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Research Article

A COMPARATIVE CLINICAL STUDY ON THE EFFECTIVENESS OF *BHARANGYADI CHOORNA* AND *VYAGHRI CHOORNA* IN *TAMAKA SWASA* (BRONCHIAL ASTHMA)

Devanand E[1]*, K Ravindra Bhat[2]

*[1]PG Scholar, [2]Professor, Department of PG Studies in Kayachikitsa, Karnataka Ayurveda Medical College, Mangalore, Karnataka, India.

ABSTRACT

Ayurveda classics mentioned various types of *Swasa* and *Tamaka Swasa* is one among them. *Tamakaswasa* is manifested by aggravated *Pranavayu* by the obstruction of *Kapha*. In this case treatment should be to clear out *Pranavaha srotas*, pacify *Vata* and remove the blockage due to *Kapha.* In modern science *Tamaka Swasa* is correlated with Bronchial Asthma. It's a chronic inflammatory disorder of the airways in which the chronic inflammation causes an associated increase in airway hyper responsiveness that leads to recurrent episodes of asthmatic exacerbation. Modern science has no permanent cure of *Tamaka Swasa*, that's why it is necessity to search herbal and herbo-mineral preparations for the treatment of disease. Present Study was conducted to reduce the symptoms of *Tamakaswasa. Bharangyadi Choorna* and *Vyaghri Choorna* have the properties of *Kapha Vata hara, Agni Deepana, Pachana, Anulomana, Srotoshodhana*, anti-asthamatic and anti-inflammatory property. **Materials and Method:** Patients who have symptoms of *Tamakaswasa* fulfill the inclusion criteria were given with *Bharangyadi Choorna* 4gm thrice a day along with *Ardraka Swarasa* as *Anupana* in the trail group i.e., group A and *Vyaghri Choorna* 4gm thrice a day along with honey as *Anupana* in the control group i.e. group B. It is a comparative clinical study with 30 patients in each group for 30 days. Analyzing the signs and symptoms, PEFR after each 10 days, Wilcoxon test was done for comparing the effectiveness of treatment between two groups. Comparative analysis of the overall effect of the treatments in both the groups was done by statistically done by Mann-Whitney test. **Results:** There was statistically significant change in all the signs and symptoms and PEFR after treatment and follow up. All the signs and symptoms have $P \leq 0.05$. **Conclusion:** *Bharangyadi Choorna* has shown highly significant reduction in the symptoms like *Swasakrichratha, Peenasa, Kasa, Ghurghuraka, Krichrabhashana, Shushkasya* and PEFR. On comparison between the two groups, *Bharangyadi choorna* showed a better result in improvement of symptoms- *Swasakrichratha, Peenasa, Kasa, Ghurghuraka, Krichrabhashana, Shushkasya* and objective parameter- PEFR. Hence H_2 hold good.

KEYWORDS: *Tamaka Swasa,* Bronchial Asthma*, Bharangyadi Choorna,* PEFR, *Vyaghri Choorna*.

INTRODUCTION

Tamaka Swasa is mentioned as one of the variety among five types of *Swasa*. But out of these, *Kshudra Swasa* present as symptom in most of the diseases and both type of *Swasa* are manageable, whereas *Maha Swasa, Urdhva Swasa* and *Chinna Swasa* were present in the terminal stages of various diseases. *Tamaka Swasa* is a *'Swantartra' Vyadhi* and having its own *Nidana*, *Samprapthi* and *Chikista*. *Prana Vayu* moves in the reverse order, pervades the *Srotas*, afflicts the *Greeva* and *Shira*, and stimulates *Kapha* to cause *Pinasa* resulting in *Tamakaswasa*. The main causative factors of *Tamaka Swasa* are *Raja, Dhooma, Vata, Sheetha Sthana Nivasa, Sheethambu Sevana, Ativyayama* and *Rookshanna Sevana*. It is mentioned as *Yaapya Vyadhi* i.e., chronic in nature. Bronchial asthma mentioned in Modern Medicine closely resembles with *Tamaka Swasa*.

