

## Autism Spectrum Disorder Relation to Unmada in Ayurveda

\*Dr Jigyasha\*Dr Gayatri\*\*Prof. (Dr.) Harish K. Singhal\*\*\*Dr Dinesh K. Rai

*\*MD Scholar \*\*\*Professor & HOD\*\*\*Ex-Associate Professor*

*P. G. Department of Ayurveda Pediatrics*

*Postgraduate Institute of Ayurveda*

*Dr. S. R. Rajasthan Ayurved University, Jodhpur, Rajasthan*

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### ABSTRACT: -

Autism Spectrum Disorder is a neurobiological disorder characterized by lack of social interaction and communication with confined and repetitive activities. Over the past 25 years, the prevalence has considerably grown. ASD most likely has a complex etiology, with both genetic and non-genetic factors contributing. Since there are currently no diagnostic biomarkers, the diagnosis of ASD is made on the basis of characteristic behaviors. Modern psychiatric and physiological theories have a very different understanding of the human brain. Autism has close similarities to the features of that Unmada which is described in Ayurveda. Autism shows abnormal involvement of almost all of the mental faculties described in Vataja, Pittaja and Kaphaja Unmada. The causes for any disease according to Ayurveda are threefold such as improper contact of senses with their objects, improper functioning of the mental faculties, in turn leading to execution of inappropriate actions and Time. It is observed that in Ayurveda, the psychiatric disorders are grouped under Unamda. Under the current healthcare model, have limited conventional treatment options are available to parents who are seeking to alleviate the symptoms of their child's autism. Applying behavioral analysis (ABA) therapy frequently and intensively is a recommended treatment that has been scientifically validated. Because of the limited number of options for treatment within the conventional medical model, many parents turn to complementary and alternative medicine (CAM) in an attempt to improve their child's health, functioning, and capabilities. K.S. Dinesh et al 2020, has recently formulated an AGASTYA protocol, which is an Indian approach of Ayurveda care. The framework of the protocol is derived from observations and experiences obtained from multiple pilot studies. AGASTYA protocol is useful in managing children with ASD, which emphasizes the necessity of integrating AGASTYA with the fundamental operational ideas that are

used across the country<sup>39</sup>. The word AGSTYA denote Ayurveda herbal drugs, Gut therapy protocol, Ayurveda standards of living, Training of parents and Yogic assistance.

**Keywords-** Ayurveda, AGASTYA, Autism Spectrum Disorders, Behavioral disorder, ABA, Unamda,

### I. INTRODUCTION: -

Early childhood is the commencement of autism spectrum disorder (ASD), a neurobiological condition. The main characteristics are confined and repetitive activities together with difficulty in social interaction and communication. There is presently no definitive biomarker for ASD, and the presentation of ASD can vary greatly from person to person and during the course of development for a specific child. Therefore, a thorough examination of the history and direct observation of the child's behavior are necessary for an accurate diagnosis. According to the U.S. Centers for Disease Control and Prevention (CDC), ASD affects 1 in 59 people. Over the past 25 years, the prevalence has considerably grown, largely due to advances in diagnosis, case studies, and the inclusion of less severe presentations on the autism spectrum. There are 4:1 more men than women. Identical twins in particular and siblings in general are more likely to experience it (recurrence rate up to 10%). There is no difference in prevalence by race or ethnicity. People with lower socioeconomic level and members of racial minorities are more likely to receive a diagnosis later<sup>1</sup>. Ayurveda understands autism in two ways: first, biologically, as an illness associated with Kostha (gastrointestinal disorders, dysbiosis of the stomach, or Dhatu dysregulation of metabolism and manufacturing of neurotoxins), while the other is metaphysical, or at the level of the Buddhi, Manas, and Atma. Apkava Parinam is present in both the Kostha and Dhatu levels. Ama is produced in both, and incorrect Rasa Dhatu is established. Taking another level into consideration, the correct association of Indriya,

Indriyarth, Mana, and Atma results in the knowledge of Gyan. Any derangement in this process leads to the absence of knowledge, so the patient cannot respond to social stimuli, leading to behavioral disorders, also seen in Autism. The pathophysiology of Unmada resembles Autism; in both, there is derangement of Mana, Buddhi, Sangya, Gyan, Smriti, Bhakti, Sheela, Chesta and Achar<sup>2</sup>. 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 Disorder as it encompasses all the faculties. Buddhi (intellect)-the child could be genius and abnormal as seen in savant abilities or subnormal as seen in mental impairment. Sangya Jnana (Conscious Presence)-child is seen to be lost in his own world, barring one or more sensory stimuli. Bhakti (longing)-Innate willing to communicate with others is lost. Sheela (manners)- inappropriate emotional outbursts and adhering to specific rigid routines, due to inability to change. Chesta (activities)-motor stereotypies which are inappropriate and compulsive. Achara (learnt skills)- impaired socialization skills, inability to follow commands, regression of language and social milestones etc.<sup>3</sup>

#### **AIMS AND OBJECTIVES: -**

To understanding autism spectrum disorder from the perspective of Ayurveda by relating it to Unmada.

