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Early manifestations of behavioral disorders in children and adolescents

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Abstract

Objective: To discuss the early diagnosis of behavioral disorders in childhood and adolescence and to provide the pediatrician with practical knowledge about the first symptoms of the main behavioral disorders at this age.

Sources of data: PubMed (emphasis on the past decade).

Summary of the findings: Pediatricians should be prepared to detect behavioral disorders as early as possible. Early detection could improve outcome and/or lead to etiologic diagnosis of mendelian inheritance disorders, allowing genetic counseling. Early symptoms of pervasive developmental disorders, attention deficit/hyperactivity disorder, separation anxiety disorder, generalized anxiety disorder, depression, schizophrenia, the main eating disorders (anorexia nervosa and bulimia nervosa) and substance use and abuse are discussed.

Conclusions: The early symptoms of the main behavioral disorders in children and adolescents may appear before the age in which these conditions are currently diagnosed. Detection of early symptoms leads to early intervention, proper orientation about prognosis and, in some cases, to genetic counseling. The comorbidity among these disorders is frequent, and the symptoms of one disorder could be the first clue to allow the diagnosis of other conditions.

J Pediatr (Rio J). 2004;80(2 Suppl):S21-S27: Behavioral disorder, early diagnosis, child, adolescent.

Introduction

No agreement exists on a clear definition of behavioral disorders, which varies from one culture to another. On top of that, it is not possible to objectively measure the presence and severity of behavioral disorders, which hinders their early detection.

Pediatricians should consider the diagnosis of a behavioral disorder: 1) if there are problems with school performance that are not due to intellectual and sensory factors or other physical disabilities; 2) if there is problem establishing and maintaining social interactions with colleagues, teachers, and family members; 3) when children show inappropriate behavior or feelings towards everyday situations, or persistent sadness or depression; and 3) when there is a tendency towards the development of physical symptoms or fears associated with common problems.[1] Some psychiatric disorders such as schizophrenia are noticed before their most evident symptoms through changes in behavior and development during childhood or adolescence.[2,3] The DSM-IV (Diagnostic and Statistic Manual of Mental Disorders – fourth edition – text revision) presents more than 250 conditions that may co-occur with behavioral disorders.[4]

The detection of the first symptoms of behavioral disorders allows the referral of patients to different professionals, whenever necessary, for early interventions that could change the course of the disease. Parental education on long-term prognosis results in more appropriate expectations about their child's abilities. Some of the conditions that cause behavioral disorders are genetically determined and follow the patterns of Mendelian inheritance. The early identification of these conditions is important for genetic counseling.

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This is the case, for instance, of a boy who goes to the pediatrician because he has an autism spectrum disorder and who is eventually diagnosed with the fragile X syndrome. This diagnosis determines quite concrete practices, especially with regard to genetic counseling to mothers, sisters and maternal aunts.

It is impossible to address all conditions that cause behavioral disorders in the present review, since there exists a considerable number of them. In other countries, there are only a few prevalence studies with the general population of children and adolescents.[5-7] We have selected some conditions based on their frequency or importance of an early diagnosis. In our opinion, these conditions are the ones that may be of greatest interest to pediatricians' daily practice, as they cause remarkable restrictions on school performance and on social interactions.

Therefore, we will discuss the early symptoms of some disorders that are frequently observed among preschool children or young school-aged children, namely pervasive developmental disorders (or disorders in the autistic spectrum) and attention deficit hyperactivity disorder. We also include some disorders that have a later onset (in school-aged children or in adolescents), such as separation anxiety disorder, generalized anxiety disorder, depression, schizophrenia, eating disorders (anorexia nervosa and bulimia nervosa) and substance abuse.

Even though the present review is focused on the early symptoms of these disorders, we will briefly discuss the diagnostic criteria for each of them. Further information on diagnosis is provided by other articles published in this issue. The disorders dealt with in our review have already been the object of extensive systematic reviews that resulted in guidelines that also deal with early symptoms. We recommend these systematic reviews to those who are interested in complementary reading.[8-14]

Pervasive developmental disorders (disorders in the autistic spectrum)

Usually, the most prominent symptoms of autistic spectrum disorders, or pervasive developmental disorders, are seen after the second year of life.[15,16] However, the early diagnosis of autistic disorders has gained momentum in the last few years, due to the fact that early therapeutic interventions in pediatric patients may minimize problems in the long run.[17-20] In some disorders, the diagnosis of autism and related disorders leads to etiology, which may result in genetic counseling,[21] as with the fragile X syndrome and Angelman's syndrome.

