the other hand, untreated ADHD also can lead to, or contribute to, development of a depressive disorder. If a patient is experiencing a major depressive episode, obtain a thorough collateral history delineating a timeline of attention difficulties, which should allow for an accurate diagnosis.

In children, ADHD and bipolar disorder can have symptom overlap; both can present with distractibility, increased energy, and mood lability—therefore making a careful history a diagnostic necessity. Furthermore, ADHD and bipolar disorder can coexist in a small percentage of ADHD patients.

**Hypothyroidism.** Studies show a decrease in memory, attention, and concentration in patients with overt hypothyroidism, and at least a small decrease in these domains in patients with subclinical hypothyroidism.<sup>7</sup> Decreased cerebral blood flow in brain regions that mediate attention and executive functioning, and decreased hippocampal volume, have been observed in patients with hypothyroidism.<sup>7</sup> Therefore, the cognitive profile in these patients can look similar to, and can be confused with, ADHD, inattentive type.

**Insomnia.** Sleep plays a key role in memory consolidation and maintaining attention. Sleep disorders (eg, sleep apnea, restless legs syndrome, delayed sleep phase-onset disorder) can produce chronic tiredness and significantly affect attention, concentration, and cognitive functioning in children, adolescents, and adults.<sup>8</sup>

Studies in adults have shown that sleep deprivation is linked to attentional difficulty secondary to changes in prefrontal cortex activity.<sup>9</sup> Other studies suggest that short sleep duration in healthy children is associated with inattention and poorer academic functioning, and also was found linked to teacher reports of inattention and a cognitive profile similar to what is seen in ADHD.<sup>8</sup>

**Learning disorders and developmental disabilities.** Children with an undiagnosed

learning disorder often present with symptoms akin to those of ADHD.<sup>1</sup> An undiagnosed reading or mathematics disorder, for example, can have a significant impact on academic functioning, in which the child might not be paying attention because of his (her) restricted ability to grasp the subject matter.

On the other hand, keep in mind that ADHD is highly comorbid with learning disorders.<sup>10</sup>

Last, children and adults with a developmental disability can present with signs and symptoms similar to those of ADHD.<sup>1</sup>

## Summing up

Comprehensive assessment and management of any underlying condition is important to address the attention deficits you observe in a patient. A collateral history from parents and significant others, school reports, relevant laboratory tests, and a full physical examination are important tools for making an accurate diagnosis.

## References

1. Robb AS. Differential diagnosis of ADHD in school-age children. *Medscape Psychiatry*. <http://www.medscape.com/viewarticle/544948>. Published September 26, 2006. Accessed September 6, 2016.
2. Sandi C. Memory impairments associated with stress and aging. In: Bermúdez-Rattoni F, ed. *Neural plasticity and memory: from genes to brain imaging*. Boca Raton, FL: Taylor & Francis Group, LLC; 2007:54-55,58-59.
3. Gouzoulis-Mayfrank E, Daumann J, Tuchtenhagen F, et al. Impaired cognitive performance in drug free users of recreational ecstasy (MDMA). *J Neurol Neurosurg Psychiatry*. 2000;68(6):719-725.
4. Hanson KL, Winward JL, Schweinsburg AD, et al. Longitudinal study of cognition among adolescent marijuana users over three weeks of abstinence. *Addict Behav*. 2010;35(11):970-976.
5. Morrow CE, Culbertson JL, Accornero VH, et al. Learning disabilities and intellectual functioning in school-aged children with prenatal cocaine exposure. *Dev Neuropsychol*. 2006;30(3):905-931.
6. Smith LM, Chang L, Yonekura ML, et al. Brain proton magnetic resonance spectroscopy and imaging in children exposed to cocaine in utero. *Pediatrics*. 2001;107(2):227-231.
7. Samuels MH. Psychiatric and cognitive manifestations of hypothyroidism. *Curr Opin Endocrinol Diabetes Obes*. 2014;21(5):377-383.
8. Gruber R, Michaelsen S, Bergmame L, et al. Short sleep duration is associated with teacher-reported inattention and cognitive problems in healthy school-aged children. *Nat Sci Sleep*. 2012;4:33-40.
9. Killgore WDS. Effects of sleep deprivation on cognition. *Prog Brain Res*. 2010;185:105-129.
10. Czamara D, Tiesler CM, Kohlböck G, et al. Children with ADHD symptoms have a higher risk for reading, spelling and math difficulties in the GINIplus and LISApplus cohort studies. *PLoS One*. 2013;8(5):e63859. doi: 10.1371/journal.pone.0063859.

Untreated ADHD can lead to, or contribute to, anxiety symptoms or a depressive disorder