#### **MATERIALS AND METHODS: -**

All significant Ayurvedic and contemporary scientific books, as well as online databases, are recommended research. A review of the literature to determine the impact of contemporary medications, Ayurvedic treatments, biochemical parameter associations, and other interventions on autism.

#### **Method of data source: -**

Searched through Ayurveda, MEDLINE (PubMed), Cochrane, JAIMS and Google Scholar.

#### **ETIOLOGICAL FACTORS**

ASD is a neurobiological condition influenced by both genetic and environmental factors that impact the developing brain although no single, common etiology of ASD has been identified at present, ongoing research is expanding our knowledge of possible etiologic processes<sup>4</sup>. Neuropathologic studies are limited it has been possible to identify modest malformations such as

altered frontal and temporal lobe cortical modifications, abnormalities of the limbic system, and variations in cerebellar architecture and connections<sup>5</sup>. Genetics play a part in ASD susceptibility; siblings of individuals with ASD have a greater diagnostic rate compared to the general population, and autism diagnoses are significantly more likely, though not always, to coincide in monozygotic twins<sup>6</sup>. Knowledge of the genes that are linked to autism spectrum disorders (ASD susceptibility) has expanded through whole exome sequencing and genome wide association studies. Understanding the roles played by these genes may also provide insight into possible biological mechanisms<sup>7</sup>. In the end, research keeps surfacing variables that are correlated with the possibility of ASD, but no conclusions about etiology have been drawn. With researchers still working to identify novel variations indicating genetic risk or novel environmental correlates requiring additional investigation, there is still a great deal of space for discovery<sup>8</sup>.

The causes for any disease according to Ayurveda are threefold. They include improper contact of senses with their objects, improper functioning of the mental faculties, in turn leading to execution of inappropriate actions and time<sup>9</sup>. All etiological variables for autism are included in this larger version of causes for any condition, hence the following are the etiological factors for autism spectrum disorders according to Ayurveda:

#### **1. Beeja Dushti (Genetic factors): -**

According to Ayurveda, a child's basic constitution is formed at the time of conception. Prakrati is the basic composition doesn't change over the course of a lifetime<sup>10</sup>. This is later modified for a number of reasons. Every person constantly interacts with their surroundings, which could potentially have an effect on their constitution. An attempt will be made by the body to preserve a dynamic equilibrium or balance with the surroundings. A child is said to be in Vikrati if they consistently stray from this equilibrium. Children with autism spectrum disorders are born with an autistic Prakrati (trait) or Vikrati (disease), and an adverse environment causes the development of inappropriate social and language communication as well as undesired, demanding conduct and interests.<sup>11</sup>

#### **2. Environmental factors: -**

According to Ayurveda, three roles are played by the environment, with the condition of

the fetus being one of the most important. It is significant to note that the Garbhiniparicharya (schedule for care of pregnancy) provides a thorough explanation of the advice and guidelines given to expectant mothers<sup>12</sup>. Ayurveda holds that a mother's food and activities throughout her pregnancy play a significant role in both maintaining her own health and influencing the development of the child's physical and mental disorders. A child who grows up to be jealous and antisocial can be affected by a mother's negative thoughts about other people. A terrified child could be born to the grieved mother<sup>13</sup>. Therefore, the chances of a healthy child are influenced by the physiological, psychological, and pathological experiences that a mother has during her pregnancy. An aberrant intrauterine environment can cause growth retardation, developmental abnormalities, and other symptoms in a child who is genetically prone to autism. Some persons may have prenatal events such as hypoxia, ischemia damage, hyperglycemia, etc. that result in the development of autistic characteristics. Children with autism features have been related to convulsions, postnatal meningitis, and subsequent brain injury<sup>14</sup>.

### 3. Viruddha Ahara (Dietic Incompatibilities): -

In traditional Ayurveda, one of the main themes is Virudh Ahara. Numerous systemic disorders are attributed to it in Ayurvedic literature. People who eat an unbalanced diet are more likely to get various ailments. Incompatible foods damage the digestive tract and increase the risk of metabolic diseases. A diet that disrupts metabolism is not considered appropriate. They inhibit the growth of the components of tissues and interfere with their normal functioning. Food incompatibility can be caused by eating the incorrect foods in the wrong amounts, at the wrong times of day, in the wrong season, or with improper cooking<sup>15</sup>. If an autistic sensitive child is exposed to such unsuitable meals, they may exhibit autistic traits at a much younger age. For all clinical subtypes of autism spectrum disorders, it is therefore recommended to include appropriate food in diet plan.