The three major symptoms of pervasive developmental disorders are: 1) limited repertoire of activities, interests, and behaviors; 2) impairment in verbal and nonverbal language development; and 3) poor or no social interaction, including eye contact. For parents and pediatricians, these symptoms are subtle and difficult to perceive before the age of two years. Those involving communication and social interaction are perceived before and those related to limited interests and behaviors are observed later on, after the third year of life.[21] In the United Kingdom, Howlin & Moore[22] noted that the preoccupations of parents with the development of their autistic children begin around 1.7 years, but the diagnosis is established around the sixth year of life. However, up to 55% of autistic children already show some symptoms before one year of life and up to 88% do so before the age of two.[23-26]

Studies aiming at the early identification of autism have been conducted especially through home videos made before the second year of life with children who were later diagnosed with strictly defined autism.[27-29] These and other studies have suggested that early symptoms of autism are especially related to problems with joint attention, defined as behaviors that develop before language and that involve attention between 1) infant, 2) another person, 3) object or event.[30] These abnormal behaviors are characterized by lack of interest in people and objects. These children do not respond when called by their names, and do not seek to share interests. Young et al.[31] reveal some early symptoms that may be observed by parents at ages on average lower than two years, such as lack of interest in toys, no interest in sharing cherished objects or experiences, poor eye contact, intolerance of physical contact, unusual postures and fears, eating disorders, necessity for routines and rituals, stereotyped movements and behaviors, little attention to adults, temper tantrums, language regression or delay, obsessive behaviors, lack of pretend play, restricted and stereotyped interests, deficiency in nonverbal language (e.g.: lack of pointing). Visual fixation and eye movement towards human faces are impaired and this is an early symptom.[32]

Among the symptoms of pervasive developmental disorders, the ones that are more objective and more easily observed by pediatricians concern abnormal language development . Thus, according to a guideline established by several U.S. associations, the following children should be better evaluated for pervasive developmental disorders: 1) those who neither babble nor show any type of gestural language such as pointing at 12 months of life; 2) those who do not utter individual words at 16 months; 3) those who do not build two-word sentences at 24 months; or 4) those who show any loss in language or social skills at any age.[13]

Attention deficit hyperactivity disorder (ADHD)

ADHD is a neuropsychiatric syndrome whose major symptoms include: 1) inattention, 2) impulsivity and 3) hyperactivity. It is frequent among school-aged children[33] and the diagnostic criteria are better defined after the age of six years, especially because at this age, school problems become more evident, both in terms of learning and relationships.[9] The DSM-IV declares that preschool children differ from healthy and same-aged children for being in constant movement, having difficulty in participating in sedentary activities with their class.[4] However, it is difficult

to establish the diagnosis in younger children. These difficulties are related to the fact that younger children are naturally inattentive, impulsive and active, comparatively to school-aged children, which hinders the distinction between normal and abnormal behavior.[34] Nevertheless, when these behaviors are too abnormal, even in younger children, they restrict learning, social interaction, and proper relationship with parents. Environmental factors (e.g.: family dynamics), differential diagnosis and comorbidity with conditions such as oppositional defiant disorder, conduct disorder, and mood disorder (e.g.: depression), should be considered when symptoms suggestive of ADHD are a concern to parents very early on in life. The normal behavior of preschool children may vary on different days or in different situations. Activity may be aroused, for instance, in the presence of a lenient grandmother or in very stimulating environments (e.g.: supermarkets).[34] The American Academy of Pediatrics recommends that symptoms should be present before the age of seven years, so that the diagnosis can be more efficiently established.[9] However, parents show concern with attention deficit, hyperactivity and impulsivity before their children turn three or four years old.[35]

The review of home videos made within the first years of life has helped to determine the earliest symptoms of ADHD. Thus, before the first year of life, the behavior of children who will develop ADHD does not seem to differ from controls. Differences may be observed thereafter, when there is difficulty in accomplishing tasks, higher levels of activity, and less cooperation in group activities.[36] Preschool children with ADHD are more prone to mild accidents, but are not more susceptible to severe injuries.[37] When the diagnosis of ADHD is established in preschool children using the DSM-IV criteria, hyperactivity and impulsivity are more prominent than attention deficit.[38]

In the United States, prescriptions of drugs that act on the central nervous system, including methylphenidate, the stimulant most widely used to treat ADHD, have increased 200 to 300% in preschool children.[39] However, the role of stimulants is not well established before the age of six years, and neither are nonpharmacological interventions[34] Even so, in a pediatrician's daily practice, parents often ask whether their preschool children have ADHD. Parents should be educated about the uncertainties over the diagnosis before the age of six years. The use of stimulants should therefore be avoided in preschool children, although it could be considered in special situations.[34]

Separation anxiety disorder and generalized anxiety disorder

These disorders are less severe compared to other ones discussed in this review. They are, however, quite frequent in childhood and adolescence.[6,7,14,40]

