

The Many Faces and Phases of Attention Deficit Hyperactivity Disorder During Adolescence

Fraser Golding MD, BSc, Suji Lena MD, FRCPC

Background

Attention Deficit Hyperactivity Disorder (ADHD) affects approximately 5-10% of children (1). Typically, those children with a severe attention problem are identified early in their school careers when they have difficulty meeting age appropriate behavioral norms. It is recognized that many of these children do not outgrow this disorder and continue to have difficulties during adolescence and adulthood (1). It is also important to recognize that those children who are not identified early, perhaps because they may have a less severe disorder, a higher intelligence level which allows them to function adequately in elementary school, no features of

hyperactivity, or differences in parental support, present during adolescence with a wide range of difficulties, when the pressures of school, peer interactions, independence and the development of sexuality become more prominent.

Introduction

Attention Deficit Hyperactivity Disorder has been found to affect approximately 5-10% of school-age children. It is becoming increasingly recognized as a life-long disorder wherein some adolescents may continue to experience difficulty throughout their adult lives. ADHD likely represents a heterogeneous group of disorders characterized by poorly sustained attention, ineffective cognitive planning, distractibility, inadequate impulse control, instability of affect, and motor restlessness (2,3). CNS function in children afflicted with ADHD is thought to be disorganized and is affected by environmental and social stressors (2). Children are affected to varying degrees and their symptoms manifest differently in accordance with the environment in which the child is observed at a particular time. Some children may be hyperactive only in unfamiliar situations, others only in familiar ones. Almost all ADHD children experience difficulty in school (4). Although the etiology of ADHD is not yet clearly understood, more than likely, it is multifactorial, involving different neurochemical pathways with deviations in neuroanatomy and neurophysiology (5).

Adolescence represents a difficult and unique time during the transition of a child toward adulthood. For normal development of personhood, the individual is faced with four major tasks: emotional separation from the family, with acceptance of self-responsibility, the development of sexuality and a personal moral code, dealing with the need for a future vocation and making the commitment to attain it, and achieving the status of ego identity (6). A youngster with ADHD, who so far has otherwise managed to develop coping strategies to overcome his/her hidden handicap is now faced with challenges in all areas of his/her life as he/she passes through adolescence. The existence of ADHD may exacerbate the turmoil of coming-of-age. It is society's view that adolescent rebellion is a normal phase of development and this acceptance may cause a delay in the identification and treatment of some individuals.

Recognition of co-morbidity with ADHD is important in the identification and management of troubled adolescents. A conduct disorder is well recognized and well documented as being associated with ADHD; indeed, it has been observed in 30% to 50% of adolescents in epidemiologic and clinical samples (7). Moreover, there are many other psychiatric disorders which are associated with ADHD. In this manner, in the management of adolescents, it is important to recognize that there exists considerable comorbidity of ADHD with conduct disorder, oppositional defiant disorder, mood disorders, anxiety disorders, and learning disabilities (7). Thus, a wide variety of presentations may be expected from a population of adolescents with ADHD.

Regardless of the presenting complaint, the prompt diagnosis of ADHD in adolescence is important given that early management may prevent a major disturbance in social and educational development. Coleman and Levine (2) depict how behaviour and/or academics are adversely affected in these children. In practice, a physician must not only be able to accurately recognize and treat a clinical problem, he/she must also correctly identify the underlying cause in order for treatment to be successful. Given that medication is an important part of the management of ADHD, this underscores the need for accurate diagnosis since the unwarranted use of psychostimulants could result in an adolescent experiencing unnecessary and potentially harmful side effects.

A detailed and accurate history is key in the diagnosis of ADHD; the important features of such a social and educational history are:

social: impulsiveness, poor peer relations, restlessness, antisocial behaviour, ineffective social learning, family conflict, discipline problems at home;

academic: inattention, carelessness, disorganization, lack of motivation, inconsistent performance, various learning disabilities, discipline problems at school.

After clinical suspicion has been aroused, more specific diagnostic strategies may be employed to rule out an underlying attention deficit. One such stratagem involves a thorough review of academic performance and parent-teacher questionnaires. Such a review of an adolescent's report cards (specifically, comments and observations of teachers) may achieve two goals: first, the identification of the disorder may be made and, secondly, in the adolescent and parental review of report cards, both the patient and family may be provided relief as they come to accept the fact that a problem exists for which treatment is available. An assiduous and methodical approach to the diagnosis results in increased physician-patient trust and helps in the acceptance of the diagnosis and proposed management.

Objective

This study examines both the presentation and comorbidity in Attention Deficit Hyperactivity Disorder (ADHD) in adolescents.

