



An Approach Towards Autism Spectrum Disorders

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Abstract:

The term autism spectrum disorders (ASD) refers to a group of neurodevelopment conditions defined by impairment in three areas: social interaction, communication or use of verbal and non-verbal language, and a stereotyped, restricted or repetitive pattern of behaviour, interests and activities. Symptoms are generally obvious before the age of three years, but in most areas of the world these conditions are not diagnosed until a few years later. The increased identification of these disorders, the emotional impacts they have in families and the challenging financial demands associated with their treatment and support currently make ASDs an important illness at the scientific, public health and human rights level. In modern science different therapies available such as Cognitive behaviour therapy, Play therapy, Speech therapy, Holding therapy, Music therapy, Reiki treatment etc have been tried for longer periods to obtain substantial improvement in these children, but not satisfactory. In Ayurveda autism spectrum disorders can be explained under the disease Unamada. The majority of clinical features of different varieties of Autism Spectrum Disorders resemble features of Vatika and Kaphaja dominant Unamada. The interventions rationally employed based on the treatment principles of Unmada like purification therapies, various procedure based therapies and medications remove or reduce the effect of the triggering elements which precipitate the condition. Moreover, the Autism Spectrum Disorders require a long term intervention and the improvements seen after each course of management may amplify steadily.

I. INTRODUCTION

Autism Spectrum Disorder (ASD) and autism are both general terms for a group of complex disorders of brain development. These disorders are characterised, in varying degrees, by difficulties in social interaction, verbal and non-verbal communication and repetitive behaviours. Autism appears to have its roots in very early brain development. However the most obvious signs of autism and symptoms of autism tend to emerge between 2 and 3 years of age. Both children and adults with autism typically show difficulties in verbal & non-verbal communication, social interactions and leisure or play activities. Autism is the way of life for some. Several scientific views about the condition are mostly directed towards the dead end of medical science. ASD can be managed effectively by the rational use of certain Ayurvedic drugs and treatment procedures. This article deals with the present knowledge of Autism Spectrum Disorders as a whole and its management through modern medicine as well as Ayurvedic management in special. Eugen Bleuler (1857–1939), a Swiss psychiatrist, coined the terms *schizophrenia* and *autism*. He derived the latter from the Greek word *autos* (meaning “self”), to describe the active withdrawal of patients with schizophrenia to their own fantasy life in an effort to cope with intolerable external perceptions or experiences. The use of the term *autism* in its current sense started 30 years later when the Austrian paediatrician Hans Asperger adopted Bleuler’s terminology of *autistic psychopathst* to describe a group of children and adolescents with deficits in communication and social skills and also with a restricted, repetitive pattern of behaviours. At the same time, in 1943 Leo Kanner, at Johns Hopkins University Hospital in the US, described 11 children with striking behavioural similarities to those depicted by Asperger in his classical paper “*Autistic disturbances of affective contact*”. (Children described by Asperger differed from those of Kanner in that they had no significant delays in cognitive or language development.) These ideas were further disseminated

by Lorna Wing in the UK. As a result, there has been a gradual acknowledgement that autism constitutes a spectrum with a continuum from mild to severe symptoms and that Asperger’s disorder is part of that continuum.

II. PREVALENCE OF ASD

It is estimated that worldwide 1 in 160 children has an ASD. This estimate represents an average figure, and reported prevalence varies substantially, across studies. Based on epidemiological studies conducted over past 50 years, the prevalence of ASD appears to be increasing globally. There are many possible explanations for this apparent increase, including improved awareness, expansion of diagnostic criteria, better diagnostic tools and improved reporting.

GENDER AND AUTISM

ASD are currently more commonly diagnosed in males, with a ratio of about 1 female for every 4 males diagnosed.

CAUSES

Available scientific evidence suggests that there are probably many factors that make a child more likely to have an ASD, including environmental and genetic factors.

