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EFFECT OF *MADHOOKASARADI NASYA* IN THE MANAGEMENT OF POSITIVE SYMPTOMS OF SCHIZOPHRENIA

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ABSTRACT

Schizophrenia is an overwhelming and poorly understood disease. In spite of interest in early management of schizophrenia, premorbid and prodromal symptomatology continues poorly defined. The only accepted therapy for the disease is nonspecific antipsychotic and anti-seizure medication. The pharmacologic treatment of schizophrenia and bipolar disorder leaves much to be desired. According to *Ayurveda, Nasyakarma* is the treatment of choice in diseases affecting the head and neck region. Present article highlights the effect of one of such *Nasyakarma* with *Madhukasaradi Kalka* administered in the patients suffering from the positive symptoms of Schizophrenia. The drug is found quite effective in reducing the positive symptoms of Schizophrenia (t value – p<0.001). Additional studies in this area would definitely be advised to validate this hypothesis.

KEY WORDS: Schizophrenia, Positive Symptoms, Madhookasaradi Nasya, Mental Diseases

INTRODUCTION:

The defining characteristic of human beings is the workings of the brain, the behavior, the feelings, and the mind. Mind is believed to be the controller of the activities in the body. Understanding mind, its nature and its abnormal states was always under inquisition of man in the modern scientific world, though there was a persistent effort to reveal the real fact. Though the approach was different in understanding, the Indian philosophers and Ayurvedic scholars given a separate status for discussing about the mind and various aspects related to it.

At any given moment, a person's mental status and his behavior reflect the sum total of that individual's genetic inheritance and life experiences. The brain interacts with and responds both structurally and functionally to internal and external impulses continuously, during every stage of life, thus influencing ones mental functioning.

"Mental health" and "Mental illness" are not polar opposites but may be better called as points on a continuum. The difficulty in drawing a dividing line in between is due to the continuous interaction of the society with variety of racial and cultural backgrounds causing a greater degree of variability in terms of life style and behavior among the people.

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Karnataka Ayurveda Medical College, Ashoknagar, Mangalore - 575006 (Karnataka) Email - ravi.ayurveda@gmail.com *Ayurveda* believes in three vital pillars of human body, which support and maintain our life namely – *Satva, Atma* and *Shareera* (*Cha.Su.1/45*). ^[1] Here the mind (*Satva*) is mentioned ahead of the three in the sequential order because; it occupies a very important place, as the entire bodily and mental activities are controlled by it.

Though many aspects of mental health are identifiable and definable, mental health as a whole is not easy to define. Reason may be the value and judgment the individual has which differ across the cultures as well as among the subgroups with in a culture. The mental illnesses not only affecting the large mass of population in causing various kinds of disabilities, it emerged as a significant contributor to the global burden of diseases (All mental illness – 15.4%). In developed as well as developing countries mental disorders have become a major concern especially in relation to the cost of illness of these disease^[2] The estimated prevalence of schizophrenia is around 1% and may further increases if schizophrenia spectrum disorders are taken in consideration as well.^[3]

An individual is recognized in the society by the nature of thinking, behavior, speech, and activities, which are peculiar to him. The pathogenesis of Schizophrenia involves these basic faculties of the individual causing alterations in thinking, mood and behavior associated with distress and/or impaired functioning. ^[4] These may contribute many other problems like —heightened risk of death, pain, disability, or loss of freedom. ^[5,6]

There is a Stigma surrounding the receipt of mental health treatment that discourages people from seeking treatment. Nearly two-thirds of all people with diagnosable mental disorders do not seek treatment, where one of the reasons is social stigma ^[7,8]

The term "Schizophrenia" was first used in 1911 by a Swiss psychiatrist, Eugen Bleuler. Bleuler used this name to emphasize the mental confusion and fragmented thinking characteristic of people with the illness. Schizophrenia is considered as one of the most distressing of all the mental illnesses. The disease has a relatively high prevalence when compared to the incidence. The modern psychiatry has a detailed literature on schizophrenia with proper diagnostic method and assessment scales. ^[9] In Ayurvedic science, the understanding of Unmada and Bhootonmada is not clear. [10] Some studies have been conducted by some of the organizations, in order to understand the schizophrenia in terms of Ayurveda. They concluded the study with comparing the disease to Unmada. So there is a need to be more specific when diagnose a schizophrenic patient under the lights of Ayurvedic literature.

