

Review of autism spectrum disorder

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Abstract

Autism spectrum disorder is a group of neurodevelopmental disorders that manifest early during first 1-3 years of life and characterized by two main clinical symptoms: Persistent deficits in social interactions and repeated, restricted interests, behaviors, and activities. However, language deficit, intellectual disability, irritability and aggression, mood instability, abnormal response to sensory stimuli, poor attention span, hyperactivity and insomnia are commonly present simultaneously but not needed to receive the diagnosis of Autism. Exact etiology is yet unknown, but it's believed to be the result of interaction between genetic and environmental factors even though the genetic basis is more dominant. Mood, anxiety, psychosis, obsessive-compulsive disorder, attention deficit hyperactivity disorder, tic disorder, visual/hearing impairment and epilepsy are common comorbid conditions that require separate treatment. Autistic disorders are life-long disorders that need long term management targeting main symptoms by use of extensive rehabilitation programs along with psychotropic agents to relieve associated symptoms like irritability, aggression and self-harm episodes.

Keywords: Autism spectrum disorder, Neurodevelopmental, Genetic, Rehabilitation, Aggression

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Introduction

Autism spectrum disorders describe a wide range of impairments in social communication and restrictive, repetitive behaviors. Autism spectrum disorders are a group of neurodevelopmental disorders. The DSM-5 narrowed the diagnosis of autism to two areas: deficits in social relationships, and restrictive, repetitive behaviors.

The development and use of non-fluent language is no longer considered a key feature of autism spectrum disorder. Autism spectrum disorders are typically evident during the

second year of life, and in severe cases, developmental deficits may also be noted in the first year.

However, in mild cases, the core disorder in autism may go undetected for several more years [1]. Although language impairment is not a key diagnostic criterion in autism, doctors, and parents' concerns about a child who, by 12 to 18 months, has developed no language, and delayed language with reduced social behavior often might show symptoms of autism spectrum disorders.

Autism Spectrum Disorders in Children with Normal and Mild Intellectual functioning who does not have obvious language dysfunction may not be diagnosed until academic and social demands increase. Children with autism spectrum disorders often have an intense and exclusive focus on a narrow range of activities, resist change, and typically do not respond to their social environment in accordance with their peers [2].

According to the DSM-5, diagnostic criteria for autism spectrum disorders include deficits in social relationships and limited interests, which are present early in development.

Children with autism spectrum disorder who showed severe language deficits received an autism spectrum disorder diagnosis, on average, a year earlier than children without language difficulties. Children with autism who exhibit repetitive behaviors such as touching; tiptoeing, and exotic play are identified at a younger age than those who did not exhibit such behaviors [3].

Prevalence

Rates of diagnosis of autism spectrum disorders have increased over the past two decades, and one in 54 children in the United States is currently diagnosed with autism. Prevalence rates of autism spectrum disorders have been reported at approximately 1% in systematic reviews [4]. Autism is four times more likely to be diagnosed in boys than girls [6].

Causes and pathogenesis

The exact cause is unknown. Most studies confirm that autism spectrum disorders are the result of interactions between genetics and environmental factors [6]. There is no evidence that a single factor is involved in the etiology of autism spectrum disorders [7].

Autism spectrum disorder has a strong genetic basis (up to 90%). The rate of autism spectrum disorder is about 25 times higher in siblings of affected children [8].

The most important factors associated with autism spectrum disorders are advanced parental age at birth, a sibling with autism, birth defects, cerebral palsy, gestational age less than 35 weeks, maternal use of valproate during pregnancy, maternal bleeding during

pregnancy, gestational diabetes, first child, low birth weight, congenital malformations and hypoxia [9].

Key symptoms of autism spectrum disorder

1. Persistent deficits in social interaction:

A child cannot form warm emotional bonds with people and may not respond to a parent's affectionate behaviors with a smile or a hug. Instead, they don't seem to like being picked up or kissed. Sometimes they are no more responsive to their parents than to strangers, nor are they interested in other children. There can be little difference in their behaviors toward humans and inanimate objects. A characteristic symptom is the absence of eye-to-eye contact. The child may not participate in traditional toys in their first year of life and then they do not use toys appropriately. They show little imagination and creative play (10).