- **Genetic factors & familial factors:** There is no specific gene related directly to autism. But autism tends to occur more frequently than expected among individuals who have certain medical conditions, including fragile X syndrome, tuberous sclerosis, congenital rubella syndrome and untreated phenylketonuria (PKU). These suggest the role of genes in the causation of Autism Spectrum Disorders. There is a high recurrence risk for ASD among siblings, as well as a higher concordance rate in twin studies. Closer spacing of pregnancies, advanced maternal or paternal age, and extremely premature birth (<26 week gestational age) as well as family members with learning problems, psychiatric disorders, and social disability, have been identified as risk factors.

- **Environmental factors:** Environment plays an important role in the development of Autism Spectrum Disorders. This can be either an abnormal intrauterine environment such as toxic foods, use of alcohol, infections, drugs, exposure to radiation etc or an environmental exposure after birth like foods, medicines, radiation, environmental pollution, attitude of people in home, school, work place etc.
- Some other causes of ASD include psychological factors, neurological factors, food allergies etc.

CLASSIFICATION OF ASD

The classification of autism spectrum disorders has undergone many changes with progression of knowledge over time. At present, the American Psychiatric Association's Diagnostic & Statistical Manual for Mental Disorder (DSM 5) has merged the the three separate diagnoses (Autistic disorder, Asperger syndrome and PDD-NOS), previously known as Autism Spectrum Disorder, into a single diagnosis , known as as Autism Spectrum Disorder.

III. CLINICAL FEATURES OF ASD

1. Social differences

- Doesn't keep eye contact or makes very little eye contact
- Doesn't respond to parent's smile or other facial expressions
- Doesn't snuggle when picked up, but arches back instead
- Doesn't look at objects or events parents are looking at or pointing to
- Doesn't point to objects or events to get parents to look at them
- Doesn't bring objects to show to parents just to share his interest
- Doesn't often have appropriate facial expressions
- Unable to perceive what others might be thinking or feeling by looking at their facial expressions
- Doesn't show concern (empathy) for others
- Unable to make friends

2. Communication differences

- Doesn't say single words by 15 months or 2-word phrases by 24 months
- Repeats exactly what others say without understanding its meaning (parroting or echolalia)
- Doesn't respond to name being called, but does respond to other sounds (like a car horn or a cat's meow)
- Refers to self as "you" and others as "I" (pronominal reversal)
- Often doesn't seem to want to communicate
- Doesn't start or can't continue a conversation
- Doesn't use toys or other objects to represent people or real life in pretend play
- May have a good rote memory, especially for numbers, songs, TV jingles, or a specific topic
- Loses language milestones, usually between the ages of 15 to 24 months in a few children (regression)

3. Behavioural differences (stereotypic, repetitive, and restrictive patterns)

- Rocks, spins, sways, twirls fingers, or flaps hands (stereotypic behavior)
- Likes routines, order, and rituals
- Obsessed with a few activities, doing them repeatedly during the day

- Plays with parts of toys instead of the whole toy (for example, spinning the wheels of a toy truck)
- May have splinter skills, such as the ability to read at an early age, but often without understanding what it means
- Doesn't cry if in pain or seem to have any fear
- May be very sensitive or not sensitive at all to smells, sounds, lights, textures, and touch
- Unusual use of vision or gaze—looks at objects from unusual angles
- May have unusual or intense but narrow interests (According to DSM 5, there are now two domains, rather than three. The new domains are Social Communication and Restricted & Repetitive Patterns of Behaviour interests and Activities)

IV. DIAGNOSIS OF AUTISM

Although there are many concerns about labelling a young child with an ASD, the earlier the diagnosis of ASD is made, the earlier needed interventions can begin. In evaluating a child, clinicians rely on behavioural characteristics to make a diagnosis. Some of the characteristic behaviours of ASD may be apparent in the first few months of a child's life, or they may appear at any time during the early years. For the diagnosis, problems in at least one of the areas of communication, socialization, or restricted behaviour must be present before the age of 3. The diagnosis requires a two-stage process. The first stage involves developmental screening during 'well child' check-ups; the second stage entails a comprehensive evaluation by a multidisciplinary team.

