What Is the Role of Medication for Persons with ADHD?

Medication has become the most common method of treating children with ADHD. And the use of medication for adults with ADHD is also on the rise. Psychostimulants are by far the most frequently used type of medication for persons with ADHD. Psychostimulants stimulate or activate neurological functioning; the most common type of psychostimulant used for ADHD is Ritalin, or methylphenidate. Although it may seem counterintuitive that stimulants would be used for persons who exhibit inattention and hyperactivity, what actually happens is that Ritalin stimulates those parts of the brain responsible for inhibition. Ritalin helps in the release of the neurotransmitter dopamine, thus enabling the brain's executive functions to operate more normally (Solanto, 2002).

For most persons, it takes about one hour for Ritalin to take effect, with the optimal effect occurring at about two hours and the effects wearing off after about four hours. However, the effects can vary from one person to another, so it is important that the physician, teacher, parents, and child work together to arrive at the proper dose and timing of the medication.

Another psychostimulant that is gaining in popularity is Adderall. Researchers have found Adderall to be at least as effective as Ritalin, and its effects are longer lasting, meaning that it does not have to be administered as often (Faraone, Fliszar, Olvera, Skolnik, & Biederman, 2001; Manos, Short, & Findling, 1999; Fliszar, Browne, Olvera, & Wynne, 2000).

Side Effects

Side effects are relatively common with psychostimulants. However, most side effects are not serious and can be dealt with without too much trouble. The most common side effects are insomnia and diminished appetite. These can usually be controlled if one is careful with respect to when the dose is administered (e.g., not too close to mealtimes or bedtimes). Less common side effects are abdominal pain, headaches, and irritability. There is also speculative evidence that in a very small number of cases, Ritalin may heighten one's susceptibility to have tics or increase their intensity in those already having a tic disorder, such as Tourette's syndrome.

Negative Publicity Regarding Ritalin

Ritalin has had more than its share of negative publicity in the popular media. For example, several critics of its use have appeared on high-profile TV shows, such as "Oprah," "Geraldo," and "20/20." Many of the critics have claimed that parents and teachers are too insensitive of behavioral deviations and turn to drugs to make children more docile and compliant. Many have also claimed that prescribing Ritalin for children in the early years somehow teaches them or encourages them to turn to illicit drugs, such as marijuana or cocaine, in the teenage years. Although there is a higher incidence of illicit drug use among teenagers with ADHD, there is no evidence that this is the result of using Ritalin (Barkley, 1998). In fact, there is some evidence suggesting that just the opposite is true—those who take Ritalin are less likely to abuse other drugs later (Biederman, Wilens, Mick, Spencer, & Faraone, 1999).

Research on the Effectiveness of Medication

Over the past twenty to thirty years, there have been dozens, if not hundreds, of studies on the effectiveness of psychostimulants for ADHD. The results have been overwhelmingly positive with respect to their effectiveness for improving inhibition and executive functions. For example, in one large-scale, 14-month study, funded by the National Institute of Mental Health, medication was found to be more effective than behavior management. However, what was most effective was when medication was combined with behavior management techniques (Pelham, 1981; Swanson & Sachs-Leo, 2001).

Even though psychostimulants can be highly effective for many persons with ADHD, there are some for whom the medication does not appear to be effective. Research is not conclusive, but perhaps as many as 30 percent do not respond favorably to the drug (Spencer et al., 1996).

Cautions Regarding Ritalin

Even though Ritalin is so highly effective, there are many very important cautions regarding its use:

- Ritalin should not be prescribed at the first sign of a behavioral problem. Only after careful analysis of the student's behavior and environment should Ritalin be considered.
- Although research has demonstrated the effectiveness of Ritalin on behavioral inhibition and executive functions, the results for academic outcomes have not been as dramatic. Although important academic measures, such as...
work completed or accuracy on assignments, have improved substantially, the impact on achievement tests has been much less (Forness et al., 1999). Thus, teachers should not assume that Ritalin will take care of all the academic problems these students face.

- Parents, teachers, and physicians should monitor dosage levels closely so that the dose used is effective but not too strong. Proper dosage levels vary considerably (Hale et al., 1998).
- Teachers and parents should not lead children to believe that the medication serves as a substitute for self-responsibility and self-initiative.
- Teachers and parents should not view the medication as a panacea; they, too, must take responsibility and initiative in working with the child.
- Parents and teachers should keep in mind that psychostimulants are a controlled substance. There is the potential for siblings, peers, or the child himself or herself to attempt “experiment” with it. (Hallahan & Kaufman, 2003, pp. 212-213)

In addition to psychostimulants, a nonstimulant medication has come onto the market relatively recently. Strattera, which can be administered once per day, affects levels of norepinephrine. It is too early to say how Strattera will compare with the psychostimulants, such as Ritalin, with respect to effectiveness.

