

CLINICAL EVALUATION & TREATMENT OF PANS (PAEDIATRICS ACUTE ONSET NEUROPSYCHIATRIC SYNDROME) THROUGH ALTERNATIVE & COMPLIMENTARY MEDICINE - A CONCEPTUAL STUDY**Dr. Rakesh Khatana*¹ and Dr. Anamika Khatana²**¹Assistant Prof. Department of Kaumarbhritya, SKS Ayurvedic Medical Collage and Hospital Akabarpur (Chaumuhan), Mathura (UP), India.²Assistant Prof. Department of Rog-Nidan, Shri Dhanwantri Ayurvedic Medical College and Research Centre, Chhata, Mathura (UP).***Corresponding Author: Dr. Rakesh Khatana**

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ABSTRACT

Introduction: PANS is the acronym for **P**ediatric **A**cute-onset **N**europsychiatric **S**yndrome, is a clinical diagnosis given to children who have a dramatic – sometimes overnight – onset of neuropsychiatric symptoms including obsessions/compulsions or food restriction. They are often diagnosed with obsessive-compulsive disorder (OCD) or an eating disorder, but the sudden onset of symptoms separates PANS from these other disorders. In addition, they may have symptoms of depression, irritability, anxiety, and have difficulty with schoolwork. **Method:** The present study is based on the literature search from Ayurveda compendia, recent pediatric textbooks, articles published in research journals from 1983 to 2019. **Current State of knowledge:** The cause of PANS is unknown in most cases but is thought to be triggered by infections, metabolic disturbances, and other inflammatory reactions. *Bhoot Vidya* (Ayurvedic psychiatry) is one of the specialties of *Ayurveda* and it deals with various psychiatric conditions caused by affliction of evil spirits or mythological personalities. *Unmada* (a broad term which consists of various psychiatric problems) is a major psychiatric condition described in *Ayurvedic* classical texts and it is characterized by deranged mental functions. *Yog* is Ayurvedic way to balance *Satva* (good qualities of mind), (Passionate, agitated), *Tama* (Laziness, lack of concentration) applicable in prevention of behavioural problems. **Conclusion:** Knowledge, education and proper expressions of code, conduct or etiquettes along with Ayurveda interventions such as use of *Medhya* (nervine tonic/inotropic) drugs, *Panchakarma* pre-procedures can prove to be a significant therapeutic way to combat behavioural disorders & required for early detection and prevention of PANS related problems.

KEYWORDS: Psychotherapy, PANS, Anxiety, *Unmada*, *Satva*, *Tama*, *Yog*.**INTRODUCTION**

Paediatric Acute-onset Neuropsychiatric Syndrome (PANS), and pediatric Autoimmune Neuropsychiatric Disorders are associated with psychiatric symptoms, sudden onset with apparently inexplicable change in children. It is obvious that getting accurate diagnosis, proper treatment and family support can make a profound difference for both the child's health and the entire family's well-being.^[1] The goal is to provide outstanding care based on research and to care children suffering with unique combination of symptoms. PANS is characterized by a clinical presentation similar to that of paediatric autoimmune neuropsychiatric disorder, associated with group A streptococcal infection (PANDAS), except, the cause is not defined as being exclusively due to group A streptococcal infection, food refusal and anorexia presentations are more prominent. It does not account for patients presenting with tics without

obsessive compulsive disorder (OCD). Paediatric infection-triggered autoimmune neuropsychiatric disorders (PITANDS)^[2] is characterized by sudden onset or symptom exacerbation in a child who has previously met criteria for OCD and/or tic disorder at some time. Childhood acute neuropsychiatric symptoms (CANS) is similar to PANS with slight difference in diagnostic description including occurrence at age < 18 years and less emphasis on food restriction and anorexia. Characteristics of PANS is sudden onset of OCD or severe restriction of food intake, concurrent presence of additional similarly severe and acute onset of ≥ 2 of the 7 following categories of neuropsychiatric symptoms, such as anxiety, depression/emotional liability, aggression, irritability, severe oppositional behaviour, developmental or behavioural regression and worsening of academic performance. Motor or sensory abnormalities, such as increased sensitivity to sensory stimuli, dysgraphia,

