



LIFESTYLE MODIFICATION TO MANAGE AUTISM SPECTRUM DISORDER : A REVIEW

Pharmacology

Senthil Kumari. C*	Professor, Department of Pharmacology, K.K.College of Pharmacy, Gerugambakkam, Chennai- 128. *Corresponding Author
Kavya. D	Department of Pharmacology, K.K. College of Pharmacy, Gerugambakkam, Chennai 128.
Kamatchi. A	Department of Pharmacology, K.K. College of Pharmacy, Gerugambakkam, Chennai-128.
Ramya. R	Department of Pharmaceutical Analysis, K. K. College of Pharmacy, Gerugambakkam, Chennai- 128.

ABSTRACT

Autism is a condition of Neurodevelopmental disorder which causes impairments of substantial results in communication and social interaction. It is otherwise called as Autism Spectrum Disorder. Autism can also be characterized by respective and the restricted behavior. Range of interest will be narrowed, facing trouble in speaking, understanding, voice tone, etc., are seen in the condition of Autism. Abnormalities of gut brain axis may involve. In autistic individuals macrocephaly and abnormal neuronal connectivity has been reported under the neuro-anatomical studies. The basic neurological components of autism spectrum disorder will be differences in brain structure. For the evaluation of emotions, social interaction and cognition, the cingulate cortex is important. Mainly behaviour plays a major role in the diagnosis of autism spectrum disorder. Diagnostic and statistical manual of mental disorders (DM - 5) are mainly used in diagnosis criteria, which is published by the association of American psychiatric. Intensive Behavior Intervention was most important therapy. This was the only therapy which government approved which plays a major role in the improvement of behavior.

KEYWORDS

Autism Spectrum Disorder, Neurodevelopmental disorder, Restricted behavior, social interaction.

INTRODUCTION:

Autism is a condition of Neurodevelopmental disorder which causes impairments of substantial results in communication and social interaction. It is otherwise called as Autism Spectrum Disorder. Autism can also be characterized by repetitive and the restricted behavior. In all economic, racial and ethnic groups autism spectrum disorder occurs. It can be lifelong disorder, therefore the person's symptoms and ability to function can be improved by specialized services and treatments. The autism spectrum disorder involves wide symptoms. Special facilities in full-time care needed to reduce the symptoms of autism spectrum disorder. They will be facing trouble in communicating with others. They find difficulties in understanding the feelings of others. Because of such problems they limit themselves in communicating with others.^[1]

Signs And Symptoms:

Before when a child age turns three, the symptoms of autism usually appear. Symptoms of autism commonly include: No eye contact, Range of interest will be narrowed^[1] Always like to be alone, Repeating something again and again, Facing trouble in speaking, understanding, voice tone, etc., Touch, light, sound will be extremely sensitive, Behavior will be hyper like jumping, rocking, flapping hand, Attention will be low, Frequent loneliness and more intense seen in high functioning autism.

Causes:

Genetic, cognitive and neural level will be the common cause of autism.^[2] Fetal neurodevelopment occurs due to maternal nutrition, inflammation at the time of pregnancy and preconception. Autism Spectrum Disorder is associated with intrauterine growth restriction in both term and preterm infants.^[3] Autism may occur due to damage of fetal tissues because of maternal inflammatory and autoimmune disease.^[4] Increase risk of autism may occur due to pollution of air at the time of pregnancy.^[5] Higher risk of autism seen in older patient's child. Sometimes the exposure of drugs, chemicals such as alcohol, during the time of pregnancy will have more chances of causing autism.^[6] Vaccination causing autism has not been proved.

MECHANISM:

There are two areas involved in the mechanism of autism: Pathophysiology of brain and Neuropsychological linkages.^[7] The abnormalities of gut-brain axis may also be involved.^[8] By the use of various approaches the autism mechanism was extensively studied. In autistic individuals, macrocephaly and abnormal neuronal connectivity has been reported under the neuroanatomical studies.

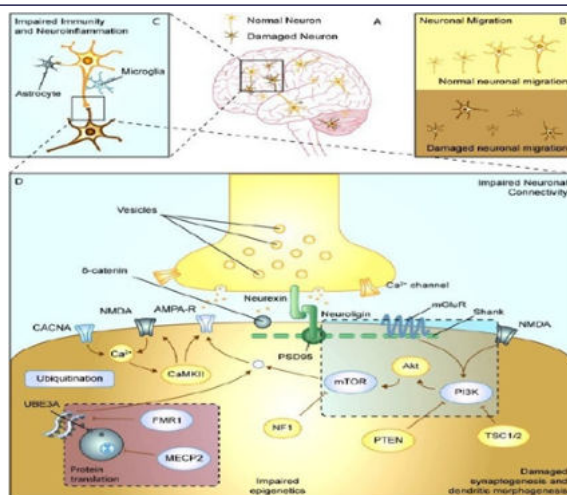


Fig 1 Mechanism of Autism Spectrum Disorder^[9]

Pathophysiology Of Autism Spectrum Disorder

The pathophysiology of autism spectrum disorder was largely unknown. Most of the information about the brain structure can be obtained through MRI. The basic neurological components of autism spectrum disorder will be differences in brain structure. They will be abnormalities of cellular components of temporal lobe, frontal lobe, and cerebellum. The hippocampus and amygdala will be enlarged. In the prefrontal cortex more neurons will be seen. In the bilateral medial frontal cortices, the myelination takes place will be greater than expected. At the left side of temporo-parietal junction, the myelination takes place will be less than expected. In the grey matter concentration, specific differences occur.^[10] In cingulate cortex and fusiform gyrus, the receptor reduction will take place. For the evaluation of emotions, social interaction and cognition, the cingulate cortex is important. For the evaluation of face and facial expressions, the fusiform gyrus is important.^[11] Elevated serotonin level was seen in 1/3 of the patients who were diagnosed with autism spectrum disorder. They will be changes in glutamate, dopamine, and acetylcholine. Prevalence of anxiety and depression was influenced by dopamine and serotonin.^[12] The behavioral disorders are linked with biotin deficiency.^[13]