Schizophrenia is not only a distressing mental illness but it is also hard to cure. There are only management methods in the other medical sciences and lack a cure for the same. The control drug is giving better results in this regard. The study drug is having 'Samjna prabodhaka' and 'Unmada hara' properties. The disease pathology involves the lack of insight, lack of orientation and perceptive abnormalities, which come under the purview of Samjna Vibhrama, the drug is assumed to be effective in the disease.

Nasyakarma is the treatment of choice in diseases affecting the head and neck region. In Schizophrenia there is abnormality in the structure and biochemical parameters in the brain. Therefore the *Madhookasaradi Nasya* ^[11] is selected for the study.

EPIDEMIOLOGY:

The morbidity load of Schizophrenia in the general community is indexed by three important rates. The prevalence rate of the disorder can be stated only approximately. A review of studies indicated that it is between a low of about 1 per 1000 population and a high of 10 per 1000 or a range of 0.5% to 1.5%. ^[3] In numbers it is approximately about 24 million people worldwide. Incidence rate

of the disease is expressing the chance of any given individual in a population developing the illness some time during his lifetime. The annual incidences are most often in the range of 0.5 to 5.0 per 10,000. ^[12] A low incidence and a high prevalence are attributed to the chronic nature of the illness. Schizophrenia is associated with high social stigmas related to the receiving of psychiatric treatment, which also contributes to the increase of the prevalence due to progression of the disease in to chronicity. More than 50% of persons with schizophrenia are not receiving appropriate care. ^[13] 90% of people with untreated schizophrenia are in developing countries. ^[14]

Table No.1 Genetic predisposition ofSchizophrenia [15]

CHANCES OF SCHIZOPHRENIA				
General population	0.6 - 1%			
Brother or sister has schizophrenia	6%			
One parent has schizophrenia	6 - 8%			
Both parents have schizophrenia	39 - 46%			
Fraternal twin has schizophrenia	10%			
Id <mark>e</mark> ntical twin has schizophrenia	50%			
One grandparent has	4.0%			
schizophrenia	490			

CLINICAL FEATURES:

Schizophrenia has been divided in many ways as – Paranoid, hebephrenic, catatonic and simple; Reactive – process; Paranoid or non- paranoid; Type I – Type II etc. But the most useful one based on the two phases of illness depending on the duration and symptomatology is - 1. Acute Schizophrenia & 2. Chronic Schizophrenia

Table No. 2 Most frequent symptoms of acute

Schizophrenia [16]				
Symptom	Frequency in %			
Lack of insight	97			
Auditory hallucination	74			
Ideas of reference	70			
Suspiciousness	66			
Flatness of affect	66			
Voices speaking to the patient	65			
Delusional mood	64			
Delusion of persecution	64			
Thought alienation	2			
Thought spoken aloud	50			
Source: World Health Organization (1973)				

The pharmacological treatment of serious psychiatric disorders is unsatisfactory for many

patients. Psychotic symptoms are often only partially resolved.

RESEARCH DESIGN: -

10 patients of schizophrenia with positive symptoms were selected as per the inclusion and exclusion criteria and randomly divided into trial group and control group. This study highlight the results obtained in patients treated with *Madhookasaradi Kalka Nasya* only. Clinical assessment was done before treatment, during the treatment (4th day), after treatment and at the end of follow up (14th day). Results obtained were analyzed statistically.

SELECTION OF SUBJECTS:

Patients of Schizophrenia with positive symptoms were selected from the OPD/IPD of *V.P.S.V. Ayurveda* college hospital and Govt. *Ayurveda* Research Institute for Mental Diseases, *Kottakkal* as per the inclusion and exclusion criteria.

INCLUSION CRITERIA:

- DSM IV diagnostic criteria for Schizophrenia
- Age group 15 to 50 years

• No discrimination of sex and religion **EXCLUSION CRITERIA:**

- Patients with Negative symptoms of Schizophrenia
- Patients with organic brain disease, drug induced states and mood disorders
- Patients with other systemic diseases.
 - Table No. 3 Drug Administration

Drug	Madhookasaradi Kalka		
Diug	Nasya		
Route	Nasal		
Dose	6 drops in each nostril		
Timing	8 am		
Duration	Consecutively for 7 days		

Table No. 4 DRUG PROFILE [11]

Sr No	Name of the Drug	Latin Name
1	Madhooka	Madhooka indica
2	Pippali	Piper longum
3	Vacha	Acorius calamus
4	Maricha	Piper nigrum
5	Saindhava	Potassium chloride



Madhooka indica



Piper longum



Acorius calamus





Saindhava

ASSESSMENT & STATISTICAL ANALYSIS:

Assessment is done by using the Scale for Assessment of Positive symptoms of Schizophrenia (SAPS) before treatment, on the 4th day, at the end of treatment (7th day) and at the end of the follow up (14th day). Scores obtained were subjected to statistical analysis. The efficacy is calculated within the group by using student's paired t – test and a comparison between the trial and control group was done by using unpaired t – test.