### 4. Dushi Visha (Latent Poison): -

Majority of poison accumulation that occurs in our bodies these days accomplishes even without our understanding as a result of change in lifestyle. According to Ayurveda, Visha is categorized into a number of categories, including

Sthawar, Jangam, Garavisha, Dushivisha etc. Garavisha and Dushivisha has not entirely left the body or whose efficacy has been diminished as a result of Agni, Vayu, or Aatapa, or as a result of the antidote's effects. Dushivisha is defined by Chakrapani as "Kalantara Prakopi Visham Dushi Visham". Which indicates that the symptoms appear later<sup>16</sup>. When Dhatus is vitiated because of factors such as Desh, Kala, Aahara and Nidra during day time is called Dushi Visha<sup>17</sup>. Dushivisha are slow-acting, cumulative poisons that remain in the body after being completely removed. As a result, they impact all Dhatus progressively; when it reaches Rakta Dhatu, it causes toxicity in Raktavaha Srotas, which causes Arunshika, Kitibh, and Kotha<sup>18</sup>. People are now more vulnerable to a variety of poisons, such as slow poison found in food and the environment, as well as poison that has been old and weakened by anti-poisoning medications or dried by wind and forest fire and the sunlight or naturally deficient is properties of the poison is defined as Dushivisha. It is not lethal due to its mild potency and being covered with Kapha<sup>19</sup>. It remains in the body for many years. The body is constantly absorbing heavy metals such as lead, zinc, titanium, mercury, arsenic, and so forth because of the increased usage of fertilizers, insecticides, and other industrial items, as well as automobile pollution. Metals can enter the body through food, medicine or the environment<sup>20</sup>. The Dushi visha (latent toxin) can cause a variety of neurodevelopmental abnormalities like autism spectrum disorders.

### PATHOPSYCOLOGY

Shareer and Mana are two Sthana (places) for diseases. The body is said to be the first place of disease, because the disease in the body is clearly visible and on the other hand the disease in the mind is predictable by the symptoms. Shareerika Roga like- skin disorders, nervous disorders are turn into mental illnesses like- Unmada, Apsmara etc. over a time<sup>21</sup>. Unmada is a disease in which Mana and Shareer have equal involvement. So, in terms of Ayurveda there are two ways to understand autism: first is biologically, as a problem associated with Kotha (gastrointestinal diseases, dysbiosis of the gut, or Dhatu, which is a disturbance of metabolism and neurotoxic generation); and the other one is metaphysical or at the level of Atma, Mana, Buddhi. Both the Kotha and Dhatu levels exhibit Apkava Parinam, Ama generation occurs in both levels, and improper Rasa Dhatu is generated<sup>22</sup>. On

considering another level according to Acharya Charak in Shareer Sthan order of origin of knowledge is explained. First of all, the senses along with the Mana receive their respective objects. After this the Mana decides whether this object is Gunayukta (Good) or this object is Doshyukta (Bad). A person is capable of saying or doing something intelligently according to the determination that he has in this matter. If there is Ayoga (impairment), Atiyoga (excessive pairment) or Mithyayoga (False pairment) of Atma, Indriya, Manoartha<sup>25</sup> occurs then following characteristics of Unamda are seen- Dhi Vibrama (intellectual fuzziness), SatwaPariplava (fickleness of mind), Pariyakula Dristi Adhiratha (unsteadiness of vision), Abaddha Vakyatwam (incoherent speech), Hridayam Cha Sunyam (empty mind), and Sa Muda Na Sukham Na Dhukam Na Achara Dharmo (such a person becomes incapable of experiencing pleasure and sorrow).<sup>24</sup>

In relation to this scientific understanding, the GI system is especially sensitive to stress activation. This biological interaction has been connected to the stress response's activation of the hypothalamic-pituitary-adrenal (HPA) axis. HPA activation results in the release of corticosteroids, which can alter the makeup of the microbial populations in the gut<sup>25</sup>. In a 2016 study, Kanuri et al. discovered that a history of physical, sexual, or emotional abuse was frequently present in patients with irritable bowel syndrome (IBS)<sup>26</sup>. The most significant finding of this study is how stress affects the GI system, which can worsen inflammation and affect emotional function if treatment is not received. Immune, endocrine, humoral, and neurological connections between the

gastrointestinal tract and the central nervous system facilitate bidirectional communication<sup>27</sup>. According to additional research, the gut microbes release chemicals that affect brain function, including chemokines, neurotransmitters, neuropeptides, cytokines, endocrine messengers, and microbial metabolites like "peptidoglycans, branched chain amino acids, and short-chain fatty acids"<sup>28</sup>. These products can then be sent to the brain by the intestinal microbiota through the blood, neurons, endocrine cells, neuropod cells, and more to be determined<sup>29</sup>. Subsequently, the products reach key brain regions and influence several metabolic functions. Research has validated the communication among the prefrontal cortex, the hippocampus, and the amygdala (which controls emotions and motivation), serving as a key node in the gut-brain behavioral axis<sup>30</sup>.