hallucinations, complex motor, and/or vocal tics, somatic signs and symptoms, including sleep disturbance, enuresis, or increased urinary frequency. The sudden, acute onset of neuropsychiatric symptoms, high frequency of comorbidities and poor quality of life capture the PANS subgroup as suddenly and severely impaired youth. Identifying clinical characteristics of youth with PANS will allow clinicians to diagnose and treat this subtype of OCD with a more strategized and effective approach.^[3]

The clinical characteristics of youth with a sudden onset of obsessive compulsive disorder (OCD) and/or tic symptoms, using a systematic clinical evaluation of 50 youth who met diagnostic criteria for paediatric autoimmune neuropsychiatric disorder associated with Streptococcus (PANDAS). Although youth with PANDAS had symptoms similar to those with non-PANDAS OCD (e.g., obsessive thoughts, compulsive behaviours, avoidance), they differed notably in the onset of their obsessive compulsive symptom. Youth with PANDAS experienced a sudden, severe onset of neuropsychiatric symptoms temporally associated with group A streptococcal (GAS) infection, relapsing-remitting symptom course, and early age of OCD onset (mean=7.4 years), and frequently presented with psychiatric comorbidities, most notably attention-deficit/hyperactivity disorder (ADHD), mood disorders, and anxiety. Symptom severity of both OCD and tics was found to be in the moderate range. Youth with PANS who had comorbid tics were more likely to exhibit a decline in school performance, visual motor impairment, food restriction symptoms, and handwriting deterioration, and they reported lower quality of life relative to youth without tics.^[4]

AIM AND OBJECTIVES

To describe PANS features relating to symptoms, onset and treatment with other psychiatric conditions. To find out the factors involved in PANS as per Ayurvedic perspective and to explain PANS in terms of Ayurveda.

MATERIAL AND METHODS

The signs and symptoms resembling Unmad with Ayurvedic perspective, classical books on Ayurveda, modern literature, available research updates and scientific information available on internet etc. were searched and analysed.

1. Cause of PANS

PANS are thought to have a variety of possible causes. More than 80% of cases are thought to result from an abnormal autoimmune or inflammatory response in the brain following some type of infection. When the infection is known to be strep, a person is diagnosed with Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections (PANDAS), a subtype of PANS. It is not yet known why some children get PANDAS after a strep infection while others do not. Other types of infections that may trigger symptoms

of PANS include upper respiratory infections, influenza, chickenpox, mycoplasma, and Lyme disease. Other possible causes of PANS include psychological trauma as well as underlying autoimmune, neurological, endocrine, or metabolic disorders. Examples include cerebral vasculitis (inflammation of blood vessels in the brain) and neuropsychiatric lupus. There are thought to be various non-infectious triggers that have not yet been identified. Additionally, future episodes of symptoms may be caused by triggers different from the trigger of the previous episodes.^[5]

2. Pathogenesis of PANS in Ayurveda

In Ayurveda neither this disease nor the symptoms of PANS are described but some

References about abnormal behavior are discussed under features of *Vataprakriti Anavasthita Chittatva Mano vibhrama*, *Buddhivibhrama*, *Smriti vibhrama*, *Sheela vibhrama*, *Cheshta vibhrama* and *Achara vibhrama* can be correlated with PANS. According to Ayurveda, the Main reason for PANS is vitiation of *dhee* (rational thinking), *dhriti* (retaining power of the mind), *smriti* (memory) which causes abnormality and abnormal conduct resulting into improper contact of the senses with their objectives and give rise to behavioural problems inattention, hyperactivity and impulsivity.^[6] According to Ayurveda, psychological problems start when fundamental imbalances develop in the biological intelligence that controls all bodily processes.^[7]

- Pitta imbalance may give rise to anger and irritability
- Kapha imbalance may lead to lethargy and depression
- Vata imbalance contributes to anxiety, fear, mental instability and insomnia

3. Samprapti *ghatakas* (components of pathogenesis)

NIDAN

A wide variety of *Nidanas* are mentioned for mental disorders in Ayurveda. For PANS also multifactorial causation theory is accepted. The *Nidana* can be classified in to *Nija* and *Agantuja*.

