

AYURVEDIC TREATMENT APPROACH IN AUTISM

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ABSTRACT

Autism is a complex neurodevelopmental condition seen in children of 2 years of age and above. This impacts the normal functioning of the brain, challenging the periodic development of children, particularly with their language and communication skills & personal response by the repetitive stereotype behaviour. This disorder usually gets evident during the first three years of life and if remain undiagnosed or neglected may harm the brain and cognitive functions for the rest of the life of the individual. It affects the western population as 100:6 and in India as 100:2. Critical awareness and more research needed other than the standard training methods practised at present. This article is an attempt to contribute treatment regime mentioned in Ayurveda science for the benefit of the condition. Ayurveda can explain the pathogenesis along with prophylaxis and specific measure for management of such disorder. After summarizing the references on Autism, it is observed that *Poorvajanitkarma*, *mithyaaharavihara* during pregnancy might be the cause of altered mental growth, development of brain and nerve tissue. The vitiation of *kapha* and *tamoguna* as well as *vata* and *rajoguna* leads to genetic abnormality *beejadusti*. The mental status of mother plays an important role in both physical and mental development of the child. Treatment currently available in Allopathy is palliative, whereas Ayurveda tries to explain about complete treatment protocol via *MedhyaRasayana*, *Rasaushadhis* & various *Panchakarma* which plays an important role in the treatment of autism and other conditions like it.

KEYWORDS: Autism, *Beejdosha*, Neurodevelopment disorder, *Medhya Rasayana*, *Unmaad*.

INTRODUCTION

Autism is a complex genetic and neurological disorder which lasts throughout a person's life span. It is characterised by- Abnormal body posturing & tone of voice, Poor Eye to Eye contact, Behavioural disturbances, Deficits in language comprehensions, Delay in learning and speech, repetitive behaviour. flat or monotonous speech, Inappropriate social interaction, sleep disturbances. Current statistics shows that autism occurs in all racial ethnic and social groups and recently there have been reports of an increase in the number of children receiving a diagnosis of autism or receiving services for autism. An autistic child however poses several skills and excellent memory. Those who have higher IQ gain high scores in their respective subjects but will not be able to abstract these learnt materials at a functional level. Moreover the parents of such child have challenging routine to overcome the difficulties in day to day routine management.

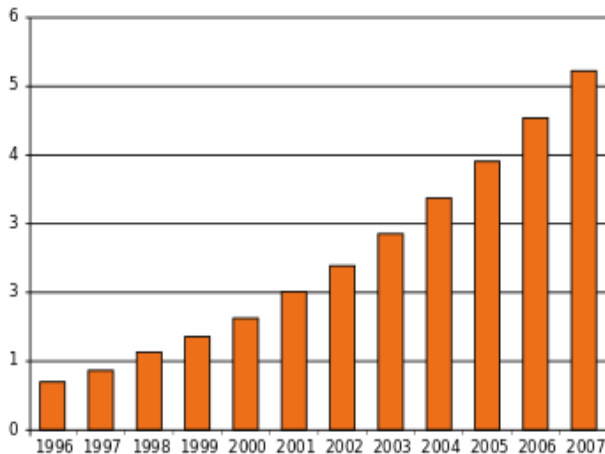
What is Autism?

According to WHO- Autism is a complex brain developmental disorder. This disorder is characterized by difficulties in social interaction and communication and a restricted and repetitive repertoire of interests and activities.

Prevalence Rate of Autism

According to 2012 review of global prevalence estimates of autism found a median of 62 cases per 10,000 people. There is a lack of evidence from low- and middle-income countries though. Male to female ratio is 4.3:1.^[10]

The number of children known to have autism has increased dramatically since the 1980s. 01 in every 88 kids in India is diagnosed with Autism.



Childhood Autism Rating Scale (CARS)

There are standard tools for the assessment to help in the diagnosis of autism. One of them is the Childhood Autism Rating Scale (CARS).