The process of breathing in and out is effortless, thus hardly noticeable, and therefore, often taken for granted for most of us. Through a life span, consider the newborn's first gasp for air outside mother's womb, signifying the wonderful act of entry into this world, the infant's first vocal sounds and lisps that express emotions enabling communication with the world, and finally, the inevitable act of dying, or expiration, marked by giving the spirit away with the last breath- all tied to the respiratory tract.

Asthma may be as a chronic inflammatory disorder of the airways in which many cells plays a

role in particular mast cells, eosinophils and T lymphocytes. In susceptible individuals this inflammation causes recurrent episodes of wheezing, breathlessness, Chest tightness and Cough particularly at night or in the early morning. These symptoms are usually associated with wide spread but variable air flow limitation that is at least partly reversible either spontaneously or with treatment. The inflammation also causes associated increase airway responsiveness to a variety of stimuli.

Bronchial asthma is a respiratory disorder that has increased dramatically over the past two decades[1]. It is a frightening condition which can seriously impede one's breathing ability, and suddenly rob the individual of the most important nutrient of all- oxygen. People who are having an Asthma attack have real trouble taking a breath. Asthma affects peoples of all age and can be severe, sometimes fatal. Over 100 million people worldwide have suffering from Asthma, the prevalence is increasing among children. As with all chronic diseases rising prevalence is only part of the concern. Mortality due to asthma rose in last decade and has not changed in recent years. Morbidity due to exacerbations and persistent symptoms present as a huge burden to individuals and their community.

The prevalence of bronchial asthma is increasing alarmingly now a day due to increased air pollution, overcrowding, occupational conditions, stress and poor hygiene. As per WHO 2011 health reports, about 235 million people are suffering from bronchial asthma. The prevalence of asthma has risen in affluent countries over last 30 years but now appears stabilized with ~10-12% of adults and 15% of children affected by the disease[2]. It is estimated that there may be an additional 100 million people with asthma by 2025[3]. In India it is estimated around 15-20 million peoples are asthmatics and it was seen as one of the leading cause of morbidity and mortality in rural India.[4]

In 2005 GINA Workshop explained, "The rate of asthma increases as communities adopt western lifestyles and become urbanized. With the projected increase in the proportion of the world's population that is urban from 45% to 59% in 2025, there is likely to be a marked increase in the number of asthmatics worldwide over the next two decades. It is estimated that there may be an additional 100 million persons with asthma by 2025."

Bronchial Asthma can be related with *Tamaka Swasa* in Ayurveda which is mentioned as one of the variety among five types of *Swasa.* Acharya mentioned *Shamana* and *Shodhana Chikitsa* for *Tamakaswasa* in different contexts. *Shodhana* procedure has given a due importance in this disease by almost all Acharyas. Although *Shodhana* therapy shows better result than *Shamana* therapy and already many scholars have proved this but *Shodhana* therapy is not possible in all the conditions and in all the patients, all time and in the classics also, the *Shamana* therapy has been considered better than *Shodhana* and *Bhramhana* therapy (Ch.Chi 17/149). Comparing *Shodhana* and *Shamana Chikitsa, Shodhana* even if considered superior to *Shamana* can be done only *Dosha* vitiation is more, need hospitalization and can be done only in good body strength person.

The current management of *Tamakaswasa* (Bronchial asthma) by modern medicines provides only short term symptomatic relief but does not provide any long term relief to the patients. *Shamana* can be done in all age groups, even in patients of less body strength and can be done in O.P basis also. Here arises the need of an effective polyherbal combination which alleviate *Kapha* and *Vata Dosha,* having *Agni Deepana, Anulomana, Srotosodhana* and which can actively interfere in the disease pathology.

This study has been designed to assess the effectiveness of *Bharangyadi Choorna* and *Vyaghri Choorna* in *Tamaka Swasa* (bronchial asthma). *Bharangyadi Choorna*[5] and *Vyaghri Choorna*[6] have the properties of *Kapha Vatahara*, *Agnideepana Pachana, Anulomana, Srotoshodhana,* anti-asthamatic and anti inflammatory property. The aim of the study is to assess clinically, the effectiveness of *Bharangyadi Choorna* and *Vyaghri Choorna.*

MATERIALS AND METHODS

Source of Data

Literary source

All the Ayurvedic classics, contemporary Ayurvedic literatures, modern texts and internet sources mentioning about the condition, medicine and administration were reviewed and documented for the intended study.