	Table No. 5 Tresentation of Symptoms						
Sr	Symptoms	No.	%		16	Thought insertion	
1	Auditory Hallucinations	9	90		17	Thought withdrawal	
2	Voices Commenting	8	80		18	Bizarre clothing and Appearance	
3	Voices Conversing	4	40		10	Bizarre social and Sexual	
4	Somatic or Tactile Hallucination	2	20		19	behaviour	
5	Olfactory Hallucination	1	10		20	Aggressive and Agitated	
6	Visual Hallucination	4	40		20	behaviour	
7	Persecutory delusion	5	50	1	21	Repetitive or stereotypy	
8	Delusion of Jealousy	2	20		22	Derailment	
9	Grandiose delusion	2	20		23	Tangentiality	
10	Religious delusion	2	20		24	Incoherence	
11	Somatic delusion	1	10		25	Illogicality	
12	Delusion of reference	5	50		26	Circumstantiality	
13	Delusion of being controlled	2	20		27	Pressure of Speech	
14	Delusion of mind reading	0	0	4	28	Clanging	
15	Thought broadcasting	0	0		29	Inappropriate affect	

Table No. 5 Presentation of Symptoms

Table No. 6 Statistical Analysis

C	Mean	Score	M 3:66	0/ Dallaf	CD	SE	t value	P value
Symptom	BT	AT	M. diff.	% Keller	20			
Auditory Hallucination	3.11	2.11	1	32.15	0.71	0.24	4.23	p<0.01
Voices commenting	2.75	2	0.75	27.27	0.71	0.25	2.99	p<0.05
Global rating of hallucinations	3	2.2	0.8	26.67	0.42	0.13	6.02	p<0.001
Persecutory Delusions	2.8	1.8	1	35.71	0.71	0.32	3.15	p<0.05
Delusion of reference	2.2	1.4	0.8	36.36	0.45	0.2	3.98	p<0.05
Global rating of delusion	2.56	1.89	0.67	26.17	0.5	0.17	4.02	p<0.01
Social and sexual bizarre behaviour	2	0.57	1.42	71.5	0.53	0.2	7.1	p<0.001
Aggressive and agitated behaviour	2.33	1.5	0.83	35.62	0.41	0.17	4.96	p<0.01
Global rating of bizarre behaviour	2.1	1.3	0.8	38.1	0.42	0.13	6.02	p<0.001
OVER ALL EFFECT	23	14.9	8.1	35.22	2.56	0.81	10	p<0.001

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EFFECT OF THERAPY	% of Relief	No.	%
Cured	100 % relief	0	0
Marked improvement	>75 % <100 %	0	0
Moderate improvement	>50 % up to 75%	3	30
Mild improvement	>25 % up to 50 %	4	40
Unchanged	0 % up to 25 %	3	30

Table No. 7 Effect of the treatment

DISCUSSION:

Schizophrenia is considered as the most difficult type of psychiatric illness, due to the disabilities and distresses associated with it. Most of the time, the cause of distress will be either a hallucination, delusion or a thought problem. Though it is frequently told that, cognitive impairment in not marked in Schizophrenia, the recent studies indicate a role of defective cognition in generation of some of the psychotic features.

Many studies in the direction of the causation of the delusion propose that, perceptual and cognitive abrasions or abnormalities are crucial in the development of delusional believes. ^[17,18] It is also stated that, social cognition involves specific domain for perception, interpretation and processing of social information and non-social cognitive processes act as a support for effective social cognition. ^[19,20] So any abnormality in these cognitive processes leads to incomplete perception of knowledge. This incomplete information causes difficulty in social reasoning in Schizophrenics. The end result may be the formation of delusional belief. The other cause of delusion may be an active hallucination (secondary delusion).

Mode of action of Nasya

Ayurvedic view on mode of action

- Nose is the direct pathway for *Shira*.
- Drug administered reaches Sringataka and spreads to *the netra, srotra, kantha* etc. parts and removes *dosha* accumulated in these region.
- Sringataka is considered as the inner side of the middle part of the head ^[21] and Aachaarya Sushruta told Sringataka marma is a Sira marma formed by the union of Sira supplying nose, ear, eye and tongue ^[22] Thus we can say that the drug administered enter these Sira and spreads in the head.

