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Learning disorders: How pediatricians can help

ABSTRACT

Learning disabilities are common and can negatively affect the individual and, ultimately, society. Pediatricians should be able to identify the risk factors for learning disabilities, recognize the early warning signs, and apply the appropriate diagnostic tools. Pediatricians also can play a crucial role by encouraging schools to provide accommodations for the child, requesting multifactorial evaluations from the school district, and referring patients for detailed neuropsychological evaluation outside the school district when appropriate. Information from the pediatrician can help the school formulate an individualized education plan for the child. Additionally, the primary care pediatrician can support families with referrals to appropriate healthcare specialists.

Learning disabilities can negatively affect the child, family, school, and, ultimately, society. Approximately 10% of US children have a learning disability.[1] Unfortunately, learning disabilities are often unaddressed, under-addressed, or incorrectly addressed by family and schools.

Pediatricians are well positioned to address these concerns, refer for screenings and diagnoses, and provide additional support. This requires knowledge and skills to identify the risk factors for learning disabilities, recognize the early warning signs, and apply the appropriate diagnostic tools. Additionally, primary care pediatricians can support families with referrals to appropriate healthcare specialists and by communicating with patients' schools.

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LEARNING DISABILITIES DEFINED

There is no universal consensus regarding what constitutes a learning disability. The American Pediatrics Association defines specific learning disorder as reading, written expression, or mathematics skills that are substantially lower than expected for the individual's age, measured intelligence, and age-appropriate education level or when achievement falls below a set standard.[2]

The Individuals with Disabilities Education Act (IDEA),[3] which governs considerations schools must make for learning-disabled students, more broadly defines specific learning disability as impairment in one or more of the following: math, understanding or using written or spoken language, information processing, memory, and reading. Specific reading impairments include dyslexia, orthographic impairment (inability to memorize words), and hyperlexia disorder (comprehension difficulties). The IDEA also includes conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, and developmental aphasia as learning disabilities.

EPIDEMIOLOGY

Approximately 10% of children in the United States have a learning disability. Of those affected, 40.7% have a learning disability in reading, language, math, information processing, or memory. Speech or language impairments affect 18.5%, of which dyslexia is the most common disability, affecting up to 80%. Mental retardation affects 7.4%, and 6.4% have serious emotional disturbances that prevent learning. In addition, up to 35% of those with a learning disorder have comorbid attention deficit hyperactivity disorder (ADHD) or other mental health difficulties including depression, anxiety, bipolar disorder, and obsessive compulsive disorder. Learning disabilities are twice as common in children with chronic health conditions.[1,4,5]

LEARNING DISABILITY ASSESSMENT

Medical conditions

The medical evaluation for suspected learning disability must be tailored to rule out obvious underlying or associated medical issues. Fetal alcohol syndrome, dysmorphisms, other syndromes, and apparent genetic causes should be ruled out.

Vision and hearing screens should be ordered and patients should be assessed for other potential sensory impairments that may resemble features of a learning disability. Medications such as anticonvulsants may have side effects that can cause learning difficulties and in older children, substance abuse must be ruled out.

Risk factors

A medical history should identify risk factors for learning disabilities. These include prematurity, low birth weight, early-life malnutrition, poverty and understimulating environments, head injury, epilepsy, and chronic health conditions. A family history of learning disabilities, including dyslexia or other learning disabilities, attention deficit, memory difficulty, and dropping out of school, are also risk factors.[6]

Early warning signs

Early warning signs of learning disability are listed in **Table 1**. Speech delay is particularly important to assess and parents should be asked about the child's history of acquiring language. Children with problems discriminating sounds may present with difficulty in articulation.

Asking parents whether the child has trouble rhyming words, learning song lyrics, or carrying a tune is often helpful. For example, a child may be able to recite the words to "Happy Birthday to You" but cannot sing it. These questions provide information about ability to memorize words, follow directions, recite words back, and can indicate possible speech or hearing difficulties.

Written language ability can be assessed with pseudoword decoding or deciphering nonsense words based on phonemic awareness.

Although difficulty following directions can be an early warning sign, many children have problems in this area without a specific learning disability, especially if the direction is not in accordance with the level of neurological development (ie, complex instructions given to a younger child).

Fine motor skill impairment can be observed when children cannot easily hold utensils, button or buckle clothing, or manipulate small objects such as pencils and crayons. However, the ability to manipulate small objects should not rule out learning disability in institutionalized children or those from larger families, where small motor skills and independent dressing develop earlier. Other warning signs may be better indicators in these children.