Sample source

Patients who fulfill the inclusion criteria will be randomly selected from OPD and IPD of Karnataka Ayurvedic Medical College Hospital, special camp conducted for the purpose and from referral sources.

Pharmaceutical source

Raw drugs will be procured from authentic sources in and around Mangalore and preparation of *Choorna* will be carried out at the teaching pharmacy attached to Karnataka Ayurveda medical college, Mangalore.

Method of Preparation of Drug

Bharangyadi choorna

- *Bharangi*
- *Shunti*

These two drugs are taken equal quantity should be powdered, sieved to form *Sookshma choorna* and it will be preserved in an air tight container.

Anupana: Ardraka swarasa

Vyaghri choorna

- *Vyaghri*
- *Jeeraka*
- *Dhatri*

All these drugs taken in equal parts should be powdered together and sieved to form *Sookshma Choorna* and it will be preserved in an air tight container.

Anupana: *Madhu*

Method of Collection of Data

a. Sample size: A minimum of 60 patients fulfilling the diagnostic and inclusion criteria of either gender were selected for the clinical study. They were randomly assigned into two groups A and B with 30 patients each.

b. Diagnostic Criteria: Diagnosis will be made on the basis of *Lakshanas* of *Tamaka Swasa* like

i. *Swasakrichrata* (difficulty in breathing)

ii. *Peenasa* (rhinitis)

iii. *Kasa* (cough)

iv. *Ghurghuraka* (wheezing)

v. *Shushkasya* (dryness in the mouth)

vi. *Krichrabhashana* (difficulty in speaking) and

Symptoms of Bronchial asthma like wheezing, breathlessness, chest tightness and coughing will be included in this study.

Intervention:

c. Inclusion criteria

i. Patients having classical signs and symptoms of *Tamaka Swasa* and Bronchial Asthma of mild to moderate nature.

ii. Age group between 16 to 60 years of either gender.

iii. Patient not taking any other medications for *Tamakaswasa.*

iv. PEFR 60% - 90%

v. Conscious and well oriented

d. Exclusion criteria

i. *Asadhya Lakshanas* of *Tamaka Swasa*

ii. The patient with history of Tuberculosis, Emphysema, Pulmonary effusion, COPD, Other complicated respiratory diseases having any organic lesion such as tumor or any anatomical defect in airway.

iii. Pregnant and lactating women.

iv. Uncontrolled Hypertension, Diabetes mellitus

e. Investigations

Following lab investigations will be performed for the diagnosis and to rule out major pathological conditions:

- Peak Flow Meter Reading
- Spirometry (if needed)
- Blood Routine: Hb gm%, TC, DC, ESR
- Radiological - Chest X – ray P/A view (if necessary)
- Absolute Eosinophil Count

Procedure and design of the study

A comparative clinical study with pre-test and post-test design will be conducted on 60 patients divided into two groups. i.e., Group A and Group B, each comprising 30 patients.

Table 1: *Bharangyadichoorna* Group A

Sample size	30
Drug	*Bharangyadichoorna*
Dose	4gm *Choorna* with *Ardraka Swarasa* thrice in a day after food.

Table 2: *Vyaghri Choorna* Group B

Sample size	30
Drug	*Vyaghri Choorna*
Dose	4gm *Choorna* with *Madhu* thrice in a day after food

Follow up period: 10th day after stoppage of medications.