**Samprapti Ghatak**

- **Dosha- Sahreerika Dosha-** Vata, Pitta, Kapha  
**Manasika Dosha –** Raja, Tama
- **Dushya-** Mana
- **Adhishthan-** Hridaya
- **Srotas-** Manovaha
- **Agni-** Vishmagni
- **Sadhyata- Asadhyata-** Kricchsadhya

**Clinical manifestation**

Unmada is the closest Ayurvedic diagnosis that resembles Autism Spectrum Disorder. The Lakshanas (features) described in Unmada are a combination of features associated with Vata, Pitta and Kapha either separately or collectively even observed in case of ASD<sup>31</sup>.

**Table No. 1 Features of Vataja Unmada correlated with ASD**

Features of Vataja Unmada	Features of ASD	Type of ASD
Parisaraṇam Ajasra running (Constantly around)	Hyperactive	Childhood Autism, Autistic disorder
Akasmāt Akṣhi Bhru Oṣṭā Amsa Hanu Agrahasta Pada Anga Vikshepana (Repetitive motion of the hands, feet, chin, eyebrow, lips, and other organs)	Highly repetitive and Stereotyped hand and eye movements	Childhood Autism, Autistic disorder
Satatam Aniyatanam cha Giram Utsargah (Regular utterance of uncontrolled voice and sound)	Monotonous speech, Oddity in speech	Asperger syndrome (AS)

Phenagamnam Asyat (Saliva frothing off)	Drooling of saliva, sucking of fingers	Rett's syndrome, Organic brain problem (Tuberous sclerosis etc.) with Autistic features
Abhikshna Smita Hasita Nrutya Gita Vaditra Samprayogascha Asthane (Overindulgent yelling, dancing, singing, or playing musical instruments in inappropriate settings or situations)	Fond of music, dance etc. screaming without any reason	Childhood Autism, Autistic disorder, Asperger syndrome
Vina Vansa Sankhasamyatala Sabdanukaranam (imitating the flute, conch shell, veena, etc.)	Echolalia	Childhood Autism, Autistic disorder, Asperger syndrome (AS)
Yanam ayaneh (Riding on toys or anything that are not vehicles)	Riding on nonvehicle toys or objects	Childhood Autism, Autistic disorder
Alankaranam Analnkarik dravya (Using non-ornamental materials to ornamentation)	Ornamentation with non-ornamental substances	Childhood Autism, Autistic disorder
Lobhascha Abhyavaharyeshva Alabdheshu (Desire for rare edible food materials)	Eating disorder (selective eating)	Childhood Autism, Autistic disorder, Asperger syndrome (AS)
Labdheshu Chaavmana Tivram Matsaryam cha (Distaste or rivalry for food that is readily accessible)	Eating disorder (over eating)	Childhood Autism, Autistic disorder, Asperger syndrome (AS)

**Table No. 2 Features of Pittaja Unmada correlated with ASD**

Features of Pittaja Unmada	Features of ASD	Type of ASD
Amarsha (Intolerance, impatient)	Impatient for turn taking	Childhood Autism, Autistic disorder, Asperger syndrome (AS)
Krodha (Anger)	Temper tantrum	Childhood Autism, Autistic disorder, Asperger syndrome (AS)
Asthane Samrambha (Violence or aggression at improper occasions or places)	Violence or aggression at improper occasions or places	Asperger syndrome (AS)
Shashtra Loshra Kasha Kashtha Mushṭibhir Abhihananam Paresamm va (Makes injury to self or other by hitting with arrow brick whip wood or fist)	Makes injury to self or other by hitting with arrow brick whip wood or fist	Childhood Autism, Autistic disorder, Asperger syndrome (AS)
Abhidraavanam (Attacking)	Attacking	Severe Autism, Asperger syndrome
Prachayasitodaka	Desire for tree shade, cold water	Childhood Autism, Autistic

Annabilasha (Desire for tree shade, cold water and food)	and food	disorder, Asperger syndrome (AS)
Santapashcha Aivelam (Excessive heat or anguish)	Excessive distress	Autism, Asperger syndrome

**Table No. 3 Features of Kaphaja Unmada with ASD**

Features of Kaphaja Unmada	Features of ASD	Type of ASD
Sthanam ekdeshe (Stay in one place or spot)	Solitary play	Childhood Autism, Autistic Disorder
Tushnimbhavah (Silence, less talkative)	Have less babbling and speech along with gestures (pedantic/formal or idiosyncratic speech, and oddities in loudness and pitch)	Childhood Autism, Autistic Disorder
Alpascha Chankramana (Clumsiness, less mobility)	Clumsiness, less mobility	Asperger syndrome
Lalasinghanaka Stravanama (Drooling of saliva, running nose)	Drooling of saliva, running nose	Organic brain problems (Tuberous sclerosis etc.) with Autistic features
Anna na Abhilasha (Aversion towards food)	Eating disorder	Childhood Autism, Autistic Disorder
Rahasyakamata (Liking for loneliness)	Show less attention to social stimuli, Smile and look at others less often Solitary play	Childhood Autism, Autistic Disorder
Vibhatsatavam (Disgusting/ cruel/ envious)	Disgusting/ cruel/ envious	Asperger syndrome
Shocha Dwesha (Dislike for bathing and toileting)	Dislike for bathing and toileting	Childhood Autism, Autistic Disorder
Swapna Nityata (Sleepy)	Less active	Low functioning Autism
Swayathu Aanane (Puffiness of face)	Puffiness of face	Organic brain problems (Tuberous sclerosis etc.) with Autistic features

