

Autism – Neurodevelopment Disorder

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Abstract

Autism spectrum disorder (ASD) and autism are both general terms for a group of complex disorders of brain development. ASD is associated with intellectual disability, difficulties in motor coordination and physical health problems like sleep and gastrointestinal disturbances. It is a developmental condition that affects, among alternative things, the manner an individual relates to his or her environment and their interaction with other people. Autism seems to own its roots in terribly early brain development. The causes, characteristics, diagnosis and treatment of Autism are discussed.

Keywords: Autism; Neurodevelopment disorder; Social interaction

Introduction

Autism is a neurodevelopmental disorder characterized by severe impaired reciprocal social interaction, impaired communication, and a pattern of restricted, repetitive, or stereotyped behaviors. It is a developmental condition that affects, among alternative things, the manner an individual relates to his or her environment and their interaction with other people. It is because the different areas of brain fail to work together with autism. But early diagnosing and treatment will help people with autism to reach their full potential [1,2].

Autism spectrum disorder (ASD) [3] and autism are both general terms for a group of complex disorders of brain development. ASD is associated with intellectual disability, difficulties in motor coordination and physical health problems like sleep and gastrointestinal disturbances. Some persons with ASD stand out in visual skills, music, science and art. Autism seems to own its roots in terribly early brain development. However, the foremost obvious signs and symptoms of autism tend to emerge between first two to three years of life.

Causes of Autism

The exact causes of autism spectrum disorder (ASD) are not known, but the causes vary based on the symptoms and the severity of the condition. Both genetics and environment play important role [4].

Genetics

Several genes seem to be involved in autism. Some could build a baby additional prone to the condition, while others have an effect on brain development or the way the brain cells communicate [5,6]. Every problem in genes could account for small range of cases, however taken along, the influence of genes is probably substantial. Some genetic issues appear to be inherited, whereas others happen spontaneously.

Environmental factors

Various environmental factors such as medical conditions of family, viral infections, parental age and other demographic factors, exposure to toxins, complications during pregnancy and air pollutants are currently studied by researches to explore whether these factors play role in triggering autism [7,8].

Characteristics of Autism

Characteristics of autism differ from one person to another, but in general difficulty in communication, social interaction and behavioural

changes are common others are typical of disability however not essentially exhibited by all individuals of autism spectrum disorder [9].

Communication

Autism spectrum disorder people will have communication difficulties in one or other forms. Some persons can speak fluently, others speech may be impaired to variable degrees and few others cannot speak at all. The persons who speak may use language in a limited or uncommon means [10]. Their line of speech communication could involve continuation your phrases or words back to you or asking same queries over and over. Persons with autism may say topics that are of interest to them, which makes the communication difficult. They feel difficult in interpreting facial expressions, hand gestures etc. [11].

Characteristics of impaired communication are like:

- Delay in language development
- Initiating and sustaining conversations
- Stereotyped and repetitive use of language

Social interaction

Establishing and maintaining relationships will be difficult for people with autism. Responding to the non-verbal varieties of communication that a lot of people consider granted like like physical gestures, eye contact and facial expressions [12]. They are unable to perceive and express their wants because they're unable to interpret and understand the wants of others. This shows their ability to share interests and activities with others [13,14]. For this reason they seem to be distant. As they are delayed in their speech to make non-verbal varieties of communication, it makes them to withdraw into repetitive play and behavior and avoid interaction [15]. Their difficulties with social interaction may be of following ways:

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- Difficulties in making and sustaining friendships.
- Understanding of non-verbal communication like eye gaze, gesture and facial expressions may be difficult.
- Lack to share, interests, enjoyment and activities with others.
- Response to social and emotional feelings may be difficult.

Behavioral

Persons with autism might exhibit uncommon behavior due to difficulties in responding to their surroundings. Their behaviour is mostly to express their feelings or to address with a situation. Problems may be due to sensitivity of sound or something that are seen or felt by them [16].

Other behaviors include:

- Stereotyped and repetitive body movements like spinning and hand flapping
- Use of objects repeatedly like change lights on and off or lining up toys
- Focused or intense interests
- Sticking to routines like doing things in same order daily or travelling in the same route
- Uncommon sensory interests like sniffing objects or staring at moving objects intently
- Learning difficulties or intellectual impairment

Some other conditions that children with autism may have are like:

- Sensory problems
- Sleep problems
- Intellectual disability
- Seizures
- Fragile X syndrome
- Tuberous sclerosis
- Gastrointestinal problems
- Mental disorders
- Rett syndrome

Diagnosing Autism

A comprehensive, multidisciplinary assessment is required to evaluate autism and to differentiate it from other developmental disorders [17,18]. The diagnosis of autism is done in two stages.

In **First stage** general developmental screening checkup should be done with a pediatrician or health care providers. Those with developmental problems are evaluated further.

In **Second stage** a thorough evaluation is done by health professionals with a wide range of specialists, where it can be diagnosed as any other developmental disorder or autism.

Pediatricians, family doctors, parents and teachers can minimize the signs of autism at first by early intervention which can reduce or prevent more severe disabilities associated with autism [19]. Various screening instruments are available to screen autism in early stages.

Comprehensive evaluation may include gene tests and brain imaging along with testing language testing, problem solving and in-depth memory.

Treatment for Autism

Yet there is no proper cure for autism, treating it early and getting proper medical care can reduce symptoms of autism. Early intervention programs can be helpful as there is no single best treatment for it [20-22].

Applied behavior analysis (ABA) is one type of most widely accepted treatment which focus on new behaviors and reduce undesirable ones. These interventions include:

- Verbal Behavior–focuses on language
- Pivotal Response Training–identifies pivotal skills

Some types of early interventions include:

- Developmental, Individual Difference, Relationship-based (DIR)/Floortime Model
- Treatment and Education of Autistic and related Communication handicapped Children (TEACCH)
- Interpersonal Synchrony [23]

Medication

The FDA approved medications for autism include Antipsychotics-risperidone (Risperdal) and aripipazole (Abilify) [24].

Some medications are also prescribed off-label which include Antipsychotics, Antidepressants such as Prozac or Zoloft and Stimulants such as Ritalin. But still research is being done on these medications to test safety and efficacy of these drugs [25].

Conclusion

Autism seems to possess its roots in early brain development. However, the foremost obvious signs and symptoms of autism emerge in early stages of life. Continues speaks to fund research on effective ways for early diagnosing and early intervention with most widely used behavioural therapies will improve outcomes [23]. Increasing awareness on autism is a key aspect of this work. More research studies should be focused on identifying the earliest signs of autism which helps investigators to diagnose easily and provide required interventions as early as possible.

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