Assessment criteria

Table 3: Grading of Symptoms

S. no	Assessment criteria	0 (Normal)	1 (mild)	2 (moderate)	3 (severe)
1	*Swasakrichratha*	No dyspnoea	Occasional or morning bouts-do not disturb work	Continuous during morning-disturbing work	Continuous during morning and night, disturbing activity
2	*Ghurkuraka*	No wheeze	Wheezing at end of respiration	Loud wheezing throughout expiration	Loud inspiration and expiration wheeze
3	*Krichrabhashana*	Not at all	Hardly any of the time	Moderate amount of time	Most of the time
4	*Kasa*	No cough	Occasional or Morning bouts-do not disturb work	Continuous cough during morning-disturbing work	Continuous morning and night cough–disturbs activity
5	*Shushkasya*	No dryness of mouth	Mild	moderate	Severe
6	*Pinasa*	No symptom	Initially present or occasionally	Continuous in day with cough	Continuous in day and night with cough
7	PEFR	>80% of the predicted value	70-80% of the predicted value	61-70% of the predicted value	≤60% of the predicted value

Statistical Analysis

- Statistical analysis will be done using SPSS package, version 22.
- All the qualitative variables are summarized using frequency and percentage.
- The quantitative variables are summarized using mean and standard deviation, median and interquartile range (Q3, Q1).
- Data needs to be analyzed using normal distribution then performing parametric and non parametric tests.
- Since all subjective variables are qualitative data, assessment will be done by Wilcoxon sign test and Mann- Whitney test.

OBSERVATIONS AND RESULTS

Higher incidence of *Tamakashwasa* was reported in age Group 38-47 years. They were 30% and 26.7% respectively in A and B Group. Out of 60 patients in group A and Group B, 27 patients were female and 33 patients were male. Out of total 60 patients in Group A and Group B, maximum patients were found moderate Nature of Work. They were 31 (51.7%). Out of total 60 patients in group A and Group B, maximum patients were of Hindu religion (55%). Out of total 60 patients in group A and Group B, maximum patients occupation are Housewife (16.67%). Out of total 60 patients in Group A and Group B, maximum patients' Socio Economic Status were middle i.e, 32 (53.3%). Marital status: Out of 60 patients 76.7% were married. That could be because of the inclusion of patients between age 16-60 years includes the maximum of marital age. In this study out of 60 patients, majority of patients had disturbed sleep 50%. Whereas 28.8%patients had irregular sleep, 13.3% patients had delayed sleep and 6.7% had sounded sleep. Out of total 60 patients in Group A and Group B, maximum patients pet keeping were no (81.7%). In Group A, they were 80% and in Group B they were 83.3%. Out of total 60 patients in Group A and Group B, maximum patients Habit were Nil (33.33%). Some patients had the habit of smoking beedi, cigarette and some are addicted to tea/ coffee and 5% are using snuff. Out of total 60 patients in Group A and Group B, maximum patients Diet were mixed (75%).Out of total 60 patients in Group A and Group B, maximum patients Chronicity were upto 1 year (75%). Out of total 60 patients in Group A and Group B, maximum patients Education were High School (50%).

RESULTS

In this work of 30 patients studied in *Tamaka swasa* with Group-A 53.70% and 38.64% improvement seen in *Swasakrichratha.* An assessment of *Peenasa* in patients of *Tamaka swasa* before and after the treatment with Group-A showed 84.21% and Group-B showed 58.82% improvement.

Magnitude of *Kasa* in patients of *Tamakaswasa* before and after the treatment in Group-A showed 69.70% improvement whereas in Group-B 47.52% improvement. Magnitude of *Ghurghuraka* in patients of *Tamakaswasa* in Group-A is 62.50 and in Group-B 45.10% improvement. Magnitude of *Krichra Bhashana* in patients of *Tamaka swasa* In Group-A 70.59% improvement and in Group-B 60% improvement. Magnitude of *Shushkasya* in patients of *Tamakaswasa* in Group-A 76% improvement. Further in Group-B 38.89% improvement. Magnitude of PEFR in patients of *Tamakaswasa* in Group-A had 92.41% improvement. Further in Group-B 27.08% improvement.