Children with autism spectrum disorder often show extreme anxiety when someone disrupts their normal routine. The social behaviors of children with autism is often abnormal and may be inappropriate, showing less interest in common interests and fewer body and facial expressions during conversations (1).

People with autism generally crave friendships, and higher-functioning children may be aware that lack of autonomy and poor skills in responding to the feelings and emotions of their peers are significant barriers to developing friendships (8).

2. Limited and repetitive patterns of behaviors, interests, and activities:

They may not normally use toys and objects. Instead, often modify games in a ritualistic manner, with fewer symbolic features. Children with autism often seem to enjoy spinning, kicking and watching water flow. Children with autism often find transitions and changes scary. Moving to a new house, rearranging furniture in a room, or even changes such as eating a meal before taking a bath when the opposite was routine may trigger panic, fear, or anger in a child with autism spectrum disorder [10].

Their desire for the same daily routine and their discomfort if there is a change in the environment. For example, some children insist on eating the same food over and over again, on wearing the same clothes, or participating in repetitive games [10].

Some are fascinated by spinning games. Strange behaviors and mannerisms are common. Some children perform odd motor behaviors such as twirling, twitching their fingers repeatedly, tapping or shaking their hands. Others show no obvious difference in motor behaviors from normal children [10].

Associated Symptoms

Autism spectrum disorder commonly associated with other symptoms that complicate the clinical picture of the disorder and the treatment plan. However, these symptoms are not needed to make the diagnosis but must be treated separately if present.

Deficits in language use and development

Deficits in language development and difficulty using language to communicate ideas are not key diagnostic criteria for autism spectrum disorder; however, they occur in a subset of individuals with autism spectrum disorders [2].

Speech may develop late or never appear. Occasionally it develops normally until about 2 years of age and then partially or completely disappears. As children grow older, about 50% acquire some useful speech, although serious impairment generally remains, such as misuse of pronouns and inappropriate repetition of words spoken by others. Some children are talkative, but their speech is repetitive monologues rather than conversations with another person. A child with autism may say “you want the toy” when he means he wants it [2].

Intellectual disability

About 30% of children with autism are intellectually disabled. Of these, about 30% of children function in the mild to moderate range, and about 45 to 50% are severe for profound intellectual disabilities. The IQ scores of autistic children with intellectual impairment tend to reflect the most severe problems in verbal organization and abstract skills, with relative strengths in visual and spatial or memory skills [11].

Irritability

Irritability includes aggression, self-injurious behaviors, and intense anger. These phenomena are common in children and adolescents with autism. Everyday situations can cause these symptoms such as moving from activity to activity, sitting in a classroom when they wish to run.

In children with autism spectrum disorders who have lower functioning and intellectual deficits, aggression may emerge unexpectedly without an obvious cause or goal, and self-injurious behaviors such as head-butting, skin-picking, and self-biting may occur [12].

Mood instability

Some children with autism show sudden changes in their mood, with bursts of laughter or crying for no apparent reason. It is difficult to learn more about these episodes if the child is unable to express their thoughts appropriately [3].

Response to sensory stimuli

Children with autism spectrum disorder may over-respond to certain stimuli and under-respond to other sensory stimuli (e.g., to sound and pain). It is not uncommon for a child with autism to appear deaf, at times showing little response to normal speech sounds; On the other hand, the same child may be intentionally interested in the sound of a wristwatch. Some children have elevated pain levels or an altered response to pain. Other children with autism do not respond to an injury by crying or asking for comfort. Some particularly enjoy spinning, swinging and moving up and down [10].

Attention Deficit Hyperactivity Disorder (ADHD)

Both are common behaviors in young children with autism spectrum disorder. Short attention spans, poor ability to concentrate on a task, interfere with daily functioning [12].