Nija Nidana It can be further classified into *Sahaja*, *Garbhaja* and *Jaataja*.^[8]

(1) SAHAJA NIDANA-Genetic Factors

- (a) *Atmakarma* the past actions are alone responsible for the *Satva* (Psyche) of the child.
- (b) *Atmaja bhava* and *Satvaja Bhava*: In the context of PANS, the traits related to intellect and higher order psyche, which are passed from the *Atma*, are important. As in the full blown clinical presentation of the disease many of these traits are found to be functioning abnormally. The important psychic traits passed on from *Atma* are *Prerana*, *Dharana*, *Ichha-Dweshha*, *Sukha Dukha* etc. *Sattvaja bhava*: *Matru* and *Pitru Sattva* - the various mental traits of the parents as being responsible for the psychological endowment of the children.

(c) Related to *beeja*, *beejabhaga* and *beejabhagavayava*:

- The mother and father chiefly exert their influence in the makeup of the personality through *Shukra* and *Shonita*.
- *Charaka* has described the abnormalities of micro fine constituents of these germ cells, (the *Shukra* and *Shonita*) the *beeja*, *beejabhaga* and *Beejabhagavayava* to be responsible for congenital deformities in the fetus
- *Manas prakriti* of the parents will influence the *Manas Prakriti* of the child. Out of three types of *Manas Prakriti* - *Sattvika*, *Rajasika* and *Tamasika*, the child who will inherit a *Rajasika manas prakriti* will be *Anavasthita* – fickle minded.^[9]

(2) **GARBHAJA (Antenatal factors):** The Ayurveda believed that any event during the antenatal period would exert its influence on the growing foetus both physically as well as psychologically. *Charaka* has mentioned *Matru Ahara* (diet of the mother), *Matuvihara* (conduct of the mother) and *Ashayadosha* (abnormalities of the Garbhashaya) as the antenatal factors causing deformities in the foetus. Among the factors, which are responsible for psychic peculiarities in an individual, *Charaka* has included "*Antarvartnya Shrutayaschabhikshanam*". *Acharya Chakrapani* has explained it as whatever music etc. the mother hears; she will deliver a child of similar characteristics. *Matu Ahara*: A great amount of stress has been given by the Ayurvedists on the diet of the pregnant women to avoid any untoward effects on the growing fetus.

- Alcohol consumption by pregnant women would lead to short memory span (*Alpasmriti*) and inattention (*Anavasthitachitta*) in the child.
- The foetus is said to grow from the essence of diet that mother takes through the processes of *Upasweda* and *Upasneha*. Therefore whatever diet the mother takes affects the fetus directly. This fact is well supported by the contemporary science that exposure to toxins, alcohol etc. during the antenatal period can lead to PANS in the child. (c) *Matu Vihara* Not only the diet but also the behavior of the mother at the time of pregnancy, has got its own deterministic influence on the psychological development of the child.
- Behavior of the mother and her emotional state of mind during the period of pregnancy or at the time of conception influences the psychological makeup of the child. Stress also upsets the normal functioning of the maternal endocrine system. These results in a hyperactive state of the thyroid and adrenal glands – the glands of the endocrine system that prepare the body for increased activity during an emotional state. These endocrine secretions are then transmitted to the prenatal environment in the uterus and result in a condition that affects the developing child. *Dauhrida Vimanana* – Unfulfillment of *Dauhrida* a woman will give birth to a child who would be affected by deformities like lameness, defective vision, blindness or mental deficiency.^[10]