Effects on *Bharangyadi Choorna* (Group A)

Table 4: Subjective and Objective Parameter

Symptoms	Mean score				%	S.D (±)	S.E (±)	Wilxocon Z Value	p value
	BT			BT-AT					
Swasakrichratha	1.80	AT	1.10	0.70	38.89	0.651	0.121	3.72	<0.05
		AF	0.83	0.97	53.70	0.556	0.103	4.37	<0.05
Peenasa	0.63	AT	0.33	0.30	47.37	0.535	0.099	2.00	>0.05
		AF	0.10	0.53	84.21	0.629	0.117	2.20	<0.05
Kasa	1.10	AT	0.63	0.47	42.42	0.571	0.106	3.83	<0.05
		AF	0.33	0.77	69.70	0.728	0.135	4.70	<0.05
Ghurghuraka	1.87	AT	1.17	0.70	37.50	0.596	0.111	2.00	<0.05
		AF	0.70	1.17	62.50	0.461	0.086	3.05	<0.05
Krichra Bhashana	0.57	AT	0.44	0.13	23.53	0.346	0.064	3.05	<0.05
		AF	0.17	0.40	70.59	0.498	0.093	3.62	<0.05
Shushkasya	0.83	AT	0.36	0.47	56.00	0.629	0.117	4.70	<0.05
		AF	0.20	0.63	76.00	0.615	0.114	4.78	<0.05
PEFR	1.60	AT	1.40	0.20	12.50	0.407	0.076	2.20	<0.05
		AF	1.17	0.43	27.08	0.504	0.094	3.18	<0.05

Effect on *Vyaghri Choorna* (Group B)

Table 5: Subjective and Objective Parameter

Symptoms	Mean score				%	S.D (±)	S.E (±)	Wilxocon Z Value	p value
	BT			BT-AT					
Swasakrichratha	1.47	AT	1.17	0.30	20.45	0.466	0.087	2.66	<0.05
		AF	0.90	0.57	38.64	0.679	0.126	3.24	<0.05
Peenasa	0.57	AT	0.44	0.13	23.53	0.434	0.081	1.47	<0.05
		AF	0.24	0.33	58.82	0.479	0.089	2.80	<0.05
Kasa	1.20	AT	1.00	0.20	16.67	0.407	0.076	2.20	<0.05
		AF	0.63	0.57	47.22	0.626	0.116	3.40	<0.05
Ghurghuraka	1.70	AT	1.53	0.17	9.80	0.379	0.070	2.02	<0.05
		AF	0.93	0.77	45.10	0.430	0.080	4.19	<0.05
Krichra Bhashana	0.83	AT	0.63	0.20	24.00	0.407	0.076	2.20	<0.05
		AF	0.33	0.50	60.00	0.509	0.094	3.40	<0.05
Shushkasya	0.60	AT	0.33	0.27	44.44	0.521	0.097	2.36	<0.05
		AF	0.37	0.23	38.89	0.430	0.080	2.36	<0.05
PEFR	1.60	AT	1.40	0.20	12.50	0.407	0.076	2.20	<0.05
		AF	1.17	0.43	27.08	0.504	0.094	3.18	<0.05

Table 6: Comparative results of Group-A and Group-B

Signs and Symptoms	Group A (Mean Score)	Group B (Mean Score)	Z-Value of Mann Whitney	U Value	P Value
Swasakrichratha	1.24	1.18	0.47	417.50	>0.05
Peenasa	0.36	0.41	0.05	445.50	>0.05
Kasa	0.69	0.94	1.47	349.50	>0.05
Ghurghuraka	1.24	1.39	0.98	383.00	>0.05
KrichraBhashana	0.39	0.60	1.75	330.50	>0.05
Shushkasya	0.47	0.43	0.63	406.50	>0.05
PEFR	1.28	1.39	0.03	447.00	>0.05

Table 7: Overall Comparative Results of Group A and Group B

Group A	Group B	Mean Difference	SE (±)	Z-Value of Mann Whitney	U Value	P value
75.64	46.23	29.41	5.99	4.63	136	<0.05

Comparative analysis of the overall effect of the treatments in both the groups was done by statistically with Mann Whitney test. The test shows that the treatment is significant in Group A when compared to Group B. Group A overall result is 75.64% and Group B overall result is 46.23%.

DISCUSSION

Tamakaswasa is manifested by the aggravated *Pranavayu* by the obstruction of *Kapha.* The symptoms of *Tamakaswasa* are *Swasakrichratha, Muhurmuhur Swasa, Ghurghuraka, Kasa, Peenasa, Shayanasya, Swasapeeditha, Kaphanishtivam, Urahapeeda, Peenasa, Parshwashoola, Shushkasya* etc. Attack of the disease cause entering of darkness due to vitiation of *Vata* which in turns vitiates *Kapha* and it obstructs the passage of *Pranavata* this produce the upward movement of *Vata* or abnormal dyspnoea.