Precocious skills

Some people with autism have precocious high-potency skills, such as amazing memories or calculating abilities, beyond those of their average peers.

Other early abilities in some children with autism include the early ability to read well (although they cannot understand what they are reading), memorization and musicality (singing songs or identifying pieces of music) [4].

Insomnia

Insomnia is a common sleep problem in children and adolescents with autism spectrum disorders, occurring in 44 to 83% of school-age children [3].

Comorbidity

Comorbidities are common and include depression, anxiety, bipolar disorder, psychosis, obsessive-compulsive disorder, attention deficit hyperactivity disorder (ADHD), tic disorder, visual/hearing impairment and epilepsy [13].

Course and prognosis

Autism spectrum disorder is a lifelong disorder with highly variable severity and prognosis. Children with autism spectrum disorder who have an IQ above 70 and average adaptability, who develop communicative language by age 5 to 7, have the best prognosis.

Early intensive behavioral interventions can provide a profound positive impact on many affected children, and in some cases, lead to recovery and functioning in the medium range [3].

Symptoms that do not appear to substantially improve over time are those associated with ritualistic, repetitive behaviors. Currently, however, behavioral interventions that specifically target repetitive behaviors may improve them.

The prognosis of a child with autism spectrum disorder generally improves if the home environment is supportive [14].

Management

Treatment goals for children with autism spectrum disorder include targeting key behaviors to improve social interactions, communication, expand integration strategies with schools, develop meaningful peer relationships, and increase long-term skills in independent living [15].

Psychosocial treatment interventions aim to help children with autism to develop social agreement skills, increase socially acceptable behaviors with peers, and reduce awkward behavioral symptoms. In most of the cases, a child may need language and academic rehabilitation. Also, treatment goals generally include reducing anger and disruptive behaviors that may occur at school, at home, and during transitions [15].

Children with intellectual disabilities need appropriate behavioral interventions to strengthen behaviors and encourage self-care skills. Parents of children with autism also often benefit from psycho-education, support and counseling to improve their relationships with their children [15].

Treatment for autism spectrum disorders involves intensive behavioral programs, parental training, and academic/educational interventions, have provided the most promising results. Components of these therapies include expanding social skills, communication, and language, often through the practice of imitation, shared attention, social reciprocity, and directed child-centered play [15].

Psychosocial interventions

Include parent training, social skills training, behavioral therapy, cognitive behavioral therapy for repetitive behaviors, computer-based therapies and virtual reality [15].

Psychopharmacological interventions

Psychopharmacological interventions in autism spectrum disorder help improve behavioral symptoms rather than core features of autism spectrum disorder.

Target symptoms broadly include anger, aggression, self-injurious behavior, hyperactivity and inattention, and insomnia [8].

Anger, aggressive or self-injurious behavior

Two antipsychotics (risperidone and aripiprazole) have been approved for the treatment of irritability, aggressive behavior, and self-injury in individuals with autism spectrum disorders [8].

Hyperactivity and lack of attention

Stimulant medications such as methylphenidate are at least moderately effective for youth with ADHD symptoms. Among non-stimulant agents, the use of atomoxetine in children with autism has been shown to be significantly effective [8].

Repetitive and stereotypical behaviors

Antidepressants such as fluoxetine and mood stabilizers as Valproate and the antipsychotic risperidone have been shown to be effective in treating the repetitive behaviors of autism disorder [12].

Insomnia

Insomnia can be treated with melatonin [12].

Conclusion

This study concluded that individuals with autism spectrum disorders need specialized centers and multidisciplinary team for optimum management. Health care professionals involved in treatment plan include experienced psychiatrist, psychologist, psychotherapist, social worker, speech therapist, educational therapist, occupational therapist along with pediatrician.

Ethical Approval

The study was approved by the Ethical Committee. It was conducted in accordance with the ethical standards of the Helsinki Declaration of 1975, as revised in 2008.

Conflicts of Interest

The author declare that he has no competing interests.

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None

Study registration

Not required.

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