Types Of Autism Spectrum Disorders^[1]:

1. Asperger's syndrome
2. Autistic disorder
3. Childhood disintegrative disorder
4. Pervasive developmental disorder(PDD / Atypical autism)

Asperger's Syndrome:

In this syndrome, the children do not face a problem with language. In intelligence tests, these children will be scoring above average / average. Therefore they will be facing social problems as well as narrow scope of interest.

Autistic Disorder:

Most of the children will be facing this disorder. There will be no communication, social interactions, mostly occur in younger children about three years.

Childhood Disintegrative Disorder:

This type will occur at least around 2 years. In this type the children will lose few (or) most of their social skills and communication.

Pervasive Developmental Disorder:

In this type the children will be delayed in communication skills and social skills.

Diagnosis Of Autism Spectrum Disorder:

The symptoms and severity widely varies in autism spectrum disorder so diagnosis may be difficult. Some of the instructions to diagnose the autism spectrum disorder are :First observing your child and questioning them about their social interaction and communication skill. Mainly behaviour plays a major role in the diagnosis of autism spectrum disorder. Testing the child like speech, social issues, behaviour issues, language, hearing etc Diagnostic and statistical manual of mental disorders (DM - 5) are mainly used in diagnosis criteria, which is published by the association of american psychiatric. Genetic testing was also performed to check whether the child was affected by the genetic disorder such as Rett syndrome / fragile X syndrome. There are several diagnostic instruments are available for the diagnosis of autism spectrum disorder.^[14]

Treatment Of Autism Spectrum Disorder:

In ASD, the pharmacological intervention are developed to reducing the symptoms which are common, such as sleep disturbance, compulsions, anxiety, impulsivity, hyperactivity.^[15]

Behavioral or educational Intervention:

The intensive skill oriented training session and highly structured session was highly used by the therapist which will help to develop the skills of social and language such as Applied Behavioral Analysis (ABA) and Intensive Behavior Intervention (IBI). Intensive Behavior Intervention was most important therapy. This was the only therapy which government approved which plays a major role in the improvement of behavior.

Medication therapy:

For the treatment of ASD no medications were approved. But 50% of the patients are treated through medication to control the symptoms of autism spectrum disorder. Mostly the medication are prescribed to treat depression, anxiety, Attention Deficit Hyperactivity Disorder (ADHD), or obsessive compulsive disorder. Wide varieties of medication such as amphetamine, antidepressant, antipsychotic, megavitamins and psychedelics.^[15]

Lifestyle Modification To Manage Autism Spectrum Disorder:^[16]

The condition of autism spectrum disorder will be life long. Early intervention of this disorder will be helpful. Structured and predictable schedule will be needed for the autism spectrum disorder. Throughout their life, support and assistant should be provided.

Melatonin helps to improve sleep:

In the pineal gland, melatonin is produced predominantly, but abnormalities in production of melatonin and circadian rhythm was implicated by the studies for the individuals who are affected by this spectrum disorder. The role of melatonin is to produce sleep but in case of autism spectrum disorder they'll be facing insomnia due to reduced level of melatonin. By taking supplements of melatonin will help them to have good sleep. During night avoid the usage of electronic devices since this will suppress the melatonin production.

Improve gut health:

Gut-brain connection in autism was confirmed by the research. 90% of gut problems are seen in the people suffering with autism spectrum disorder. The gut becomes unbalanced in this condition, therefore the positive effects are produced by taking probiotics. The mood and the behavior are connected to the gut microbiome was confirmed by the studies, the symptoms of autism will become ease by consuming probiotics.

Learn which foods to avoid:

The monitoring of patients with autism spectrum disorder while taking food is important thus this helps in getting the knowledge about the food to be avoided by the patients. Mainly dairy foods should be avoided because it is highly inflammatory foods. Rye, wheat, gluten also should be avoided, since it may worsen the condition by magnifying the symptoms of autism. The condition may be improved by avoiding corn, sugar, soya in their diet. It is good to take whole foods such as vegetables, fruits, poultry, fish, unsaturated fats in their diet. The low sugar diets helps to maintain normal blood sugar level.

Maintaining structured environment:

They will be upset or hard because of transition. So to reduce the stress, keep their things in the same place which was followed by them in the day to day life.

Avoiding distraction:

The small distraction can also disturb their mind so maintain the peace around them

Find out what is sensitive to them

Identification of the things which is sensitive to them was actually not an easy thing in the patient with autism spectrum disorder. The clothes they wearing will be feel like an sandpaper, pain in the broken bone may not hurt them , they may be facing pain while hugging. So monitor their action carefully to find out for what they are sensitive and avoid

At mealtime:

Because of taste, color, or texture they may avoid some foods which will be leading to unbalanced diet. So watch carefully and give their favourite foods to eat in correct time at a quiet setting.

Organize a task:

They may be facing difficulties in simple tasks, so split them into small parts which will be convenient for them. Brightly Visualize the schedule to be followed by them, so that they can do their task without fail.^[17]

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