SCREENING

Several screening instruments have been developed to quickly gather information about a child's social and communicative development within medical settings. Amongst these tools, the Autism Diagnostic Interview-Revised (ADI-R) and the Autism Diagnostic Observation Schedule (ADOS) are considered the gold standards for assessing Autistic children. Various other screening instruments are the Checklist of Autism in Toddlers (CHAT), the modified Checklist for Autism in Toddlers (M-CHAT), the Screening Tool for Autism in Two-Year-Olds (STAT), and the Social Communication Questionnaire (SCQ) (for children 4 years of age and older)

COMPREHENSIVE DIAGNOSTIC EVALUATION

The second stage of diagnosis must be comprehensive in order to accurately rule in or rule out an ASD or other developmental problem. This evaluation may be done by a multidisciplinary team that includes a psychologist, a neurologist, a psychiatrist, a speech therapist, or other professionals who diagnose children with ASD.

DIAGNOSTIC TESTS

No tests are confirmatory for diagnosing Autism Spectrum Disorders. Tests show much variability in different subtypes of ASD. Clinically suspected cases of ASD can be confirmed by Neuroimaging techniques, EEG analysis, neurochemical biomarkers, epigenetic studies and tests for heavy metal poisoning.

TREATMENT OF ASD

There is no cure for autism spectrum disorder. But ASD may be managed effectively with three main types of treatment :

1. Educational/behavioural interventions

It is the mainstay treatment for children with autism. It helps the child attaining social skills and improves her language and social abilities. Cognitive behavioural therapy can help to manage obsessive behaviour and anxiety.

2. Medication

If behavioural and educational interventions aren't sufficient, medication may help in an individual with ASD to better manage his symptoms. Three main classes of ASD medications are used with ASD patients: stimulants, anti-depressant & anxiety medications, and atypical antipsychotics.

3. Alternative therapies

Alternative therapies include- Auditory integration training (AIT), B6/Magnesium supplements, casein & gluten free diets, dimethyl glycine (DMG) & trimethylglycine(TMG) supplements etc.

AUTISM SPECTRUM DISORDER AS PER AYURVEDA:

Autism Spectrum Disorders can be explained under the disease Unmada. The majority of clinical features of different varieties of Autism Spectrum Disorders resemble features of Vatika and Kaphaja dominant Unmada. Autism shows abnormal involvement of almost all of the mental faculties described in Unmada such as

- **Manas**- mind- Which is invariably affected in Autism Spectrum as it encompasses all the faculties
- **Buddhi** - intellect - Could be genius and abnormal as seen in savant abilities or subnormal as seen in Mental retardation.
- **SamjnaJnan**- Conscious presence - may be involved as the child is seen to be lost in his own world, barring one or more sensory stimuli.
- **Bhakti**- longing- Innate willing to communicate with others may be lost.
- **Shila**- manners - Inappropriate emotional outbursts and adhering to specific rigid routines, due to inability to change.
- **Cheshta**- activities- Motor stereotypy's which are inappropriate and compulsive.
- **Achara**- learnt skills- Impaired socialization skills, inability to follow commands, regression of language and social milestones, etc.

CAUSES OF AUTISM SPECTRUM DISORDERS (UNMADA)

The causes of Autism (Unmada) can be summarized into the following headings:

- **Beejadosh**a (Genetic alteration, mutation)
- **Aharadosha**(Food related causes) such as Viruddhahara (incompatible foods).
- **Viharadosha** (Inappropriate regimens)
- **Manaabhigata** (Brain injury)
- **Vaikarikabhava** such as Bhaya, kopa, soka and harsha (Emotional factors such as fear, anger, sorrow, pleasure etc) According to Ayurveda the role of environment is of three fold in which the antenatal conditions take a prime role. The dietetics and mode of life contraindicated for pregnant women or the factors likely to harm the foetus is explained as garbhopaghatkarbhavas and are assumed to have major role in its aetiology. Perinatal events like hypoxic state, ischemic insult, hyperglycaemia, etc may result in the development of Autistic features in some. Postnatal meningitis, seizures, jaundice and consequent brain damage have been noted as contributors of Autistic features in children.