Separation anxiety disorder may occur very early, after the age of five years.[41] Younger children show unreal and exaggerated preoccupation with mishaps that might happen to their parents or close friends. Therefore, separation causes anxiety and most of these children will refuse to go to school. Older children or adolescents who develop separation anxiety disorder show fewer symptoms.[42,43]

In generalized anxiety disorder, there is excessive and persistent concern with a wide series of causes and not with a single cause as occurs with separation anxiety disorder or with other anxiety disorders. These concerns include school performance, social life, health and ruminations about past or future behaviors. For a diagnosis to be established, it is necessary that these concerns result in incapacity and problems in the child's daily life. At least one of the following somatic symptoms should also be present: restlessness, fatigability, poor concentration, irritability, muscle tension or sleep disorders.[4] The onset of symptoms usually occurs in adolescence, but it may be present at the age of five years.[44] The younger the child, the fewer are the somatic symptoms. In younger children, there is a discrepancy between the symptoms reported by parents and those reported by children, who often will not confirm them.[45]

Early detection and treatment of these disorders are important, as they may continue into adulthood and cause incapacities if left untreated.[46]

Depression

According to the DSM-IV, the diseases that co-occur with depression, such as major depressive disorder, bipolar disorder, and dysthymic disorder, may affect children and adolescents, resulting in risk of drug abuse and suicide.[47-50] The frequency of depression is low up to the sixth year of life, but may reach 8% in adolescence. In childhood, the risk of depression is the same among boys and girls. In adolescence, it often affects more girls than boys.[51] In order to affirm that a child or adolescent has depression in its more evident form, that is, major depressive disorder, it is necessary that several of the major symptoms outlined by the DSM-IV be present. These symptoms, observed almost every day, are depressed mood throughout most of the day, significantly decreased interests and pleasure, significant weight loss or gain not attributed to dieting, insomnia or hypersomnia, hyperkinesis or motor slowness, fatigue, feeling of uselessness and recurrent thoughts of death. These symptoms should interfere with performance, and cannot be explained by drug use or be due to a clear environmental cause (e.g.: bereavement). However, initial symptoms may be milder, and not all symptoms may be present.[4]

There are some instruments for the detection of individuals at risk for depression in healthy populations of children and adolescents.[52-54] The early diagnosis of depression may suffer some setbacks: signs of depression in young individuals are often seen as normal for their age;

pediatricians may be reluctant to label patients as mentally disordered and, moreover, the disorders that cause depression are considered to be characteristic of adults. However, depression has had an increasingly earlier onset.[55,56] The difficulty in establishing a diagnosis in children is associated with the child's limitations in identifying and describing emotions. They may become irritated and aggressive and not tell what is bothering them; actually, irritability may be the most prominent symptom in younger children.[57,58]

Past history of major depression in either of the parents increases the risks of depression in children and adolescents.[59] Pediatricians have to be more attentive in this case. The following factors also increase the chances of depression or may cause depression in children and adolescents: smoking,[60] death of a parent or loved one, breaking up with a boyfriend or girlfriend,[62] attention deficit, conduct disorder, and other conditions that cause learning disabilities,[63] abuse or negligence[64] and separation from parents.[65]

The symptoms that should make a pediatrician consider the diagnosis of a depressive disorder are sudden behavioral changes, aggressiveness, anger, agitation, changes in sleep pattern (either insomnia or hypersomnia) or in appetite, low self-esteem, alienation from friends or family, dressing in scruffy clothes or having a disheveled appearance. Some symptoms not apparently related to depression are often associated with it, such as headache.[66] In these cases, headache may be the major symptom reported to the pediatrician by adolescent or preadolescent girls.

Schizophrenia

Studies carried out in the last decade showed that the diagnostic criteria for childhood schizophrenia may be the same ones used for adult-onset schizophrenia.[67-69] Thus, the initial symptoms of schizophrenia in children and adolescents are similar to those observed in adults. There may be delusions, hallucinations, disorganized speech and behavioral disorders, or the so-called negative symptoms, such as blunting of affect. The diagnosis can only be established when these initial symptoms persist for months and compromise the individual's regular activities and social interaction. The use of drugs that could cause these symptoms must be ruled out.[4]

Many authors have attempted to find a behavioral and cognitive profile that indicates a higher susceptibility of children to the early development of schizophrenia.[70] Pediatricians should be attentive to the symptoms of schizophrenia when either parent has been diagnosed with the disease. In this case, the chances are of 10%, whereas in the general population it is of 1%.[71] Attention deficit, abnormal gross motor skills, problems with verbal memory, late walking, and tendency to play alone have been regarded as possible indicators of schizophrenia.[2,3]

Eating disorders (anorexia nervosa and bulimia nervosa)

