

Review on Autism Spectrum Disorder

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Review Article

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ABSTRACT

Autism spectrum disorder is a spectrum of neurodevelopmental disorder usually characterized by difficulty in social behaviour and nonverbal interactions in the first three years of life. It's not a single disorder; rather it includes different developmental disorder like autistic disorder, Rett syndrome, Asperger Syndrome. Many factors are responsible for this disorder which includes genetic, environmental and perinatal factors. There is no cure for ASD, it's a lifelong disorder but some prevention may decrease the risk of getting this disorder. Studies have shown that autism is one of the developmental disorders which are growing very fast in the U.S. and mostly boys are at higher risk than girls. Some controversies were also there that there is some relation between vaccines and autism but there is no scientific proof. Still there is a lot of research required to broaden the horizons on the understanding of ASD.

INTRODUCTION

Autism spectrum disorder is a range of neurodevelopmental disorder which entails various disorders of development like Asperger syndrome, Rett syndrome, Pervasive Developmental Disorder (PDD), Childhood Disintegrative Disorder (CDD), Autistic Disorder with unique variety of severities and patterns wherein autism is essentially the most long-established [1-5]. At an early stage of existence this disorder may also be recognized. Every sufferer with autism behaves in a different way that's each and every sufferer will exhibit one-of-a-kind pattern. Differences can be in their thinking, language, behavior and social skills. Individual with this disease need to exhibit two forms of signs which can be: problems in social communicate and social interplay and limited, repetitive patterns of behavior, pursuits [6-8]. These behaviors usually evident in an excessive and focused curiosity in a precise field subject; stereotyped body movements like hand flapping and spinning; and an unusual and extended sensitivity to daily sounds or textures [9-14]. Up to date developments in neuroimaging studies have furnished many predominant insights into the pathological changes that occur in the brain of patients with ASD in vivo. Patients with this disorder normally experiences difficulties with social interplay and impaired and distinctive verbal and non-verbal conversation. Boys usually tend to have this sickness than girls [15-19].

Genetics of autism has proven tougher than expected within the early 1990s, when it was assumed that amassing a DNA collection from roughly 300 autism families and performing genome-large single nucleotide polymorphism-headquartered organization experiences would quickly reveal the genes that predispose youngsters to develop autism [20-25]. Regrettably, this was not the case; the main genome-large and candidate gene organization reviews, that are used to experiment for common variations contributing to threat, didn't determine constant genomic areas of curiosity [26-30]. Sixty six even though, with the recent availability of gigantic DNA repositories and less costly genotyping, some independently replicated findings from genome-extensive association reviews are starting to show up. The finest development towards choosing genetic causes of autism has come from settling on identified genetic mutations and disorders that may predispose to progress of autism [31-35]. Making use of common clinical genetic evaluation approaches, a genetic rationale can be recognized in 20-25% of children on the autism spectrum. This number has accelerated with the use of array comparative genomic hybridization (aCGH) also referred to as chromosomal microarrays (CMAs) [36-40]. A small number of instances can be traced to distinct teratogenic exposures. For the remainder 75-80%, the causes stay unknown. All these percentages are approximate as there's a massive bias of ascertainment, headquartered on the initial referral. Clinical Genetics clinics in finding the best possible percentage of identifiable issues, whereas committed autism clinics to find the bottom. This may also be defined by the truth that children with autism and colossal dysmorphology are extra apt to have an identifiable genetic etiology and are more apt to be said a clinical genetics sanatorium. Identified genetic motives of autism can be labeled as the cytogenetically noticeable chromosomal abnormalities (~5%), reproduction quantity variations (CNVs) (i.e., submicroscopic deletions and duplications) (10-20%), and single-gene issues (~5%) [41-45].