**PORTFOLIO-BUILDING ACTIVITY**

**Demonstrating Mastery of the CEC Standards**

This chapter describes characteristics that Shannon exhibits relative to ADHD and learning disabilities. Use this information, along with what you have learned about educational methods, to design a series of educational recommendations for Shannon that include both extrinsic and intrinsic motivation. Make sure your document (1) has recommendations that link to Shannon’s needs, (2) uses research–validated practices, and (3) details how each recommendation can be implemented. Be specific in addressing only one or two behaviors you want to increase, yet do not be so narrow that you cannot apply your ideas to other situations. See the Companion Website (www.ablongman.com/hallahan3e) for an example to follow that has been created for Jamie. Questions to think about as you progress:

- How does the exceptionality of an ADHD condition affect the behaviors and abilities of an individual to learn, and in what ways does this impact the roles and responsibilities of educators?
- What are the evidence-based practices that will promote self-management and positive learning results for students with ADHD and learning disabilities?
- How do educators shape learning environments in order to encourage personal empowerment and effective responding for students with ADHD and learning disabilities?

**SUMMARY**

What are the links between learning disabilities and attention problems?

- A conservative estimate is that about 20% of students with learning disabilities are also diagnosed as ADHD.
- Some students with learning disabilities who are not formally identified as ADHD also have attention problems that affect their learning.
- The learning disabilities may preclude the attention problems, the attention problems may preclude the learning disability, or the attention problems and learning disabilities may be separate conditions that co-occur.

What are the historical origins of ADHD?

- In 1902, Dr. George F. Still delivered a series of lectures in London in which he described children who had characteristic traits similar to children who are today labeled as ADHD: many had mild brain pathology, appeared to have inherited the condition, had other symptoms (such as tics and depression), and were boys.
- An outbreak of encephalitis in 1917 left many children with symptoms of inattention, impulsivity, and hyperactivity.
- In the 1930s and 1940s, Heinz Werner and Alfred Strauss found that children with mental retardation, whom they believed to be brain injured, demonstrated distractibility (based on their performance on figure-ground tasks) and hyperactivity, these children were referred to as exhibiting the Strauss syndrome.
- In the 1950s, William Cruickshank, using the figure-ground tasks of Werner and Strauss, found distractibility in children with cerebral palsy who were of normal intelligence.
- In the 1950s and 1960s, the term minimal brain injury was used to refer to children with behavioral (inattention, impulsivity, hyperactivity) but not neurological signs of brain injury. The term fell out of favor because the problems of these children were not minimal and there was little evidence of actual brain injury.
- In the 1960s, the term hyperactive child syndrome replaced minimal brain injury in referring to these children.
- By the 1980s, professionals saw inattention rather than hyperactivity as the behavioral characteristic that most affected learning.
- Today, many practitioners and researchers believe that hyperactivity is the most important symptom of ADHD.

What is today’s definition of ADHD?

- Today, most professionals rely on the American Psychiatric Association’s (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM) for diagnosing children with ADHD.
- The current DSM recognizes three types of ADHD: ADHD, Predominantly Inattentive Type; ADHD, Predominantly Hyperactive-Impulsive Type; and ADHD, Combined Type.

What is the prevalence of ADHD?

- Studies indicate that 3 to 5% of school-age children are diagnosed with ADHD in the United States.
- The rank order of subtypes, from most to least prevalent, is: Combined Type, Inattentive Type, Hyperactive-Impulsive Type.
- Boys outnumber girls about 3 to 4 to 1.
- Some children may be misdiagnosed as ADHD; however, some children who should be diagnosed with ADHD may be overlooked. Boys’ ADHD behavior is sometimes excused as “gender appropriate,” and girls, who are more likely to be in the inattentive subtype, are sometimes overlooked because their behavior doesn’t attract teacher attention.

How is ADHD assessed?

- Authorities recommend that a diagnosis of ADHD should include a medical examination, a clinical interview or history, and the administration of teacher and parent rating scales.
- Technology is beginning to be used to assess ADHD. For example, computerized versions of continuous performance tests (CPTs) are now available.
- Until the early 1990s, the only way children with ADHD could qualify for special education services was if they also had a learning disability; now, they can receive services under the other health impaired category.

What are the causes of ADHD?