Impaired visual-spatial processing may be manifested in a younger child as difficulty matching shapes and in an older child or adolescent as inability to copy information from a smart-board or whiteboard onto paper. Learning disabilities also may present as difficulty with processing of visual and auditory information.

TABLE 1
Early warning signs of learning disability

Speech delay
Problems discriminating sounds
Difficulty rhyming words
Difficulty learning letters and sounds
Difficulty following directions
Difficulty responding to questions
Difficulty recounting stories or events
Loses belongings
Difficulty managing time
Difficulty learning time, days of the week, months
Difficulty manipulating small objects
Difficulty with utensils
Difficulty coloring within lines

Executive function

Learning disabilities can affect working memory and processing speed, which are basic cognitive processes subservient to the higher-order executive functions. The prefrontal cortex does not start to fully develop until a child is 7 to 8 years old. Impairment in this area may present as difficulties with time management, organization, or losing things. Those with right hemisphere involvement may have nonverbal learning disabilities exhibited as difficulty understanding math and word problems, and difficulty with perceptual reasoning. For example, the child may be able to repeat information in a rote manner but not grasp the meaning of what is said. This is sometimes termed a "cocktail personality," in which a child's conversation becomes nonsensical.

Nonverbal learning disabilities also are often seen in those with fetal alcohol syndrome or other fetal alcohol spectrum disorders such as alcohol-related neurodevelopmental disorder.

TABLE 2
Learning disabilities covered by the Individuals with Disabilities Education Act

Autism
Developmental delay (for children younger than 9 years old)
Hearing and/or vision impairment
Mental retardation
Serious emotional disturbance
Specific learning disability
Speech and language impairment
Traumatic brain injury
Other health impairment

Attention deficit hyperactivity disorder

Learning disorders appear to have an established association with ADHD. Children with ADHD are twice as likely to have dyslexia, and, conversely, children with dyslexia are twice as likely to have ADHD. It is therefore difficult to establish which condition is primary. Did the ADHD behavior precede the dyslexia and accentuate a reading difficulty? Perhaps the dyslexia was primary, which led to inattentiveness on account of the inability to decipher words.

For these reasons, psychological assessments should be performed in a timely fashion to delineate the cause. It is easier for the general pediatrician to screen for attention problems than for dyslexia. Validated tests that screen for reading disorders in 3- to- 5-year-old children are not a routine part of well-child care.

SCHOOL SUPPORT

The IDEA requires that public schools assess children to determine their needs and provide the necessary support to address those needs.[5] The goal is to ensure that all children receive free and appropriate education.

Assessment types

School districts' assessments vary, but they are required to evaluate all areas of suspected disability, including during all parts of a school day, and to be carried out in a nonrestrictive environment (ie, educated in the regular classroom the student would attend if not disabled). The objective is to determine whether a child is eligible for an individualized education plan (IEP).

Schools have two options for learning disability assessment. The most common is a psychoeducational evaluation that includes cognitive and achievement assessment. Time limits for completing these assessments vary by state.

The alternative is to provide a response to intervention (RTI) approach. According to the National Center on RTI, "schools identify students at risk for poor learning outcomes, monitor student progress, provide evidence-based interventions, and adjust the intensity and nature of those interventions depending on a student's responsiveness, and identify students with learning disabilities or other disabilities."[7] With RTI, there are varying levels of intensity, which may result in undue delays in education as a result of the observation period prior to intervention.

Any assessment requires evaluation of speech, language, and mathematics by a qualified professional, but the school is not required to do psychological or educational assessment. The role of school systems is not to provide comprehensive mental health support for students.

Individualized education plans

If an assessment finds a learning disability currently covered by IDEA (**Table 2**) and the disability affects effective educational progress, the school must develop an IEP for the student.

An IEP is a written contract outlining specific goals and measurable outcomes. It may include school placement determination and specific services like occupational therapy, physical therapy, speech, and/or special education services. The outcomes of an IEP can vary widely from state to state.

504 plans

When an assessment finds a covered disability but the disability is determined not to be a cause of educational impairment in terms of the child's functioning in the school, the child will not qualify for an IEP but may be eligible for a 504 plan. Typically, a 504 plan involves making appropriate accommodation such as classroom seating location, homework modifications, and testing modifications.