(3) **JANMOTTARA** – The Postnatal factors (a) Effect of *Matridugdha: Kashyap* has clearly mentioned that feeding with vitiated breast milk will lead to various diseases in the child *Vagbhata* -I have advised that breast milk of woman who is angry should be avoided, while *Vagbhata*-II has instructed that a woman with psychological abnormalities should not feed the child. (b) **Ahara: Mana** is said to be "*Annamaya*". *Chandyogya Upanishada* has given a simile of curd. Like Ghee is the essence of curd, similarly the finest essence of food is *mana*, i.e. it gives nourishment to mind. Excessive ingestion of any one particular *rasa* leads to various disorders some of which are at the level of psyche. Salty intake –hindrance to the functioning of *sense* organs and causes *Moha*, *spicy and Bitter* food intake – causes irritability, vertigo. Food has been also included among one of the major pillars of health maintaining part on which health depends. Modern researchers have now established the relationship between diet and PANS & ADHD as diet modification have been seen to give better results in controlling the hyperactivity.^[11]

AGANTUJA NIDANA: They are caused by *kshata*, *bhanga*, *pahaara*, etc; according to the mode of affliction. They are of two types-*Saririka* and *Manasika Shirobhighata*: *Shirobhighata* has been considered as a causative factor for *Shiroroga*. Any injury to *Shira* can directly lead to injury to the *Indriya* as they are situated in it. Different types of *Abhighaatas* are told as causative factors for mental illness e.g. injury to *Seemanta marma* may cause *Unmaada*. Different types of prenatal and post natal brain insults and obstetric trauma have been known to cause ADHD or PANS.^[12]

Bhutaveshaja Nidana: This includes infectious diseases like encephalitis which are considered as the etiological factor for PANS or ADHD. *Manasika* • Generally negative emotions like *Irshya*, *Soka*, *Bhaya*, *Krodha*, *Maana*, *Dvesha* are considered as exogenous causative factors for mental illness.

SAMPRAPTI^[13]

- The Samprapti explains the mode of development of the disease due to the effect of *Nidana* and further differentiation. This is the most important part in defining a new disease in Ayurvedic methodology. The *Samprapti Ghataka* of PANS can be categorized as follows:
 - *Dosha – Sharirika Vata – Prana, Udana, Vyana*
 - *Pitta – Buddhi vaisheshika Alcoholaka, Sadhaka*
 - *Kapha – Tarpaka*
 - *Manasika Rajas and Tamas*
 - *Dushya Rasa, Majja*
 - *Srotas Manovaha Srotas*
 - *Dushti Atipravritti*
 - *Agni Vishama*
 - *Udbhavasthana Mastishka, Hridaya*
 - *Vyaktisthana Sarva Sharira*
 - *Rogamarga Madhyama*

4. Symptomatology (*Lakshanas*)^[14]

Pediatric acute-onset neuropsychiatric syndrome (PANS) is characterized by the sudden onset of symptoms with severe eating restrictions, along with at least two other cognitive, behavioural or neurological symptoms (also with sudden onset). Symptoms typically begin during childhood but may begin at any age. Any or several of many obsessive-compulsive symptoms typically develop abruptly (within one to two days). New symptoms may arise and initial symptoms may worsen over the next few days or weeks. Eating restrictions may involve refusing to eat specific foods or all foods.

Other symptoms that begin at the same time as obsessive compulsive symptoms or eating restrictions may include.