Methodology

A retrospective chart review was conducted. Five hundred and ten charts from a clinic dealing mainly with adolescents aged 12 to 19 years were examined and an information sheet was completed on all children identified as having ADHD. The information sheet identified the presenting complaint, the clinical course, diagnostic features, comorbidity and management.

Results

A review of the charts of 510 adolescents identified 117 (22.9%) subjects as having ADHD. Of these 117 subjects, 79 (67.5%) were girls and 38 (32.5%) were boys. The ages ranged from 10 to 19.6 years, with a median age of 14.7 years. Appendix 2 summarizes the pertinent data retrieved from the chart review.

Presenting complaints

There were 19 different presenting complaints for which adolescents or their parents sought help from, or were referred to, an adolescent clinic. These complaints are in %:

	boys	girls
common complaints		
ADHD	11	5
behavioural problems	24	5
school problems	3	5
behavioural, school problems	16	15
problems at home	26	19
hyperactivity	3	0
emotional changes		
depression	0	8
suicidal ideation	0	1
low self-esteem	3	1
stress	3	0
	boys	girls
eating disorders		
anorexia	0	5
bulimia	0	14
obesity	8	1
other complaints		
psychosomatic	3	5

complaints		
substance	0	3
abuse		
sexual abuse	3	4
contraceptive	0	3
care		
pregnancy	0	4
routine check-	0	3
up		

Common Complaints

Overall, 70 (59.8%) adolescents presented with difficulties in social or academic functioning. Upon initial assessment, all but one case were suspected to have ADHD, although only 8 (6.8%) were referred as likely having ADHD. Although 31 (81.6%) boys presented with this spectrum of difficulties, it was observed less often in girls, who accounted for 39 (49.4%) adolescents.

Emotional Changes

Emotional changes accounted for the presenting complaint of 10 (8.5%) adolescents: depression 5.1%, suicidal ideation 0.9%, low self-esteem 1.7%, stress 0.9%. There is no significant statistical difference between boys and girls with ADHD who experience emotional changes.

Eating Disorders

An eating disorder was the presenting complaint in 19 (16.2%) adolescents with ADHD (anorexia 3.4%, bulimia 9.4%, obesity 3.4%).

Other

Other complaints were observed in 18 (15.4%) adolescents with ADHD [5 (4.3%) psychosomatic, 4 (3.4%) sexual abuse/assault, 3 (2.6%) pregnancy, 2 (1.7%) substance abuse, 2 (1.7%) contraceptive care, 2 (1.7%) check-up].

Comorbidity

The comorbidities present in the 117 adolescents with ADHD comprises depression, antisocial behaviour, substance abuse, psychosomatic complaints, learning disability, anorexia, bulimia, obesity, sexual abuse/assault, physical abuse, teen pregnancy, sexually transmitted diseases, migraines, and night terrors.

Depression was observed in 54 (46.2%) adolescents of adolescents with ADHD. In boys, 12 (31.6%) were afflicted with depression; in girls, 42 (53.2%), but the difference is not statistically significant. Suicide attempts were made in 11 (9.4%) adolescents, 2 (5.3%) boys and 9 (11.4%) girls. Suicidal ideation was present in at least 6 (5.1%) other adolescents: all were girls.

Antisocial behaviour, including conduct disorder and oppositional defiant disorder, was observed in 27 (23.1%) subjects with ADHD. Males had an increased prevalence with 17 (44.7%) adolescents, while girls were less inclined, with 10 (12.7%) adolescents of documented antisocial behaviour.

Substance abuse was seen in 21 (17.9%) of the adolescents with ADHD. Males and females shared a similar prevalence of substance abuse. There were 6 (15.8%) boys and 15 (19.0%) girls.

Psychosomatic complaints (including headaches, abdominal pain and back aches for which no organic cause could be found) were present in 21 (17.9%). In boys, psychosomatic complaints were present in 3 (7.9%); in girls, 18 (22.8%). It cannot be determined statistically whether or not girls with ADHD are predisposed toward psychosomatic symptomatology.

Specific learning disabilities were noted in 9 (7.7%) adolescents. It is important to note that while these adolescents were documented by psychometric testing, not all adolescents received such testing, nor were the reasons for testing consistent. A learning disability was observed in 4 (10.5%) boys and 5 (6.3%) girls. Since only a small number of adolescents underwent psychometric testing, and testing was requested because of different indicators, a meaningful statistical comparison between boys and girls with learning disabilities cannot be made.

Anorexia was seen in 5 (6.3%) girls with ADHD, bulimia was observed in 12 (15.2%). Obesity was noted in 4 (3.4%) adolescents with ADHD, 3 (7.9%) boys and 1 (1.3%) girl.