### MANAGEMENT

Over the last ten years the incidence and prevalence of autism spectrum disorders have increased 10-fold<sup>32</sup> as a result, ASDs are now a major health problem with significant associated societal and financial costs<sup>33</sup>. Research into what is causing this increase in the incidence of ASDs has yielded little concrete results; as with many other complex disorders, autism is assumed to be caused by a combination of environmental exposures and genetics<sup>34</sup>. Under the current healthcare model, limited conventional treatment options are available to parents who are seeking to alleviate the symptoms of their child's autism. The most common conventional therapeutic treatments that aim to improve function or lessen symptoms are speech therapy for language deficiencies in children and occupational therapy for motor skills,

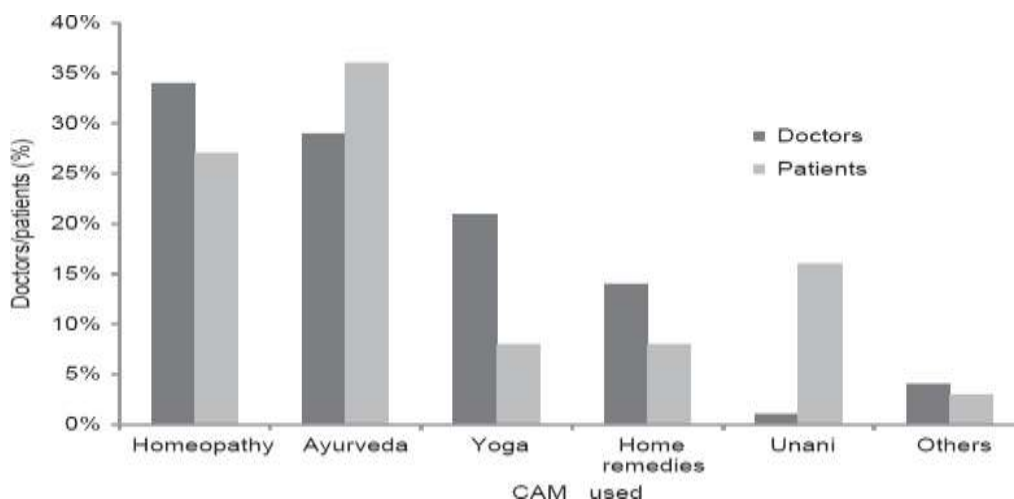
self-care, and sensory difficulties in children. Applying behavioral analysis (ABA) therapy frequently and intensively is a recommended treatment that has been scientifically validated. Pharmaceuticals are often prescribed to reduce emotional, aggressive, and problematic behavior symptoms<sup>35</sup>. Because of the limited number of options for treatment within the conventional medical model, many parents turn to complementary and alternative medicine (CAM) in an attempt to improve their child's health, functioning, and capabilities<sup>36</sup>. Hopf KP et al.2016 conducted a current exploratory study was to survey a group of parents of children with autism in a community population, to learn about the use of CAM treatments in this population, and to record the parents' perceptions on effectiveness of CAM with regard to their child<sup>37</sup>.

**Table: Use of CAM in Autism Spectrum Disorder**

Variable	All parent/caregiver survey respondents (n = 194)	Parent/Caregiver respondent who use CAM on their Child (n=157)
Parent/caregiver respondents who have used CAM on their child (%)		
Yes	80.9	100
No	15	NA
No response/ unknown	4.1	NA
Role of survey respondent (%)		
Mother	80.4	85.4
Father	11.9	11.5
Other primary caregiver	4.1	3.1
No response/Unknown	3.6	0
Age of parent respondent		
Respondents (n)	187	157
Mean age ± SD (y)	41.0 ± 7.8	40.9 ± 7.6
Median (minimum, maximum) (y)	40 (26, 75)	40 (27, 75)

Roy V. et al. 2015 study shown that in India more than 95% population and around 20 % of doctors are using Ayurveda as a complementary

and alternative medical system (CAM) for treating most of the clinical condition including Autism Spectrum Disorder (ASD)<sup>38</sup>.