MODERN VIEW ON MODE OF ACTION

Targeting the brain via nasal administration of drugs has been studied frequently in recent years. Several studies have shown a direct route of transport from the olfactory region to the central nervous system (CNS) in animal models without prior absorption to the circulating blood. [^{23,24,25,26,27]} "Nasal delivery system is capable of increasing the fraction of the drug that will reach the CNS after its administration".

Modern pharmacology understands the mode of action of a drug administered in to the body under following headings.

- Route of administration Unlike oral administration, intranasal drug administration offers rapid absorption of the drug in to the systemic blood avoiding first-pass metabolism in the gut wall and the liver.
- Anatomical considerations of nose
- Cribriform plate connects the nose with the cranial cavity through its foramens.
- Nasal cavity opens into the frontal, maxillary and sphenoidal sinuses which are richly supplied with blood vessels entering in to the meninges.
- Olfactory receptor cells are in contact with the nasal cavity and the CNS ^[28, 29] and they provide a route of entry to the brain that circumvents the blood-brain barrier (BBB).
- Arachnoid matter sleeve extends to the sub mucosal area of the nose along with olfactory nerve giving a direct pathway for drug entry.
 [30]
- Solubility and absorption According to modern pharmacology, the drugs which are soluble in lipid medium are only passed through the 'Blood Brain Barrier'. But absorption also depends on some more factors like -

A. **Concentration of the drug in solution** – When the concentration of the drug is more, the

higher concentration gradient causes higher absorption.

B. Vascularity of the area – Nose is a highly vascular area. Here, the transgression of the drugs occur in two ways –

a) *Entry in to systemic circulation* - through the surrounding vessels

b) *Direct pooling in to the intracranial region* – blood through the facial vein enters the cavernous sinus in intra cranial fossa. Drug can also enter the cranium from paranasal sinuses and lymphatic path way.

C. Stimulation and Irritation - 'Stimulation' enhances the level of activity of the specialized cells (cells specialized for specific function e.g. neurons in CNS, heart muscles etc.). 'Irritation' is acting non-selectively, applied often for non specialized cells. Irritants stimulate associated function of the cells and there is another action called 'Counter irritants' which increase blood flow to the site. So collectively it can be said that the drug when administered through the nasal route takes various kinds of pathways before reaching either the systemic circulation or to the intracranial region. There are various factors which are interacting and are responsible for the absorption of the drug in the nasal region, which may be the anatomical structure of the area, may be the blood supply, the draining system or it may be the chemical nature of the drug.

PROBABLE ACTION OF MADHOOKASARADI NASYA:

The drug contains mainly *Teekshna* drugs like *Maricha (Piper nigrum), Vacha (Acorius calamus), Pippali (Piper longum)* which are responsible for the clearing of the channels. In the Schizophrenia (positive symptoms) stage there is derangement in the *Samjna* of the patients. As the drug contains *Vacha,* which has got *Samjna sthapaka* ^[31,32] property it may be helping in regaining the awareness and insight which intern influences the behaviour and believes of the patients. *Vaata* is considered as the controller of the mind. All the drugs are having the *Vaata hara* property with *Snigdha* and *Ushna guna.* ^[33] So the pacification of the *Vaata* also is playing an important role in the action of the drug.

The Madhooka (Madhooka indica)[34]andSaindhava lavana (Potassium chloride)[35]are

having *Pittahara* action. This may be helping in reducing the aggressive and agitated behaviour which is a *Pitta* dominant symptom. The *Saindhava lavana* (*Potassium chloride*) is also having the *Sookshma* property which helps the faster penetration of the drug and faster initiation of the action. ^[36]

CONCLUSION

Positive symptoms are commonest type of presentations in the acute phase of Schizophrenia. Clinical presentations are often influenced by the hallucinations, delusions and thought disturbances. Positive symptoms are having a better prognosis in the management. The way of explanation of Psychiatric symptomatology in *Ayurveda* is different from the modern psychiatry; exact correlation of Positive symptoms of schizophrenia with a single psychiatric illness in *Ayurveda* is difficult, as the symptoms seem to be spread in many of the Ayurvedic descriptions. The drugs of *Madhookasaradi Nasya* found effective in reducing the positive symptoms of Schizophrenia (t value – p<0.001). The study should be conducted over a large sample size to further precise the result.

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