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Review article

Diagnosis and Treatment of Attention Deficit Hyperactivity Disorder During Adolescence in the Primary Care Setting: A Concise Review

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A B S T R A C T

Attention deficit hyperactivity disorder (ADHD) is a chronic neurodevelopmental disorder with a worldwide prevalence of about 5% in school-age children. This review is intended to assist primary care providers (PCPs) in diagnosing and treating ADHD in adolescents. PubMed, PsychInfo, and Science Citation Index databases were searched from March 1990 to 2015 with the keywords: ADHD, primary care/pediatrics and children/adolescents, abstracts addressing diagnosis and/or treatment with 105 citations identified including supplementary treatment guidelines/books. Adolescent ADHD presents with significant disturbances in attention, academic performance, and family relationships with unique issues associated with this developmental period. Diagnostic challenges include the variable symptom presentation during adolescence, complex differential diagnosis, and limited training and time for PCPs to conduct thorough evaluations. The evidence base for treatments in adolescence in comparison to those in children or adults with ADHD is relatively weak. Providers should be cognizant of prevention, early identification, and treatment of conditions associated with ADHD that emerge during adolescence as substance use disorders. Adolescent ADHD management for the PCP is complex, requires further research, and perhaps new primary care psychiatric models, to assist in determining the optimal care for patients at this critical period.

IMPLICATIONS AND CONTRIBUTION

Adolescent attention deficit hyperactivity disorder is a challenging condition presenting to primary care providers, which requires a perspective unique from childhood and adult attention deficit hyperactivity disorder. Ultimately, there is a need for new primary care psychiatric models that take into account the complexity of working with this population and the challenges working in a primary care setting.

Attention deficit hyperactivity disorder (ADHD) [1] is a neurodevelopmental disorder with prevalence rates in school-aged children of about 5% worldwide [2] and 7%–9% in the United States [3]. Primary care providers (PCPs), including pediatricians, family medicine, and other physicians, nurse

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practitioners, and mid-level professionals are increasingly screening and treating ADHD. There is some concern that insufficient training for PCPs caring for these youth contributes to the increasing prevalence rates for the diagnosis and treatment of ADHD [4], which calls for greater education for PCPs serving persons with ADHD. Reviews addressing the assessment and management of pediatric and adult ADHD [5–7] in primary care have been published although none of these have focused on adolescents. Given the unique challenges in assessing and managing ADHD in this age group, a focused review addressing adolescent ADHD can fill this gap. About 80%–85% of preteens continue to experience symptoms into the adolescent years and 60% into adulthood [8–10]. Adolescents with ADHD have difficulties in sustaining attention in routine tasks [1], academic performance [11], peer relations (e.g., increased victimization), and family cohesiveness [12–15]. Untreated patients have higher rates of risky sexual behaviors [12], suicidal thoughts in college [16], incarcerations [13], automobile accidents [17,18], occupational difficulties, and medical burden [19]. They have lower self-esteem, social functioning, economic achievement, and higher rates of substance use (SU) [20,21]. Medical problems include smoking, obesity, nonadherence, and comorbid medical illnesses [19]. These risks associated with ADHD lead to a higher demand for assessment and treatment in the teenage years, and the primary care setting is at the heart of service delivery [22–24]. Pediatricians and family medicine providers are increasingly conducting more screening, treating more patients, and maintaining treatment longer [25]. However, there is wide variability in the care provided by pediatricians for mental health issues [26]. To provide optimal care for adolescents with ADHD, PCPs have to consider symptom progression and treatment interventions in adolescence and adulthood within a developmental framework. There are two key junctures of care transitions: (1) the child's transition to a health care system geared for adolescents and (2) the adolescent's transition to the adult system that may be less familiar with the disorder. Child–adolescent–adult systems are beginning to employ the use of a range of ages (e.g., 18–21 years), rather than stopping at a fixed age (e.g., 18 years) in recognition of these challenges. Regardless, the care plan is more complex and often requires a multidisciplinary approach, including input from mental health, primary health, education/vocation, social services, and legal/correctional perspectives.

The goal of this review was to identify challenges to the evaluation and treatment of adolescents for ADHD in the primary care setting and present findings to inform a course to address those challenges. We begin by discussing the most common challenges encountered by PCPs in working with adolescents with ADHD. Next, we describe a suggested developmental framework to assist in the diagnostic and treatment decision-making. Specific diagnostic and treatment quandaries and potential solutions are presented followed by a discussion of practical aspects of treatment modalities for adolescents. Finally, we provide a guide for referring adolescents to a specialist because even with the best efforts, expertise by a care provider with specialized training in adolescence and ADHD may be necessary.

Common Challenges

There are many factors that affect PCPs' comfort and ability to screen, diagnose, and treat adolescent ADHD. Historically, treatment providers thought that children outgrew ADHD during adolescence. By the 1990s, longitudinal studies [27–32] firmly established that ADHD persisted for a significant number of children through adolescence into adulthood [20] and is associated with significant disability [33–36]. Furthermore, many are uncomfortable prescribing stimulant medication, the best supported treatment for ADHD due to concerns regarding lack of documentation of the disorder [37].

Unfortunately, there is no standardized acceptable minimum of training via didactics, supervised caseloads, or access to peers/specialists to which PCPs are exposed to in order to continue learning about ADHD over the life span [38]. More than 90% of pediatricians report familiarity with published ADHD guidelines, whereas only about 60% of family physicians acknowledge fluency with the basic guidelines for the disorder [39]. The most significant barriers cited for making the diagnosis were limited experience with ADHD in adults and difficulty in distinguishing ADHD from other conditions [40]. All this may lead PCPs to view ADHD as a disorder outside their scope of practice. It may also result in PCPs missing diagnoses when they are warranted.

Furthermore, ADHD during adolescence may be challenging for the PCP to diagnose and treat because the most noticeable, observable symptom associated with the disorder, hyperactivity, wanes in adolescence, and other hallmark symptoms, impulsivity and inattention, may be hard to distinguish from typical adolescent behavior. Furthermore, demands for all adolescents grow with expected increases in responsibility, planning, future orientation, and organization, yet these are the key areas that are problematic for those with ADHD. Thus, it can be difficult to determine if the adolescent is exhibiting "typical immaturity" within the range of the healthy adolescence or ADHD. The consequences of poor inattention and higher risk taking during the adolescent years can have profound long-term impact for both teens with or without ADHD. Thus, these issues warrant careful consideration, but determining whether they are associated with ADHD will guide the type of intervention required.

Developmental Framework

Development viewed from a biopsychosocial framework can help explain the changes of adolescence and their impact on ADHD including gender-based differences. Normative biological development includes hormonal and physical changes with a tendency for sexual and substance experimentation [41,42] that may partially be driven by a relatively immature prefrontal cortex and/or a heightened reward sensitivity [43–45]. Psychologically, teens grapple with forming a sense of identity with an increasing need for independence, while managing internal and external (family, peer and societal) expectations. Sexual maturity with a growing focus on interpersonal relationships becomes increasingly prioritized. There is greater sensitivity to peer evaluation and a heightened degree of emotional intensity associated with activation in socioaffective brain regions and circuits [46]. In today's environment, access to technology, such as cell phones and tablets, presents new modes for immediate gratification that may have serious consequences for the adolescent with ADHD. The overlay of ADHD on top of typical adolescent development presents additional challenges. The core symptoms of ADHD and their presentation in the context of adolescence are described in Table 1.