Childhood Autism Rating Scale (CARS) was developed by Eric Schopler, Robert Reichler and Barbara Rothen Renner. It was made to help in the diagnosis of autism in children. It can tell the difference if your child has autism or other developmental delay disorders like mental retardation. It makes it easier for healthcare providers, educators and parents to identify and classify children with autism.

How it Works?

CARS rates the child's behaviour, characteristics and abilities against the expected developmental growth with a typical child. As stated in the CARS, these characteristics are evaluated

- Relationship to people
- Imitation
- Emotional response
- Body use
- Object use
- Adaptation to change
- Visual response
- Listening response
- Taste-smell-touch response and use
- Fear and nervousness
- Verbal communication
- Non-verbal communication
- Activity level
- Level and consistency of intellectual response
- General impressions

It can be done by a primary healthcare provider, a teacher or a parent by rating the child's behaviours from 1 to 4.

1 = being normal for your child's age

2 = for mildly abnormal

3 = for moderately abnormal, &

4 = as severely abnormal

Scores range from 15 to 60 with 30 being the cut-off rate for a diagnosis of mild autism. Scores 30-37 indicate mild to moderate autism, while scores between 38 and 60 are characterized as severe autism.

CARS is normally used with children of 2 years of age and above. Although CARS has been used in the diagnosis of adolescents as well, according to a study done by the University of Texas Health Science Center.^[20]

Signs and Symptoms

- Problem in verbal and non-verbal communication
- Inability to engage socially or emotionally
- Preference for solitary play
- Poor eye to eye contact
- Delay of speech and language
- Impaired comprehension and language
- Behaving like deaf
- Irritability
- Chronically unhappy
- Hyperactivity and impulsivity (few cases)
- Stereotypical body movements (Twirling, flapping of hands, toe walking)
- Neurological dysfunction like seizures
- Few children showing amazing remarkable talent
- Mental retardation in 50-70% cases
- Sleep disturbance

Causes

Genetics

Genetic factors may be the most significant cause for autism. Early studies of twins had estimated heritability to be over 90%, meaning that genetics explains over 90% of whether a child will develop autism or not.^[17] However, this may be an overestimation, as new twin studies estimate the heritability at between 60-90%.^{[1][2]}

Prenatal Environment

The risk of autism is associated with several prenatal risk factors, including advanced age of parents, diabetes, bleeding, and use of psychiatric drugs by the mother during pregnancy.^[3] Autism has been linked to birth defect agents acting during the first eight weeks from conception, though these cases are rare.^[4]

Infectious Processes

Prenatal viral infection has been called the principal non-genetic cause of autism. Prenatal exposure to rubella or cytomegalovirus activates the mother's immune response and may greatly increase the risk for autism.^[5] Congenital rubella syndrome is the most convincing environmental cause of autism.^[6]

Autoimmune Diseases

Maternal autoimmune diseases can damage embryonic and foetal tissues, aggravating a genetic problem or damaging the nervous system.^[7]

Gastrointestinal Connection

Gastrointestinal problems are one of the most commonly associated medical disorders in people with autism.^[8]

Vaccines

Many studies have presented evidence in association of autism with viral infection after birth. Laboratory rats infected with Borna disease virus show some symptoms similar to those of autism but blood studies of autistic children show no evidence of infection by this virus.^[9]

Investigation

1. Gilliam Autism Rating Scale
2. Childhood Autism rating Scale (CARS).

Treatment

There is no uniform treatment for autism, as every person with this condition presents differently.

Therapies are available for managing the health issues that accompany autism. These issues can include epilepsy, depression, obsessive-compulsive disorder (OCD), and sleep disturbances.

Interventions

Children suffering from autism are not suggested for CT Brain, MRI or EEG, because these interventions don't prove beneficial. Among the treatment interventions that may be beneficial are:

Applied Behavior Analysis (ABA)

In ABA, an instructor at first tries to understand the behaviour of the patient suffering from Autism. The instructor also tries to understand the effects of the environment on their behaviour, and how the patient learns from the same.