Sexual abuse/assault was reported in 13 (11.1%): 1 (2.6%) boy and 12 (15.2%) girls reported this type of abuse.

There were no documented adolescents of physical abuse of boys with ADHD. In the population of girls with ADHD, 3 (3.8%) were reported.

There were 6 (7.6%) girls reporting pregnancies. Of the six, 4 included multiple pregnancies.

Sexually transmitted diseases were documented in 4 (3.4%) girls.

Migraines were present in 9 (7.7%) adolescents, 4 (10.5%) boys and 5 (6.3%) girls.

Discussion

In the last few years, increasingly more and more adolescents with ADHD have been diagnosed in the clinic for adolescents used for this study.

A wide variety of presenting complaints are seen in adolescents with ADHD. Clinical suspicion should be raised early for those individuals who present with difficulties in social and academic functioning. Indeed, this study found that 59.8% of adolescents with ADHD presented with such difficulties. In boys, 81.6% presented with such difficulties. In practice few adolescents, 6.8%, were referred with a diagnosis despite a classic spectrum of complaints. Many adolescents, 40.2%, presented with other primary complaints for which treatment or intervention may have been required while ADHD was not addressed. This is more worrisome since these adolescents did not

volunteer information about poor social and academic functioning despite its presence. We observed that adolescents initially presenting with eating disorders (anorexia nervosa, bulimia, obesity), problems related to sexuality (an inability to remain on the birth control pill or use protection, sexual abuse/assault, teen pregnancies), and other adolescent development-related issues may have an underlying ADHD. After the initial presenting problem is relieved, then the adolescent may manifest clearly his/her struggle with school, etc., leading to a search for ADHD. In many instances, these adolescents were referred to an adolescent specialist for treatment of a problem (depression, for example) which had become increasingly complicated despite therapy.

It is our recommendation that all adolescents presenting for health care should be questioned regarding school performance as adolescents spend a third of their day in school. An effective school history can identify ADHD early. Some questions for which a positive response indicates that the adolescent may be experiencing some difficulty in school. They are:

Are you easily distracted by other students? Do you have any difficulty paying attention in school? Are you sometimes unable to answer questions in school because you were not paying attention? Do teachers pick on you more than they pick on other students? Have you been suspended? Why? Do you get detentions? Why? Are you often late for school? Do you skip classes? how many? Why? Do you daydream in school? What is hard about school? Do you have to work harder than others in school? Why? Is it hard to sit in a classroom? Do you fidget?

If history suggests ADHD in an adolescent, a review of all school report cards and the completion of Conner's Questionnaires may be used to confirm the diagnosis. It has also been observed that the diagnosis is made at three different times during adolescence. This is suggestive of a triphasic timing of presentation. A typical triphasic pattern may have the following chronology: (1) grades 6, 7, 8 - difficulties arise in settling down after a change from elementary to middle school, (2) grades 9, 10, 11 - they cannot meet expectations of self-discipline, (3) difficulties adjusting to college, university or work.

In the evaluation of any patient with ADHD the search for the existence of comorbidity is important. Depression was the most common comorbidity in adolescents with ADHD. While depression has been observed in 810% (8) of adolescents, in our population, an elevated rate of depression was observed, 46.2% with no statistically significant difference between boys and girls. This is worrisome since Biederman et al. observed a poor outcome in adolescents with both ADHD and mood disorders (7) In fact, Brent et al. reported that adolescents who committed suicide rather than attempted suicide had higher rates of ADHD and bipolarity (9) This emphasizes the importance of early intervention and the importance of addressing both problems independently.

Overall, antisocial behaviour was observed in 23.1% of adolescents with ADHD, and 44.7% of boys with ADHD. It has been suggested that ADHD, conduct disorder, and oppositional defiant disorder may not constitute separate symptom domains, although others disagree (7) This spectrum of symptoms often causes family upset and counselling for the patient and family is imperative.

Although this study does not reveal a statistically significant increase in the prevalence of eating disorders, ADHD, nonetheless, is an important consideration in the adolescent with an eating disorder. Indeed, it has been proposed that some adolescents may develop eating disorders as a coping mechanism to restore a sense of control. A patient whose underlying source of stress is

ignored may present a long and difficult course. In fact, the patient may be refractory to treatment. Stress, resulting from ADHD, may be important in the manifestation of other self-harmful behaviours such as substance abuse. This may also apply to a variety of complaints, such as abdominal pain or headaches, which interfere with normal functioning.

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Dr. Suji Lena, one of the authors, is a founding member of CAAH. To contact her: 1929 Russel Rd. Suite 314, Ottawa, ON, K1G 0N1.