The whole *Charaka Chikitsa Adhyaya 17* is dedicated to differentiate the *Sadhya* and *Asadhya Swasa* based on the symptomatology and then the treatment of *Sadhya* or *Yapya* variety of *Swasa (Tamaka Swasa).* From the treatment point of view, *Tamaka Swasa* has got a great importance due to its *Sadhya* (including *Kriccha* and *Yapya)* nature and being manageable. *Swasa* is being existed from the very primitive age as evident in Vedic literatures. References regarding *Swasa* in both physiological and pathological senses can be obtained from Vedic literature onwards. The importance of respiration in life sustenance has been ascertained by the usage of the word *Prana Vayu* for inhaled air. *Puranas, Upanishads* and *Brahmanas* also have given many references about *Swasa Kriya* and many a times about *Swasa Roga* as well. Description of *Swasa Roga* is available in *Brihattrayee* as well as *Laghuttrayee*.

In the *Tamakaswasa* it is clearly explained about the types *Swasa Roga* and it is classified into five on the basis of severity. *Kshudra Swasa* can be seen as a symptom in many diseases and is self limiting. *Chhinna, Urdhwa* and *Maha Swasa* are the terminal stages and have extremely bad prognosis. Then explained about *Nirukthi, Nidana, Puravarupa, Rupa, Samprapthi, Samprapthighataka, Upashay-anupashaya, Vyadhivyavechedaka, Chikitsa* and *Pathyapathya.* In modern view it is explained about Asthma which is a chronic inflammatory disorder of the respiratory airways, asthma is characterized by bronchial airway inflammation resulting in increased mucus production and airway hyper-responsiveness. The resultant symptomatology includes episodes of wheezing, coughing, and shortness of breath. Asthma is a multifactorial disease process with genetic, allergic, environmental, infectious, emotional, and nutritional components. The underlying pathophysiology of asthma is airway inflammation. In this section it was explained about types, etiological factors, signs and symptoms, differential diagnosis, treatments and lab investigations.

About the drugs used for treatment of *Tamaka Swasa. Bharangyadi Choorna* contains of two drugs *Bharangi* and *Shunti*, *Vyaghri Choorna* contains of three drugs *Kantakari, Dhatri* and *Jeeraka.* All the drugs are having *Kapha Vatashamaka* properties because of its *Rasa, Guna, Veerya* and *Vipaka.* Only *Amalaki* have *Tridoshahara* property. Anti-inflammatory and anti-asthmatic properties are the other benefits of these drugs.

DISCUSSION ON OBSERVATION

Age: Out of 60 patients of *Tamakaswasa* maximum number of patients around 30% were between 38-47 years of age group. Group wise division 30% in group A and 26.7% in group B. This shows that *Tamakaswasa* is more prevalent in younger adults around age 35.

Gender: However, the link between gender and incidence of Asthma has not been established. In the

present study out of 60 patients 55% were males. It may be high level of exposure to etiological factors like dust, smoke and habits like smoking etc.

Religion: Out of 60 patients taken for study 55% of patients are Hindus, 35% were Muslims and 10% were Christians. The high incidence of illness in Hindus in this study cannot predict because it may be due to the small sample size and availability of patients in this particular area.

Occupation: In this study of 60 patients most of them are house wives and workers. This may be due to exposure to dust, irregular dietary habits which may cause respiratory disorders.

Socio-economic status: Out of 60 patients 53.3%of patients belong to middle class. This might be due to higher level of the exposure to different kinds of allergens in the middle class due to their competitive environment and low health care maintenance in middle class people.

Marital status: Out of 60 patients 76.7% were married. That could be because of the inclusion of patients between age 16-60 years includes the maximum of marital age.