By analysing the patient's current behaviour and teaching them new actions step-by-step, an instructor can provide both the patient and the people around them with tools for support.

Early Start Denver Model (ESDM)

This type of behavioural therapy is conducted during play, & helps children between the ages of 1 and 4 years old.

A psychologist, behavioural specialist, or occupational therapist help a child with autism build positive relationships with other children with a sense of fun. Parents can then continue the therapy at home.

Floortime

This involves parents joining their children in the play area which helps in building stronger relationships with their child. Parents let their children lead the game, allowing the child's strengths to develop.

Through this therapy, a child with autism learns two-way and complex communication, emotional thought, and intimacy.

Occupational Therapy (OT)

This helps the patient to develop the skills for everyday living and learn to be independent.

These skills include- dressing without assistance, grooming and hygiene, and fine motor skills. Patients with autism then practice these skills outside of the therapy sessions, which are usually between 30 and 60 minutes long.^[17]

Pivotal Response Treatment (PRT)

This therapy aims to support motivation and the ability to respond to motivational cues in children with ASD. It is a play-based therapy that focuses on natural reinforcement. For example, if a child wants a toy car and asks in an appropriate way, they get the toy car, not an unrelated reward, such as candy. This also encourages children with autism to start social interactions, as well as merely responding to them.^[18]

Speech Therapy

This helps to address the challenges in communication that patients with autism might experience. A speech therapist teaches the nuances of vocal tone and help the individual strengthen their speech and clarity.^[19]

Teache (Treatment And Education Of Autistic And Communication Of Handicapped Children)

This program helps to integrate the needs of children with autism into a classroom environment, with an emphasis on visual learning and support for the attention and communication difficulties that might arise.

Ayurvedic Review on Autism

Though Autism is not described in ayurvedic texts, but on the basis of the signs & symptoms of autism, the nearest similarity in Ayurvedic diagnosis is *Unmad*. The *lakshanas* described in *Unmada* are features of *Vata, Pitta & Kapha* are seen in Autism. Table no. 1 which is given below, shows the clinical features of autism & the relation with the *doshas* of the body.

Table 1: Clinical features of Autism & their relation with Dosha.

Sr. No.	Clinical features	Relevant vitiated dosha
Social Features		
1.	Problem in verbal and non-verbal communication	Vata
2.	Inability to engage socially or emotionally	Vata
3.	Preference for solitary play	Vata
4.	Poor eye to eye contact	Vata, Pitta
Language Features		
5.	Delay of speech and language	Vata
6.	Impaired comprehension and language	Vata, Pitta
Activities		
7.	Behaving like deaf	Vata
8.	Irritability	Vata
9.	Chronically unhappy	Vata
10.	Hyperactivity and impulsivity (few cases)	Vata
11.	Stereotypical body movements (Twirling, flapping of hands, toe walking)	Vata
Mental Features		
12.	Neurological dysfunction like seizures	Vata
13.	Few children showing amazing remarkable talent	Vata, Pitta
14.	Mental retardation in 50-70% cases	Kapha
15.	Sleep disturbance	Vata

Etiopathogenesis

Autism has not been described in any of the Ayurvedic classics. Only scattered information about similar diseases can be found, which can be correlated to autism. The causes of which can be Classified as *NijaNidana* (inherited causes) and *Agantujanida* (acquired causes), out of the *nijanidana* again may be classified as *Sahaja* (genetic) *Garbhaj* (congenital and in pregnancy) and *janmottara*.^[11,12]

Matruj & Pitruj Bhavas

Kapha is a matrujbhava important for development of brain (Mastulunga), & in contemporary science autism has been described as the developmental disorder of brain. So the vitiation occurring in matrujbhava may lead to the referred problem in brain. Likewise, Atmajbhav contribute chetana, buddhi, dhriti, smiriti, soatmajbhavvaigunya can cause impairment of function of mind.^[13]

Sahajanidana (Genetic Factor)

AcharyaSushruta mentioned in his text the state of health and disease are determined by the relative presence of *tridosha* since the formation of embryo in the womb.^[14] *Kapha* is *Tamobhuyistam* so that the predominance of *kapha* and *tamoguna* can contribute development of *vishada*, *nastikam*, *adharmasheela*, *budhinirodha*, *ajnanam* in child, likewise predominance of *vata* and *rajas guna* contribute development of *dukhabahutwam*, *tadansheelatadambham* and *krodha* in children.