- Anxiety - such as extreme anxiety or worry, irrational fears, and/or panic attacks.
- Emotional lability (excessive moodiness or inappropriate emotional responses) and/or depression, which may cause suicidal thoughts or self-injury.
- Irritability, aggression, and/or severe oppositional behaviours (consistent, uncooperative and hostile behaviours).
- Behavioral (developmental) regression such as an abrupt increase in temper tantrums and loss of age-appropriate language skills and behaviours.
- Sudden deterioration in school performance such as short attention difficulty concentrating or decrease in math reasoning.
- Motor or sensory abnormalities such as worsening handwriting, tics, clumsiness, involuntary movements, and increased sensitivity of the senses.
- Somatic signs and symptoms, complaints of symptoms for which no medical cause can be found, such as sleep disturbances (night terrors and/or trouble sleeping) bedwetting, or frequent urgency to urinate (when no urinary tract infection is present).
- In some cases, symptoms of PANS go away for a while and then come back (this is referred to as a relapsing and remitting course). However, symptoms may be worse and last longer with each episode. In other cases, symptoms last for months or years (are chronic) or get progressively worse over time.
- Many symptoms of PANS can be a feature of a variety of known neurological, psychiatric, or medical disorders, so the diagnosis of PANS requires that all other possible causes of symptoms have been ruled out. The abruptness and presence of more than one symptom is largely what sets PANS apart from psychiatric conditions with overlapping symptoms.
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apart from psychiatric conditions with overlapping symptoms.

5. Diagnosis of PANS^[15]

PANS is a clinical diagnosis, which means the diagnosis is based on the signs, symptoms and medical history rather than laboratory testing or clinically. The current recommended criteria for a diagnosis of PANS include,

- Sudden and severe onset of obsessive compulsive disorder or severely restricted food intake (appearing and worsening within 24-48 hours)
- Simultaneous sudden and severe onset of at least two of the following additional neuropsychiatric symptoms:
 - Anxiety
 - Emotional lability (rapid changes in mood or emotion) and/or depression
 - Irritability, aggression, and/or severely oppositional behaviours.
 - Behavioural (developmental) regression (loss of previously acquired skills or age-appropriate behavior).
 - Deterioration in school performance (e.g. symptoms of ADHD, memory deficits, or cognitive changes).
 - Sensory or motor abnormalities.
 - Routine blood tests, urinalysis, throat culture, and/or cerebrospinal fluid analysis.
 - Evaluation for autoimmune and auto-inflammatory diseases (some of which can cause neuropsychiatric symptoms) and immunodeficiency.
 - Additional tests such as brain MRI, an electroencephalogram (EEG), sleep study (polysomnography) and swallowing study (for those with restricted food intake).

6. Prevention and Management of PANS^[16]

Treatment of Pediatric acute-onset neuropsychiatric syndrome (PANS) depends on the specific symptoms, severity, and cause (if known) in each person. Initial treatment may depend on which symptoms most impair daily living and create the most distress. It is recommended that treatment begin as soon as the diagnosis is made. Treatment may involve the following, either alone or in combination. Treating symptoms with psychiatric medications (when appropriate), psychotherapy (particularly cognitive behavioural therapy), and supportive interventions (such as school accommodations, family support, and maintaining nutrition and hydration needs with restricted food or fluid intake). Some interventions may take several weeks to begin helping and may require adjustments, as symptoms frequently change during the course of the condition. The experiences of healthcare professionals who treat PANS suggest that specific symptoms of PANS (such as anxiety and obsessive-compulsive symptoms) respond to the same medications used to treat these symptoms in people without PANS.

- Treating underlying infections or sources of inflammation with antibiotics. An initial course of

anti-strep antibiotics is recommended in all cases, even when there is not a documented infection. Some people with PANS have experienced complete and lasting remission of symptoms during treatment with antibiotics. Using antibiotics long-term to prevent infections (prophylaxis) may be recommended for children with PANDAS who have severe neuropsychiatric symptoms or recurrent strep-associated flares of symptoms.