Disagreement

There are options when the family and school disagree on the assessment outcome or the extent of an IEP plan. It is usually beneficial for the family to accept the IEP so that something is in place for the child while attempts are made to resolve the issue. In some cases, the family may choose to pursue their state-specific appeals process or mediation and/or to proceed to litigation. They also have the right to pursue independent assessment of their child's suspected

Letter from parent to school

[Date]
[Principal Name]
[School Address]

Parent/Legal Guardian of [Patient Name]
[Parent Address]

RE: Request for Multi-factored Evaluation (MFE)
Student Name:
Date of Birth:
Grade: [1-12]

Dear Principal [Name],

My child, [name], goes to your school. [Name] is having problems in school, and he needs help.

I want the school to conduct a Multi-Factored Evaluation (MFE) of [name] to see if he needs special education.

My child is having difficulty with: [school issues].

I understand that the school must answer this request in writing within 30 calendar days. My address is listed at the top of this letter and you may call me at: [phone number].

I look forward to working with the school to improve my child's education.

Sincerely,
[Parent/Legal guardian name]

Letter from pediatrician to school

[Date]
[Principal Name]
[School Address]

[Pediatrician name]
Cleveland Clinic Children's

RE: Request for Multi-Factored Evaluation (MFE)
Student Name:
Date of Birth:
Grade: [1-12]

Dear Principal [Name],

I am a pediatrician at Cleveland Clinic Children's Hospital. [Child patient's name] is my patient.

I believe [child patient's name] has a disability. Because of that disability, I believe he may need special education and related services.

The parent(s) or guardian(s) of [child patient's name] inform me that they have taken some steps to request a multi-factored evaluation (MFE) for special education.

I have observed or learned that [child patient's name] has problems with the following issue(s) which makes me believe an MFE is needed: [school issues].

Please don't hesitate to contact me at 216-444-KIDS (5437) if you have additional questions about this letter.

Sincerely,
[Pediatrician's name]
[ME:#]

FIGURE 1. Templates used by Cleveland Clinic pediatricians to request evaluations.

learning disability; however, this is an out-of-pocket expense that may not be covered by health insurance. Furthermore, the school is not required to accept independent assessor results or recommendations.

There may be benefits from independent neuropsychological evaluations because most school districts do not have access to neuropsychologists. Neuropsychological evaluations can provide a detailed assessment of higher-level cognitive abilities, such as executive function, memory, visual-spatial processing, visual-motor processing, language function, effort, and attention.

THE PEDIATRICIAN'S ROLE

School communication

The pediatrician can play a key role in requesting the initial multifactorial learning disability assessment on behalf of the family. Cleveland Clinic has template letters available for both the parents and the pediatrician to send to the school that can be adapted (**Figure 1**). Both should state the suspected learning disability ing disabilities and problems and should be addressed to the school principal.

Pediatricians can also communicate with the teacher about classroom strategies before an IEP or 504 Plan is determined, in order to help set the context of what may be coming. Surprisingly, many teachers are unfamiliar with requirements made for learning-disabled students, such as the benefits of seating the child toward the front of a class.

Talk to the child

The pediatrician should emphasize to the child that everyone learns differently and in a way best suited

to him or her. The child should know that everyone's brain works differently, and every child should try to work hard at school because it is their job in life at that age. Children can relate to an analogy that the brain is like a computer, with some models being faster than others and analyzing data differently.

Parents can help children build on their natural strengths and talents despite the learning disability. Point out that some children are good at math, others at reading, and some mainly excel at sports or the arts. It may be helpful to provide real-life examples of people who are successful despite learning disability, such as a celebrity with dyslexia.

Talk to the parents/guardians

Parents/guardians need to know that learning disability is not the result of poor parenting. Moreover, emphasize that the child is not lazy or stupid and that the condition can be very exhausting and frustrating for the child. Their child will have good and bad days, much like they do at their own work. Patience, rather than force, should be stressed.

Encourage parents to find alternative ways to teach their child that make it easier for them to learn. Online education programs may serve as beneficial supplements for these children, and field trips can provide more hands-on learning. In addition, talk to parents about the need for additional, independent testing and be able to refer them to appropriate sources for such testing as well as to neuropsychological resources, when warranted.

CONCLUSION

As families increasingly turn to pediatricians to address learning disabilities and problems children are having at school, physicians need to understand the various diagnoses and be able to assist with proper assessments. While schools must provide modifications when a diagnosis is made, there is sometimes disagreement about what the specific learning disability is and its extent of involvement in the child's education. Diagnosing and addressing learning disability early can lessen various behavioral problems, help prevent dropping out of school, and enhance life outcomes for the child.

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