SIGN AND SYMPTOMS

Parents are the first one to identify the behaviour for ASD in infants and toddlers infants as young as six months. Autism spectrum disorder can affect a child's life in different areas:

- Social interaction/ communication
- Behaviour patterns

Social interaction/ communication includes having facial expressions which will not match with what they are saying, having an unusual tone which may sound flat or robot like, responding in a different way when somebody shows anger, distress or affection, making very less eye contact, getting upset by a slight change in a routine, repeating words, phrases that they hear [46-49].

Behaviour patterns includes repeating distinct behaviours or having exclusive behaviours, having overly targeted interests, corresponding to with moving objects or parts of objects, having a lasting, extreme curiosity in specific topics, reminiscent of numbers, important points, or details [50-55]. Some children with this kind of disorder show a wide range of intellectual abilities from profound mental deficiency to superior intelligence. Despite from all the difficulties, it brings out individual strengths along with their special abilities in their respective fields for example three dimensional thinking, musical thinking, artistic ability, math skills, and ability to focus intensely on an interest. Few from the patient having autism have profound capabilities or abilities which is far what would be considered as normal, which is called savant syndrome. It's a rare developmental disorder which occurs in ten percentages of the people with autism. Latest research has shown that autism is one of the fastest growing developmental disorders in the U.S [56-59].

CAUSES

There's no specified factor which is accountable for ASD. Many motives make contributions within the development of this sickness; these causes incorporate genetics, prenatal and perinatal causes, neuroanatomical abnormalities, and environmental factors [60-62]. Current research additionally suggests that variations within the progress of the mind and principal frightened system purpose autism. National Institutes of wellness (NIH) working group reached a consensus that autism most commonly results from a genetic susceptibility that entails multiple genes. To this point, genetic reasons for one disease as a rule accompanied by means of autism (Fragile X) and one autism-spectrum disorder (Rett syndrome) have been identified and genetic "hotspots" for autism had been discovered. NIH study on possible genetic, infectious, immunological, and environmental factors and mechanisms of autism continues [63-66]. A couple of prenatal and perinatal complications had been stated as viable danger explanations for autism. These threat reasons include maternal gestational diabetes; maternal and paternal age over 30, bleeding after first trimester, Use of prescription medicine (e.g. Valproate) throughout being pregnant, and meconium within the amniotic fluid [67-70]. While study just isn't conclusive on the relation of those factors to autism, each of those reasons has been identified more customarily in autistic children compared to their non-autistic siblings and different most commonly establishing adolescence. Research continues on vaccines and autism, and to this point does not factor to a connection between them [71-75].

DIAGNOSIS

There is no single test for this disorder, instead parents need to carefully watch their children like how he plays and interacts with others, reviewing child's developmental history [76-80]. Diagnosis usually involves many specialists and professionals called speech-language pathologists testing and assessing your child - this is called a multidisciplinary assessment [81-85]. When tons of experts work with your baby, it gives your baby the exceptional danger of a correct prognosis. It additionally helps to strengthen the satisfactory healing plan. Authorities will do some behavioural assessments, physical assessments and laboratory assessments [86-90]. More than a few questionnaires will support professional to discover specific form of developmental extend a youngster is suffering. This may comprise clinical historical past like the way youngster is behaving or stating at some objects and then check whether or not mum and dad are watching on the pointed objects or not. Physical assessment can comprise physical exam like head circumference, height, weight measurements. Listening to tests are also comes below bodily comparison [91-94]. Some lab assessments could incorporate chromosomal analysis, which could also be finished if mental disability is gift or there is a loved one's historical past of mental disability. For instance, fragile X syndrome, which causes a variety of under-ordinary intelligence issues as well as autistic-like behaviours, will also be identified with a chromosomal analysis [95-97].

PREVENTION

There is no way to prevent autism spectrum disorder, but it can be treated and children with this disorder can improve their language skills [98-100]. We can reduce the risk of having autism spectrum disorder just by being careful towards children, having regular check-up, avoid drugs, alcohol, eating healthy foods during pregnancy can reduce risk of having developmental disorder in infants.

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