- Neurological factors are suspected in many cases of ADHD, and research indicates that the most likely sites of dysfunction are in the prefrontal and frontal lobes, the basal ganglia, and the cerebellum.
- The neurotransmitters most likely affected are dopamine and norepinephrine.
There is strong evidence that hereditary factors are at play in many cases of ADHD.
• Despite some reports in popular media, factors that are unlikely to cause ADHD are food allergies, sugar, and poor parenting.

What are the behavioral characteristics of ADHD?
• Most authorities believe that a problem with behavioral inhibition is the major characteristic of individuals with ADHD. Behavioral inhibition involves the ability to delay a response, to interrupt an ongoing response when needed, and to protect an ongoing response from disruption.
• According to Barkley's model of ADHD, behavioral inhibition leads to problems in time awareness and management.
• ADHD results in problems in executive functioning (e.g., working memory, which influences hindsight and foresight), inner speech, and self-regulation of emotions.

What educational methods are used with students with ADHD?
• Stimulus reduction, first recommended by Cruickshank, is sometimes used for distractible students; it involves decreasing extraneous stimuli and enhancing relevant stimuli.
• A highly structured learning environment is important for students with ADHD.
• Functional behavioral assessment, which focuses on determining the consequences (purposes), antecedents (what triggers the behavior), and setting events (contextual factors) that maintain inappropriate behaviors, is highly recommended for students with ADHD.
• Contingency-based self-management (having students keep track of their own behavior and then receive consequences based on the behavior) can be used in combination with functional behavioral assessment.
• Self-monitoring (providing the student in self-evaluation and self-recording) can help students with ADHD attend better and produce better academic work; students can focus on monitoring their own attention-to-task or academic output.

What is the role of medication for persons with ADHD?
• Researchers have found the psychoactive stimulant Ritalin, which activates parts of the brain responsible for behavioral inhibition, to be highly effective in increasing attention and decreasing impulsivity and hyperactivity.
• Outcomes for students with ADHD are best when psychoactive stimulants are used in combination with behavior management techniques.
• Medication should not be started at the first sign of a behavioral problem, and teachers and parents should not assume that the student's problems will be solved with medication.
• Monitor dosage levels carefully.
• Not lead children to believe they can substitute medication for self-responsibility and initiative.
• Keep in mind that psychoactive stimulants are a controlled substance, with potential for abuse.

REFLECTIONS ON THE CASES

1. Jamal is not formally identified as having ADHD, but he has significant attention and impulse control problems that sometimes interfere with learning. What kinds of strategies might a teacher use with Jamal? Would these be the same or different than those used with Shannon, who has the predominantly inattentive type of ADHD?
2. Several educational methods can be used for students with ADHD: stimulus reduction, structure, functional behavioral assessment, contingency-based self-management, and self-monitoring of attention. We have discussed how Shannon used self-monitoring of attention successfully. Pick one of the other methods and describe how you would use it to help Shannon.
3. In the chapter, no information is presented with respect to whether Shannon is on medication. Given her behavioral characteristics, do you think medication might be indicated for Shannon?
• Choose the self-management component
  - Self-monitoring (e.g., "Am I on task?")
  - Self-evaluation (e.g., "Did I reach my goal today?")
  - Self-reinforcement (e.g., "I met my goal and choose to use crayons during recess.")
• Develop the self-management component
  - Develop performance goals by describing the behaviors in enough detail that others can understand and correctly record the data.
  - Determine when and how often to collect data on the behavior.
  - Develop a simple system to record data. Two sample recording systems are:

<table>
<thead>
<tr>
<th>Behavior Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did I?</td>
</tr>
<tr>
<td>Have my homework?</td>
</tr>
<tr>
<td>Have needed materials?</td>
</tr>
<tr>
<td>Write homework in my assignment book?</td>
</tr>
<tr>
<td>Follow all directions when given?</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency Chart</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
</tr>
<tr>
<td>9:00</td>
</tr>
<tr>
<td>9:15</td>
</tr>
<tr>
<td>9:30</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

• Teach the student to use self-management
  - Introduce the behavior by providing the student with examples and nonexamples; the student should demonstrate understanding.
  - Discuss why the behavior is important to the student’s school success.
  - Discuss the criteria for success.
  - Discuss when self-management will be used.
  - Provide guided practice and role-playing.
  - Provide ample opportunities for the student to practice recording under your direct supervision. Provide ample reinforcement as the student is learning the monitoring system, even though the student may not be implementing it 100% correctly.
  - Provide independent practice.

• Evaluate the student’s performance
  - Assess performance of the behavior and determine success.
  - Assess maintenance of self-management in other settings.

• Additional Resource

Source: Kristin L. Sayenko