- Stabilizing the immune system with immunotherapy and/or anti-inflammatory therapies (in immune-related PANS). These therapies should be used only in cases where there is evidence of inflammation in the nervous system (Neuro-inflammation) or post-infectious autoimmunity (misdirected immune responses). Depending on symptoms and severity, therapy options may include non-steroidal anti-inflammatory drugs, corticosteroids, and intravenous immune globulin (IVIG) or other non-steroidal immunotherapies. Once started, immunotherapy should only continue if it is clear that symptoms are improving.^[17]
- Treatment may be tapered down or stopped completely when symptoms resolve, but may be needed again if symptoms return (when treatment is stopped or at some time later). Many people with PANS will recover completely and discontinue some or all treatments. However, others will have ongoing symptoms that require continuous treatment. If not treated, PANS can lead to permanent debilitation.
- In most cases, a child's primary care provider can effectively treat symptoms of PANS. Children with severe or life-threatening symptoms may need specialized treatment coordinated by a team of PANS specialists.

Management through complimentary science

Ayurveda is the world's oldest and most complete holistic healing modality and, it has been continually practiced for millennium, passed down from generation to generation, Ayurvedic medicine remains alive, enlightening and healing. Ayurveda sees every life form as a unique combination of matter, spirit and mind. It approaches healing by balancing the elemental forces that make up the physical and spiritual construct of our universe. The treatment for PANS consists of medication, counselling, and cognitive behavioural therapies, with the main focus being pharmaceutical medications.^[18]

In treating PANS, Ayurveda approaches the symptoms and the underlying causes by working with many treatments, including diet and lifestyle changes and specific herbs that improve cognitive function. These treatments include cleansing possible toxins known in Sanskrit as *Ama* that has built up in the body and even the mind. To treat PANS, Ayurveda looks at each individual case, and does not prescribe one treatment,

nor does it view any one protocol to be appropriate for any one person. Everyone has a unique make up of *doshic* qualities, with varying degrees of elemental make up. Each person has a different level of strength, or vital energy. Vital energy in Ayurveda is known as *Ojas*. Determining the level of the *ojas* is key in any treatment plan of PANS. If the cause of the *doshic* imbalance is deemed that of exogenous factors, treatment may include cleansing toxins from the body and mind. However, if the *ojas* in the individual is low, cleansing is contraindicated, because cleansing may increase depletion of *Ojas*.^[19]

The management in such situation consists of educating the parents to make them understand the developing psyche of the child as intellectual blasphemy (*Pragyaparadha*) is leading cause amongst mental and physical derangements.^[20]

A. Role of Counselling

It sorts out the problem with proper compliance to grievances. A good counselling helps in preventing psychosomatic or psychiatric illnesses. Counselling has other advantages such as, it boosts the self-respect and confidence of client or parents, it corrects the method of parenting, it is the basic intervention to rule out the causes of psychological illness and planning of therapy accordingly.^[21]

B. Role of Play Therapy

It is an age-old therapy, described in Ayurveda also. Toys play a significant role in boosting mental health, growth and development of child. It can be made more pleasurable, effective, inexpensive and easy to execute to release their hidden frustration, forgetting burdens or disappointments. Play therapy addresses several problems like anxiety, anger, depression, distractibility and non-compliance. As play therapy involves both physical and mental discipline hence, it can be considered as a novel way in prevention of BD and PD. Violent toys help the release of anger, irritability, hostility and other emotions that can be freed through destruction. Real-life toys target withdrawn children that may be timid, shy, or introverted. Creative-expression toys give a wide range of expressive emotions that promote creativity.

C. Application of Cognitive Behavior therapy (CBT)

The CBT model is based on a combination of the basic principles from behavioural and cognitive psychology. CBT is "problem-focused" and "action-oriented", meaning it is used to treat specific problems related to a diagnosed mental disorder and the therapist's role is to assist effective strategies to address the identified goals and decrease symptoms of the disorder. CBT is based on the belief that thought distortions and maladaptive behaviors play a role in the development and maintenance of psychological disorders and that symptoms and associated distress can be reduced by teaching new information-processing skills and coping

mechanisms. As CBT is based on behaviours, and emotional regulation hence, it is a developed part of SC.