Garbhaja

Dauhridgarbhini—Satisfying the urges and demands of pregnant mother is crucial in forth to sixth month so as these urges satisfy the demands made by the fetus which may be needful for the supplements.

The role *garbhinicharya* (ANC) is also described in detail. The abnormal antenatal care, mental status of mother, as well as *garbhopaghatkaraharvihara*, leads to *vata dushti* which can affect the *manas* and *buddhi* which develops in the forth to sixth month of intrauterine life. The environmental and ill thinking nature of mother prior to these months seriously affects the mental function of the foetus.

Janmottar (Heredity / Congenital)

Vataprakopakaharvihara and *khaphajksheer* also leads to *tridoshadushti* which further aggravates the hypofunction of *dhi*, *dhriti* and *smiriti*.

Agantuja

Internal or external injury to the developing brain (*shirobhighata*) some invisible ill elements (*bhutavesh*) infections and poisoning leads to *tridoshadushti* and by *vata*. There will be *manovahastrotosanga* (*tamas* and *rajoguna*) ultimately may affect the mental and physical development of child.

Clinical Manifestation

Most children with autism exhibits restricted range of interest, activities, playing behaviour and motor co-ordination abnormalities manifested as stereo types, preservation and lack of social interaction.

Preventive Aspects Before Conception

In Ayurveda the consanguineous (*gotra*) marriages have been prohibited by *Charaka*, *Sushrut* and genetics also described the relation of genes and gamates. *Acharya Bhela* clearly mentioned that to prevent the psychological disorders the consanguineous marriages should be avoided. Ayurveda gives prime importance in

preconceptional activities followed by father and mother.^[15]

Prevention During Pregnancy

In the context of *Garbhopghatkarbhavas*, *Acharya Charaka* has mentioned *kaphajbhava* and *atmajbhava*'s vitiation can cause autism like disorders. He has also advised to avoid various faulty dietary regimes, & trauma which can lead to various psychological disorders.^[16]

Prevention During Neonatal Period Of Child

In this respect in Ayurveda Neonatology the absolute first line care of newborn is to facilitate respiration called as *Pranpratyagamana* (resuscitation) method in the form of cleaning the *Mukhasleshma* and physical stimuli along with *Pranvayu* (oxygen) with the help of *Krishnakapalikasupa* hollow tube with the aim to prevent the birth Asphyxia which is worthy cause of autism.

Ayurvedictreatment

Autism symptoms might get reduced if supplemented through internal & local therapies, such as-

Yuktivyapashraya Chikitsa

Different types of internal medication especially *medhya* drugs, *rasaauhadhis* and *panchkarmalike Nasya*, *Dhupanas*, *Shirodhara* and oil application on the head to reduce symptom are described.

Certain *Panchkarma* which are useful in the treatment of Autism are mentioned below-

Abhyanga: Whole body massage using warm medicated oil. The process with long and brisk strokes helps support the brain with sensory information and motor skills

Nasya: Transnasal administration of herbal medicine

Shirodhara: Dripping of medicated oil over the head in a controlled and rhythmic manner

Panchakarma Techniques: *Vamana*, *Virechana*, *basti* etc are administered for deep detoxification

Raktha Mokhsana: Bloodletting is also done as part of panchasodhana.

Dietary changes become a major part of the treatment approach. Also, lifestyle changes for attaining a balanced regular lifestyle which does not overstimulate *Vata* would be charted out.