K.S. Dinesh et al 2020, has recently formulated an AGASTYA protocol, which is an

Indian approach of Ayurveda care. The framework of the protocol is derived from observations and

experiences obtained from multiple pilot studies. Tests were conducted on 84 children to assess the impact of the Gut Therapy Protocol (GTP) on the psychological domain, CARS, and other gut function. Effects of parental lifestyle guidelines programs were examined in 23 reliable parenting figures. Additionally, this multicenter study offers important findings from the AYUSH-funded research program investigating the effect of GTP in the gut microbiome of children diagnosed with autism. The prescription medicines were given for a year, with a monthly in-person assessment. During the first stage of the GTP interventions, revealed significant results in relieving gut symptoms among children. The following symptoms showed significant ( $p < 0.05$ ) alterations, with a positive correlation value of +0.83 in the following symptoms viz sensory impairment, stereotypy, crankiness, and spontaneous crying. A highly significant change ( $p < 0.001$ ) in the physical and psychological domains of the CARS, ISAA, and WHO-QOL-BREF was observed upon evaluation of the lifestyle guidelines course. According to the study, the AGASTYA protocol is useful in managing children with ASD, which emphasizes the necessity of integrating AGASTYA with the fundamental operational ideas that are used across the country<sup>39</sup>. The word AGASTYA denote Ayurveda herbal drugs, Gut therapy protocol, Ayurveda standards of living, Training of parents and Yogic assistance. The AGASTYA protocol manages food and drinks, activity of daily living, thought process of the total family, total environment and consciousness of an individual. The components of AGASTYA are following-

#### Ayurvedic drugs

Intestinal dysbiosis is most common finding in children with ASD<sup>40</sup>. When Ayurvedic principals were applied to the management of the gastro-intestinal health of children with ASD, significant improvements in the problematic behavior and characteristics of autism were noted. Autism is the most prevalent of a subset of the disorders organized under the umbrella of pervasive developmental disorders. The Ayurvedic herbal drugs are aiming towards detoxification of whole body, correction of whole metabolism and neuroendocrine correction. Retrospective analysis of the case sheets of autistic patients admitted in Vaidyaratnam P.S.Varier Ayurveda College hospital, Kottakkal, Kerala, India from September 2010 are taken for the data processing. Clinical psychologists from several institutions classified 40

patients diagnosed as autistic who had antibiotic-induced dysbiosis. Significant difference in the majority of its components' gastrointestinal symptoms before and after treatment ( $p < 0.05$ ). Notable alteration in behavioral symptoms prior to and following treatments ( $p < 0.05$ ) for the majority of the components. Following treatment, there is a +0.86 correlation between changes in behavioral symptoms and changes in stomach symptoms. Selected Polyherbal Ayurveda treatment play a significant role in modifying abnormal behaviors in children with autism and has a positive correlation with changes in gut symptoms induced by dysbiosis of antibiotic intake<sup>41</sup>.

#### Gut Therapy

Aama (defect in the bioconversion of either food or any biological material in a metabolism) is a unique concept which is the source of all diseases as per the principles of Ayurveda. The clinical features mentioned in Ayurveda texts for Aama are common among autistic children. Basic causes of Aama symptoms in infants with autism include dysbiosis, yeast growth, nutritional deficiencies, enzyme deficiencies, deficit of essential fatty acids, gastroesophageal reflux disease, indigestion, inflammatory bowel, and persistent constipation, as well as their cascades. the most discussed pathogenesis among them is leaky gut syndrome. Ayurveda states that there is a clear correlation between gut functions (Aama) and behavioral abnormalities as well as other clinical aspects of autism since the mind and gut functions are controlled by the same physiological entity (Rasa Dhatu). A retrospective study was conducted on the basis of records of 40 autistic children who had undergone the treatment at AyuCALM [Ayurveda Centre for Autism & Learning Disability Management- a functional subset of department of Ayurveda Paediatrics] of Vaidyaratnam.P.S.Varier. Ayurveda college Hospital, Kottakkal, India. The Childhood Disintegrative Disorder and Rett syndrome case sheets was excluded in the analysis. As part of the autism treatment protocol, an initial three-month course of gut therapy was completed in each case. The Ayurvedic gut therapy protocol [AGTP] involves the oral administration of several polyherbal compound drugs according to the norms of Ayurveda. AGTP also includes an Ayurveda dietetics and food regimens to the autistic children during this period. Before and after the gut therapy, the "t" test was used to analyze the gut disorders (abdominal discomfort, diarrhea, bloating,



constipation, lack of appetite, and increased weariness) and behavioral disorders (sensory dysfunction, stereotypy, crankiness, spontaneous crying, and disrupted sleep). The majority of the gastrointestinal issues (abdominal pain  $<0.001$ , bloating, constipation, and lack of appetite  $<0.05$ ) and a couple of the behavioral issues (stereotypy and crankiness  $<0.05$ ) showed significant improvement. The alterations in behavioral disorders and gastrointestinal problems had a correlation value of  $+0.898$ . AGTP (Aama chikitsa) may have a significant effect in the behavioral and gastrointestinal abnormalities in autistic children. The change observed in behavioral and gut disorders after an Ayurveda gut therapy protocol in autistic babies showed a positive correlation<sup>42</sup>.