Sleep: In this study out of 60 patients, majority of patients had disturbed sleep 50%. Whereas 28.8% patients had irregular sleep, 13.3% patients had delayed sleep and 6.7% had sounded sleep. Day sleep is the main reason that aggravates *Swasa.*

Pet keeping: Out of 60 patients, maximum patients (81.7%) are not keeping pets. But 18.3% patient were keeping pets at home, pet dander may be one of the cause for Asthma.

Habit: Out of 60 patients majority of the patients don't have any type of addiction or habit. But some patients had the habit of smoking beedi, cigarette and some are addicted to tea/ coffee and 5% are using snuff. These habit may be one of the cause for Asthma.

Diet: Among 60 patients, maximum numbers of patients i.e. 75% were used to take mixed diet. Non vegetarian foods mixed with *Vyanjakas* and its *Gurutva* in getting digested, lead to the formation of *Ama* and *Srotho-Abhishyanda* which in turn causes vitiation of *Tridosha* in *Amashaya.*

DISCUSSION ON RESULT

Effect of treatment on *Swasakrichratha*

The symptoms *Swasakrichratha* was reduced and showed highly significant result at P<0.01 before treatment. It shows symptom reduced to 38.89% after treatment and after follow up it became 53.70% improvement in Group A. In Group B after treatment symptom reduced to 20.45% and after follow up with 38.64% improvement. While comparing both the groups there is Statistically Significant result at P<0.05 was found.

Breathlessness (*Swasakrichratha*) is due to broncho-constriction (*Srotosanga*) of the airway due to inflammatory causes like increased secretion of bronchial mucous gland and epithelial secretions etc. So this study shows reduction and clearance in the obstruction to the passage of *Pranavayu* by clearing the morbid *Kapha* which results in reduction in *Pranavilomata* by the treatment.

Effect of Treatment on *Peenasa*

The symptoms *Peenasa* was reduced and showed highly significant result at P<0.01 before treatment. It showed reduction of 47.37% relief of symptom after treatment and after follow up it symptom reduced 84.21% in group A. in group B it showed reduction of 23.53% relief of symptom after treatment and 58.82% improvement after follow up. While comparing both the groups there is Statistically Significant result at P<0.05 was found.

Effect of treatment on *Kasa*

The symptom *Kasa* was reduced and shoes highly significant result at P<0.01 in the period of after treatment 42.42% improvement and after follow up 69.70% improvement was found in group A. In group B after treatment symptom reduced to 16.67% and after follow up it showed an improvement of 47.22%. While comparing both the groups there is Statistically Significant result at P<0.05 was found.

Kasa is an effort to expel the *Kapha. (Malaroopa)* secreted in the *Pranavaha Srotas.* So on administration of medicine, there would have been in acting in liquefaction of the sputum, and then only the diminishing of the cough is possible.

Effect of treatment on *Ghurghuraka*

The symptom *Ghurghuraka* was reduced and showed highly significant result at P<0.01 in the period of after treatment it showed 37.50% and after follow up it showed 62.50% improvement in group A. In group B it showed that after treatment symptom reduced 9.80% and after follow up symptom *Ghurghuraka* reduced to 45.10%. While comparing both the groups there is Statistically Significant result at P<0.05 was found.

Wheeze (*Ghurghuraka*) is generated by vibration in the wall of an airway on the point of closer due to smooth muscle contraction. Drugs helps for the *Kapha Vilayana* and thus it helps for the reduction in the *Sroto Sanga*.

Effect of treatment on *Krichrabhashana*

The symptom *Krichrabhashana* was reduced and showed highly significant result at P<0.01 in the period of after treatment it showed 23.53% and after

follow up it showed 70.59% improvement in group A. In group B it showed that after treatment symptom reduced 24% and after follow up symptom reduced to 60%. While comparing both the groups there is Statistically Significant result at P<0.05 was found.

Effect of treatment on *Shushkasya*

The symptom *Shushkasya* was reduced and showed highly significant result at P<0.01 in the period of after treatment it showed 56% and after follow up it showed 76% improvement in group A. In group B it showed that after treatment symptom reduced 44.44% and after follow up symptom reduced to 38.89%. While comparing both the groups there is Statistically Significant result at P<0.05 was found.