The standard treatment plan for autism would extend to duration of 21-28 days in hospital under the guidance of an experienced physician.

Many Ayurvedic formulations contain a combination of natural herbal ingredients, whose efficacy is proven in -improving memory, Reducing anxiety and depression improving social behaviour and learning skills. Thereby helps in the improvement of the autistic child certain examples of the same are mentioned below-

Brahmi

- *Brahmi*, (*bacopamonneiri*) helps to delay the forgetting process & improves memory.
- *Brahmieven* helps in the management of cognitive deficits, lack of memory power, attention deficit hyperactive disorder etc.

Shatavari

- *Shatavari* (*asperagusracemosus*) has anti-depressant qualities.

Ashwagandha

- *Ashwagandha* has high affinity for gaba receptors. Since gaba agonism and cck antagonism have been linked to anxiolysis, so it can be used in the treatment of memory loss, anxiety, attention deficit etc. Which are common features of autism.

Shankhapushpi

- *Shankhapushpi* increases acetylcholine in the hippocampus, which may be the neurochemical basis for improved learning and memory.

Other medicines described for the treatment of autism & various *manasikarogas* are-

- *Brahmi Gritham*
- *Sarasvatharishtam*
- *Panchagavyagritham*
- *Mahakalyanakamgritham*
- *Brahma rasayanam*
- *Ashwagandharishtam*
- *Rudraksha Churanam*

Table 2: Important *Rasaushadhis* for treatment of *Unmad* & Autism.

Sr. No.	Formulations	Ingredients
1.	<i>BhutaBhairav Rasa</i>	<i>Hartala, Loha, Manashila</i>
2.	<i>Bhutankush Rasa</i>	<i>Parada, Rajat, Tamra</i>
3.	<i>SameeraPannaga Rasa</i>	<i>Parada, Gandhaka, Hartala, Malla</i>
4.	<i>SmritiSagara Rasa</i>	<i>Manashilla, Dhatura, Parada</i>
5.	<i>UnmadGajkesari Rasa</i>	<i>Parada, Gandhaka, Manashilla</i>
6.	<i>UnmadGajankusha Rasa</i>	<i>Parada, Gandhaka, Abhrak, Tamra</i>
7.	<i>PravalaPishti</i>	<i>Pravala</i>
8.	<i>RajatBhasma</i>	<i>Rajat</i>
9.	<i>SwarnaBhasma</i>	<i>Swarna</i>
10.	<i>SarpagandhaKalpaVati</i>	<i>Parada, Sarpagandha, Vanga, Shukti</i>

Daivayapashraya Chikitsa

Ayurveda uses various psychological measures for getting the desired effect of a therapy or condition not responding to treatment. This comprises of chanting of different *mantras*, *mani*, *homa*, offerings etc. All these practice acts at the psychological level. As we know that faith is the part of psychology. It is true that treatment is a play of faith, moreover diseases in Ayurveda is said to be due to deeds of past life and this type of treatment is intended for pacification of such deeds.

Satvavajaya Chikitsa

This includes behaviour therapy which helps to control senses from harmful objects and controlling temper. This also includes providing awareness to the parents regarding nature of the disease and providing environmental modification for encouraging desired behaviour.

Apart from that *medhya* and *vathara* drugs should aim in correction of maladaptive behaviour, reducing hyperactivity, and improvement in area of attention, memory, and motor skills. *Medhya* drugs acts on *Prajnya* which correct correction cognitive functions.

CONCLUSION

Direct references regarding autism like disorder are not available in Ayurveda, but after understanding this disorder the Ayurvedic principal of treatment of *Manoroga* seems to be the most appropriate for autism. Autism is a manifestation having its deep root in *beejadasha* activated by favourable environment. The condition requires a long-term intervention and the improvements soon after each course of management. Ayurveda opens a large door in the management of autism and similar conditions and help those suffering from this disorder.

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