AUTISM SPECTRUM DISORDERS AYURVEDIC PERSPECTIVE

There are three classical therapeutic streams advocated by Ayurveda which used in the management of Autism Spectrum Disorders (Unmada). They are

1. DaivaVyapasraya (Confidence building treatment) - rites and rituals to ward off the unseen evil forces (environmental agents including micro organisms) and in turn protecting the body and mind.

2. YuktiVyapasraya (Rational Medical Management) - rational prescription of drugs, therapies, food and activities to keep the equilibrium of the body intact.

3. Satvavajaya (Mind or self control techniques) - cognitive, behavioural and spiritual knowledge and training methods to develop and maintain the mental faculties.

The rational Ayurveda treatment is carried out in four parts. They are

(1) Dosh pacifying therapy (Samsamana),

(2) Bio-cleansing therapy (Samsodhana or Panchakarma)

(3) Avoidance of causative factors (NidanaParivarjana)

(4) Favourable diet and regimens (PathyaAharavihara).

CLASSICAL MANAGEMENT OF AUTISM SPECTRUM DISORDERS IN LINE WITH TREATMENT OF UNMADA

Autism requires therapies which work at the physical, mental and spiritual planes. Classical Ayurvedic treatment recommended for Unmada (Psychological disorders in general) is well suited to bring back children affected with Autism Spectrum Disorders to normalcy. The classical Ayurvedic management of Unmada is as follow

- **Deepana and Pachana** (Drugs and procedures that promote digestion)
- **Snehapana** (internal oleation use of medicated ghee)
- **Mridushodhana** (mild body purification by emesis or purgation)
- **Niruhabasti** (decoction enema) and Snehavasti (oil enema)
- **Sirovirechana or Nasya** (medicated nasal drops)
- **Sanjnaprabodhana**(oral medication to stabilize the mind)

Procedure based therapies: Apart from the modified Panchakarma therapies, certain procedure based therapies are also used in the management of Autism Spectrum Disorders. These are mainly used to promote the development of brain and to reduce or control the troublesome behaviours found with Autism Spectrum Disorders.

- **Abhyangam** (Oil massage-head and body)
- **Siropichu** (Overhead application of specific oil)
- **Sirodhara** (Pouring of specific oil over forehead as a continuous stream)
- **Sirolepam** (Overhead application of medicinal paste)
- **Takradhara** (Pouring of medicated buttermilk over forehead as a continuous stream)

Follow up treatment found effective in the management of ASD After the main course of treatment, a child affected with Autism Spectrum Disorders requires steady and continuous follow up therapy up to the commencement of next intensive therapy. The preparations most commonly used in the management of Autism are the following.

- Kallyanakaghrita
- Mahakallyanakaghrita
- Mahachetasaghrita
- Jivanthyadighrita
- SiddharthakGhrita
- MahapaishachikaGhrita
- LashunaddaGhrita

Single drug recommended in ASD (Unmada)- Various single drugs used in ASD (unamda) are as follow

1. Lashuna (*Allium Sativa*)
2. Hingu (*Ferula Narthex*)
3. Chorak (*Angelica Glauca*)
4. Bramhi (*BecopaMonnieri*)
5. Jatamansi (*NardostachysJatamansi*)
6. Sankhpushpi (*Convolvulus Pluricaulis*)
7. Kooshmanda (*BenincasaHispidia*)
8. Yastimadhu (*GlycyrrhizaGlabra*)
9. Vacha (*AcorusCalamus*)

V. CONCLUSION

To conclude, Autism is perceived as a manifestation having its root deep in the *Bijadosha* (genetic predisposition) and activated by risk factors. Hence it is considered as genetic form of *Unmada* (Psychiatric disorders in general), which is a lifelong condition. The *Ayurvedic* interventions are not going to alter the initialgenetic makeup altogether. The interventions rationally employed based on the treatment principles of *Unmada* like purification therapies, various procedure based therapies and medications remove or reduce the effect of the triggering elements which precipitate the condition. Moreover, the Autism Spectrum Disorders require a long term intervention and the improvements seen after each course of management may amplify steadily. *Ayurveda* opens a huge door in the management of Autism and similar conditions and shows the ray of hope to those in dark

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