The major eating disorders are anorexia and bulimia nervosa. Initially, these disorders were characteristic of young, white and rich women. In industrialized countries, these disorders have been observed early on in life and have not exclusively affected rich white women, although their frequency is higher among females.[72,73] These patients have an extreme fear of gaining weight, showing a distorted body image, that is, they see themselves as fat no matter how thin they are. Patients with anorexia nervosa are reluctant to maintain a minimum weight for age and height, and insist on ignoring the risks of extremely low weight. They may engage in excessive physical exercise to lose more weight.[74] Quite often, menstrual cycle becomes irregular in adolescents and women, with long periods of amenorrhea. Patients with bulimia nervosa have compulsion to eat excessively for short periods of time and, soon after that, they self-induce vomiting, use laxatives, diuretics, enemas, or abuse of medications or physical exercise to prevent weight gain. These behaviors are usually kept secretive, as they may be a reason for shame. In bulimia nervosa, weight is kept within normal thresholds, differently from what occurs in anorexia nervosa. The diagnostic criteria are well defined by the DSM-IV.[4]

Perhaps the early detection of eating disorders in children and adolescents is even more important than any other behavioral disorder. Growing evidence has revealed that the earlier the therapeutic interventions, the better the long-term prognosis.[10] Pediatricians should therefore be attentive so as to detect these disorders as early as possible. Eating patterns in preadolescents and adolescents, as well as their satisfaction with their body image, should be assessed in routine appointments with the pediatrician. Both weight and height should be measured and the obtained values should be plotted on growth curves, since a decrease in the weight curve may be the first clue for the diagnosis. Many adolescents show excessive concern with their weight, but this information alone is not enough for the diagnosis of an eating disorder.[75] However, these adolescents have seven times the chance of developing an eating disorder[76] and should therefore be carefully followed up. It is known that patients with eating disorders tend to hide the symptoms of their disease, which may be a problem to early diagnosis. Parents can also deny the problem. In case of suspicion, pediatricians should harbor some doubt when parents or patients deny the symptoms.[12] A considerable portion of the cases do not show the DSM-IV criteria at the beginning, which does not rule out progression to anorexia nervosa or bulimia nervosa.[12]

Simple questions during the appointment may help select the patients who will need to be more carefully assessed for eating disorders. With regard to weight, pediatricians should know what their patient's maximum weight was, what the desired weight is, how often the

patient checks his/her weight, how he/she feels about his/her weight, when he/she started to lose weight, and what has been done to control it. In adolescents, it is important to keep track of age at menarche and the regularity of menstrual cycles. Preference for eating alone, selection of few foods, eating rituals (preference for certain dishes or silverware), eating in a strict order, unusual combinations of foods, excess intake of fluids, or chewing ice or gum excessively, may help establish the diagnosis.[12,77]

Substance abuse, alcohol consumption and smoking

The use of illegal substances, alcohol, and smoking may be classified into five stages. The least severe stage is characterized by poor control over impulses, necessity for immediate reward, availability of psychoactive substances, and necessity to be accepted by the group. At the most severe stage, the use of drugs is considered normal by the user, there is a feeling of guilt, abstinence, shame, regret, depression, physical and mental deterioration, self-destructive and suicidal behavior.[78]

Milder and earlier stages are more difficult to detect and assess. Bodily harm resulting from acute intoxication, legal problems, low school performance, physical and mental deterioration may be the first signs of drug abuse and may show the need for immediate intervention.[11]

Comorbidity with other disorders such as depression and schizophrenia is common.[79] The mechanism through which these and other psychiatric disorders become associated is still unclear. Very likely, mental disorders predispose to drug abuse, but these disorders may also be a consequence of this abuse.

Denial and resistance to diagnosis are frequently observed in patients and families, which hinders early diagnosis. In order to overcome this difficulty, pediatricians have to gain everybody's trust. When the possibility of substance abuse exists, anamnesis should be conducted with the patient only, without the presence of parents. Pediatricians should not show prejudice and should inform the patient, in an honest and transparent way, that the collected information will be disclosed to parents, if necessary, in a tactful and diplomatic manner. A way to approach patients is to ask their opinion about other people who use illegal substances and alcohol, or smoke, before asking them about their experience with these substances.

School can also provide relevant information, since behavior and performance are impaired due to a decrease in self-discipline and motivation, resulting in frequent absenteeism.[81]

Comorbidity of behavioral disorders

The comorbidity between the disorders discussed herein is quite common, being regarded by some as the rule instead of the exception. For instance, depression, substance abuse and eating disorders such as anorexia and bulimia nervosa are frequently associated. ADHD may also be associated with other disorders that were not dealt with in the present review, such as oppositional defiant disorder, conduct disorders, etc. Therefore, symptoms of any of these disorders do not rule out another disorder, serving as an initial clue for its diagnosis.[4,9,82]

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