Effect of treatment in PEFR

The objective criteria PEFR was reduced and shows highly significant result at P<0.01 in the period of after treatment it showed 62.03% and after follow up it showed 92.41% improvement in group A. In group B it showed that after treatment 12.50% improvement and after follow up it showed improvement of 27.08%. While comparing both the groups there is Statistically Significant result at P<0.05 was found.

This may be due to the *Kapha Vilayana* property of the drug and enhances the normal *Gati* of *Vata*. It shows significant reduction in the airway obstruction.

Discussion on Mode of Action of Drug

Probable Mode of Action of *Bharangyadi Choorna*

The mode of action of drugs in *Bharangyadi Choorna* i.e., *Bharangi and Shunti* is due to its *Vata Kapha Shamaka* property. Especially *Bharangi* has *Kaphaghna* property which directly acts on the causative *Dosha*. It pacifies the vitiated *Kapha Dosha* which is dominant in the pathogenesis of *Tamakaswasa* as well as depletes the excessively produced *Rasa Mala Kapha*. Thus it is known to act against the *Kaphapradhana* pathogenesis of *Tamaka Swasa* but because of *Guru, Snigdha Guna and Madhura Vipaka Shunthi* is also effective on *Vatapradhana* pathogenesis. Both drugs are *Deepana, Pachana* and *Shunthi* is *Amnashaka (Rasagata Kaphanashaka)* so act on *Agni* and alleviate the *Ama*. This would also clear up the *Rasa Dhatu Dushti*, and excessive production of *Mala Kapha*. These drugs help at the level of *Agni* in *Samprapti Vighatana*.

Shunthi has *Sroto shodhana* property it cleans the various channels of *Pranavaha Srotas* which leads to *Anuloma Gati* of *Vata.* In this manner these *Srotoshodhaka* drugs help in *Samprapti Vighatana.*

Shunthi has *Vatakapha Shamaka* property and *Bharngi* has *Kaphaghna* property in this way it helps in the *Samprapti Vighatana* at the level of *Pratiloma Vata Dosha* and removes obstruction. Both drugs also have *Shwasahara, Kasahara* action mentioned in various Ayurveda texts.

CONCLUSION

After the study regarding *Tamakaswasa* and its treatment, the following conclusions are explained below.

It is observed that diet pattern, increasing stress and pollution are the main causative factors for *Tamaka Swasa.* The present study shows the incidence of the disease *Tamakaswasa* is found more in males than females. Majority of the patients had complaints viz., *Ghurghuraka, Swasakrichratha, Peenasa, Kasa, Shushkasya and Krichrabhasana.* The disease *Tamakaswasa* can be equated with Bronchial Asthma in modern parlance due to its similarity in presentation.

Two *Choorna Yogas*– *Bharangyadi Choorna* and *Vyghri Choorna* were taken as the trial drug and control drug respectively. Effect of therapy on each and every sign and symptom were considered and critically analyzed. The results thus obtained were subjected to analytical statistical techniques to compare both types of treatments.

In this study *Bharangi* and *Shunti* are having all the properties required to break down the *Samprapthi* of *Tamaka Swasa.* Both *Bharangiyadi Choorna* and *Vyaghri Choorna* have the properties of *kaphavata hara, Agni Deepana Pachana, Anulomana, Srotoshodhana*, anti-asthamatic and anti inflammatory property. But *Bharangyadi Choorna* had got better improvement (75.64%) than *Vyaghri Choorna* (46.23%).

When comparing both groups *Bharangyadi Choorna* and *Vyghri Choorna* both have significant effects on symptoms of *Tamaka Swasa. Bharangyadi Choorna* shows better improvement of the symptoms– *Swasakrichratha, Peenasa, Kasa, Ghurghuraka, Krichrabhasana, Shushkasya* and in the objective parameter– PEFR than *Vyaghri Choorna.* Hence H_2 holds good and proved.

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***Address for correspondence**
Dr Devanand E
PG Scholar, Department of PG Studies in Kayachikitsa
Karnataka Ayurveda Medical College, Mangalore, Karnataka
Email: devanandkhd007@gmail.com
Mob: 9567360304