D. Mode of action of *Sadvritta*

Through avoidance of misbehaviour as well as controlling indulgence of sense organs and mind with improper subjects (*Asatmendriyarthasanyog*). Inappropriate knowledge of object leads to rude or offensive speech and physical activities. Improper intellect and perception both are objects of *Prajna*. (*Conscious*) *Good Intellect*, *Dhee* (Adaptation of new things), *Dhruti* (Controlling factor of mind) and *Smruti* (recalling power) are within the purview of mind which regulates mood, concentration, limits *Raja-tama* and augment *Satva* dominance by inhibiting *Pragyaparadh*. Thus, SC works on attention, cognitive and emotional domain by working on selfcare, compassion, ability to distract from negative thoughts, relaxation of body and mind in turn pacify anger, anxiety and irritability. SC an Ayurveda Psychotherapy facilitate mental wellbeing and strength *Sadvritta* and AR help the child to develop mentally strong as well as protect from psychosomatic, behavioural and psychiatric complaints. *Acharyas* have elaborated the counselling ethics separately in *Sadvritta* description.^[22]

DISCUSSION

In acute onset (less than 72 h) of OCD, eating restrictions and tics, was the most important criterion that defined the PANS. However, we found it difficult to assess the onset because of differences in the onset pattern for the different symptoms that characterise PANS. Some have a vague prodromal phase, whereas others reported an acute onset, but only for a subset of symptoms. As per family the onset was gradual, but in the medical records the family had reported an acute onset with concomitant hoarding behaviours, separation anxiety and hallucinations. Streptococcal infections preceded both the onset and subsequent exacerbations of symptoms. When taking all available information & then making the final decision for the diagnosis. One way of measuring the severity of a disorder is to quantify the load of symptoms that are related to the disorder itself. We enabled measurement of the load of PANS-related symptoms by developing a questionnaire for this particular purpose, the PPRSI. We also wanted to measure other severe psychiatric symptoms that are not specifically related to PANS, but are sometimes described in the literature, and did so by constructing the SOSQ scale.^[23] Both patients in the IC-PANS group and those in the S-PANS group received higher scores than those in the never-PANS group at disorder onset, which illustrates the dramatic and overwhelming start of this disorder.^[24]

The *mana* (mind) of the fetus attains the characters of *satwa*, *raja*, *tama* etc. depending upon the psychological status of the mother and father. If psychological factors during antenatal period gets disturbed it will ultimately affect the of foetus and thus results the child with

psychological and Neuro-behavioural disorders.^[25] In this case the nutrition and the psychological state of the mother were disturbed because of this the suffering child gets affected with PANS. The pathology of PANS is not clear in the contemporary system of medicine other than the Neuro-behavioural outlook. In Ayurveda, any disease is said to have a root at mental, physical or both phases.^[26] In the case of most of the diseases the etiology and the symptomatology are psycho-somatic.^[27] As explained in Ayurveda, both the mind and body are led by *Tridosha* and the vitiation of these *dosha* will cause abnormality of both psyche and body.^[28] *Vata dosha* is the main among *Tridosha* which has much control over mental functions such as initiation, direction and stimulation of thoughts and related actions. In the present case the normal functions of *Vata* was affected, in turn leading to hyperactivity in the child.^[29] The child was not able to control his thoughts and stimulus so that he was not in a position to listen to parents or have balanced activities.^[30] The involvement of *Pitta dosha* was dominant over *Vata dosha* in the child which was evident from the symptoms such as aggressiveness, anger, irritability, Dislike to food, not liking to wear clothes and desire for cold air and water.^[31]

CONCLUSION

PANS are a neurobehavioral disease where the behavior is affected greatly in child affected by it. Ayurveda has a collection of different modalities herbs as well as Panchakarma procedures and some techniques discussed above showing results in controlling the symptoms of PANS. It can be concluded that Ayurvedic treatments can be safely employed to treat PANS. Also there is an urgent need to standardize these complimentary & alternative methods, which is hope of darkness to light.

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