#### Ayurveda standards of living

In the manner Chandra (moon), Surya (sun), and Vayu (air) preserve the integrity of our earth's universe, the Tridosha are responsible for maintenance of our physiological functions. The balance of these Doshas is influenced by multiple factors such as Desh, Kala, Aahar, Vihara etc. Hence, the diet and regimen in every season must be in accordance with the status of Dosha of the body. This keeps the body's circadian rhythm intact and promotes overall health. Our sleep-arousal pattern throughout the day is known as our circadian rhythm. The brain reacts to different environmental changes by triggering specific hormones that alter body temperature and control our body's ability to keep us awake or put us to sleep. Children's feeding habits, hormone levels, body temperature, and sleep patterns are all affected by circadian rhythms. Some individuals may experience disruptions in their circadian rhythm due to environment influences or problems with their sleep patterns. By adhering to Dinacharya and Ratricharya or maintaining healthy habits, individuals can better adjust to our bodies' natural rhythms. The factors which cause disturbance in circadian rhythm are Dharana of Adharniya vega and Udeerana of Dharniya Vega, imbalance in Dinacharya, Ratricharya and Ritucharya<sup>43</sup>.

#### Dinacharya (Daily Regimen)

Nature has cycles from light to dark and from winter to spring. The movement of the Sun causes these seasonal and tidal variations. Humans are needed to adapt their daily habits to reflect these changes in order to maintain their health. Dinacharya considers an individual's daily routine in order to preserve the equilibrium of the circadian

rhythm, which takes the form of the daily cycle of the Doshas, which includes arousal in Brahmanuhurtha. It helps in numerous metabolic processes of the body such as digestion, absorption, and assimilation, and it also promotes our health, discipline, joy and longevity<sup>44</sup>.

#### Ritucharya (Seasonal Regimen)

The term "Ritucharya" describes dietary, behavioral, and habit modifications brought about by seasonal changes. Atmospheric changes in various Seasons occur in the environment which have an impact on our Tridosha as well. The changes seen in the environment as Stage of Accumulation, Stage of Aggravation, and Stage of suppression of vitiated Doshas. This led to an internal imbalance that manifests as a variety of physical and psychological conditions. Ritucharya, are a set of food and lifestyle recommendations that assist people in adjusting to the changing of the seasons without disrupting the natural equilibrium of their bodies. Research has demonstrated that the inadequately adapted circadian cycles are the root cause of seasonal affective disorder (SAD)<sup>45</sup>.

#### Training of parents and Yogic assistance

Training for parents includes minor Ayurveda procedures which have to be regularly practiced at home under the supervision or guidance of an Ayurveda physician, regularly even after the main course of treatment is done from the hospital (link course). When a long-term treatment is required, it is not practical to be in hospital throughout the year, so train the parent minor Ayurveda treatments which have to be followed at regular intervals and other training programs which help to tune the harmonious living of the entire family. These Ayurvedic procedures are as follows-

#### Nasya (Inhalation Therapy)

Administration of medicated ghee, oil, or decoction through the nostrils is called Nasya. It stimulates smell and taste, improves vision, cures sleep disorders, improves speech production, helps in clarity of mind and thought. The brain is connected to the nose through the vascular system, the nerve plexus of olfactory nerve, and the ophthalmic and maxillary branches of the trigeminal nerve. The olfactory nerves are connected with the higher centers of brain, i.e., limbic system, consisting mainly of amygdaloid complex, hypothalamus, epitheliums, anterior thalamic nuclei parts of basal ganglia, etc., so the medication administered through nose stimulates the

higher brain centers which have an effect on the regulation of endocrine and nervous system processes. The limbic system and hypothalamus work together to express emotions such as anger, aggression, pain, pleasure, and behavioral patterns. Thus, Nasya is directly helps in preventing various psychosomatic disorders<sup>46</sup>.

#### **Udvaartana (Massage with Dry Powder)**

This is powder massage on the body with dried roasted and powdered herbs in a rhythmic pattern. It helps better tactile integration, acts as a detoxification procedure, corrects metabolism and blood flow, improves the mobility of the joints. The primary organ for detecting external stimuli like as pain, temperature, mechanical tension, and so on is the skin. The signals from the outside world are transmitted to the spinal cord and then to the brain by three groups of receptors: thermoreceptors, which sense heat and cold, nociceptors, which sense pain, and mechanoreceptors, which sense mechanical changes<sup>47</sup>.

#### **Shirolepa (Medicinal Paste on Head)**

In this procedure, specific medicinal herbs are made into a paste in buttermilk and applied over the scalp and then the scalp is wrapped with banana leaves and cloth. highly beneficial in neurotic disorders. Helps improve sleep, attention and memory. Reduces irritability, restlessness and tantrums.

#### **Abhyanga (Oleation)**

Ayurveda autism treatment Talam involves the application of an herbal powder mixed with medicated oil on the vertex of the child's scalp. This therapy is known to provide several therapeutic benefits for children with autism, such as promoting relaxation, improving and enhancing overall well-being. It improves proper circulation, gives better physical strength, improves vision, regulates sleep pattern. It is used to improve overall health.

#### **Dhoopana (Fumigation)**

Ayurveda autism treatment Dhoopana is a therapy that involves fumigating the bedroom with medicated powder before sleep, which provides several benefits such as sensory stimulation, inducing sleep, and acting as a disinfectant. It good for sensory stimulation, induces sleep, acts as a disinfectant.

#### **Pada Abhyanga (Foot oleation)**

Paada Abyanga is a therapy that involves a foot massage, which is known to provide various benefits for children with autism. It improves sleep patterns. Reduces irritability and stress.

#### **Mukha Abhyanga (Face Massage)**

Mukha Abhyanga or Orofacial massage is a therapy that involves special massages over the cheeks, gums, and tongue with Ayurvedic medicines. This therapy is to provide several benefits for children with autism. It helps in speech stimulation, corrects oral sensory issues, improves the strength of facial muscles.

#### **Siro Pichu (Holding Medicinal Oil on Head)**

Siro Pichu involves placing a cotton swab dipped in medicated oil on the vertex of the child's scalp after a head massage. This therapy is to provide several therapeutic benefits for children with autism. It Improves sleep pattern and concentration. Reduces irritability and stress. Relaxes the body and mind.

#### **Yogic Assistance**

Yoga training is given as part of AGASTYA protocol. A lot of positive changes are observed when the parent along with the children (the child affected with ASD and his/her siblings together) start to do the yoga regularly. Remarkable improvement has been noted in areas like the child's eye contact, observation capacity, imitating capacity, lack of attention, irritability and in other areas of deficits in ASD. Meditation has enormous potential for preventing cognitive and memory deterioration because of its stress reducing effects<sup>48</sup>. Stress has a direct impact on the body's cortisol levels, which are known to have harmful effects on the hippocampus cells, which are essential for healthy memory function<sup>49</sup>. Vadiraja HS et al 2009 study shown that Yoga might have a role in managing self-reported psychological distress<sup>50</sup>.

## **II. DISCUSSION**

Autism Spectrum Disorder (ASD) is a behavioral aberration that has its origins in disorders of the neuropsychological system and the digestive and metabolic systems. According to Ayurveda, autism, typical or atypical impairments, and other autistic illnesses are classified as Unmada. Where one or more of the mental abilities go wrong. All of the inappropriate behavior that a person exhibits as a result of the distortion of their

regular mind, intellect, conscious knowledge, memory, desire, manner, and behavior is encompassed within the whole concept of Unmada. Not only did Acharya Charaka and Acharya Sushruta prohibited consanguineous marriages in Ayurveda, but biologists also opposed them. Acharya Bhela made clear that consanguineous marriages should be avoided in order to prevent psychiatric illnesses. Acharya Charaka advised against a number of unhealthy eating plans in the context of Garbhoghhatkarbhavas since they can result in miscarriages of child and other psychological disorders. Acharya Sushruta pointed out that giving instruction of women with Assanaprasava to ease their pain can lead to psychological abnormalities, mainly during the second stage of labor. According to Ayurvedic Navjatshishu Paricharya (neonatology), the best course of action for treating a newborn infant is to support their respiration, which is known as Pranpratyagamana (resuscitation). This involves cleaning Mukhashleshma and physical stimuli and providing Pranvayu (oxygen) with the help of the hollow tube of Krishnakapalikasupa. The goal is to prevent the onset of respiratory disorders, which is the cause of Autism. After learning about this illness from an Ayurvedic perspective, it appears that a Manoroga treatment approach is the most suitable. One of the manifestations of autism is Beejadosha, which is deeply rooted and stimulated by a favorable environment. The disease necessitates long-term care, with improvements occurring quickly following each round of treatment. Ayurveda offers a glimmer of hope to those in the dark and opens a wide door in the treatment of autism and related conditions.

### III. CONCLUSION: -

Many psychiatric disorders are mentioned under the broad wing of the Unmada condition that is described in the old Ayurvedic texts. The term "Unmada" encompasses a wide range of improper behaviors that an individual may display due to a distortion of their regular mind, intellect, conicoid knowledge, desire, manner and behavior, physical acting, and learned skills. The Unmada is made up of conditions including mood disorder, depression, schizophrenia, psychosis, pervasive developmental disorders, and OCD. Because events in the physical body affect the mind, and the mind affects the body, being in a state of terror, having a frail mental constitution, and having severely disturbed physiological humors are risk factors for developing Unmada. The traditional wisdom of

Ayurveda will be highly helpful in the modern era in diagnosing and treating Unmada. It could be linked to Unmada (Autism) sickness in Ayurveda. Therefore, the goal of this review article is to emphasize specifics about Unmada that are related to autism.

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