

## SOMA YOGA- CLINICAL STUDY ON TAMAK SHWAS W. S. R. TO BRONCHIAL ASTHMA

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### ABSTRACT

Asthma is a significant burden, not only in terms of health care costs but also, of lost productivity and reduced participation in the social networks of life. The Global Initiative for Asthma Control was implemented in 1993 after W.H.O. and the National Heart, Lung and Blood Institute collaborated to convene a workshop on the problem. The GINA guidelines in 2008 promoted the classification of the disease on the basis of asthma control which includes the control of its clinical manifestations and the responsiveness to the treatment given. Occurrence of the side effects owing to the prolonged treatment of asthma and reduced responsiveness to the existing treatment modalities makes one think of the use of alternative medicines for effective

disease control and thus the scope of newer drugs. Bronchial asthma can be correlated with the clinical features of *Tamak shwas*. The drug under study being combination of a herb known for having anti asthmatic property, *somalata* with a herbomineral compound *Rasa Sindura* can be considered in the management of asthma both as a reliever as well as controller medication. *Soma yoga* is an important formulation in *shwas rogadohikar* in the *Sidha yoga sangraha* of *Yadav ji Trikam Ji*. It is a compound of *Rasa Sindura* and *Somalata churna* in the ratio of 1:20. *Rasa Sindura* is powdered and fine powder of *Somalata* is added and triturated into a fine powder. It is taken in a dose 5-10 *Rattis* with water or honey as vehicle in *Shwas Roga* or Asthma. *Somlata* is known for its anti asthmatic properties. In the present study it is in a compound form with a common mercurial preparation *Rasa Sindura*,

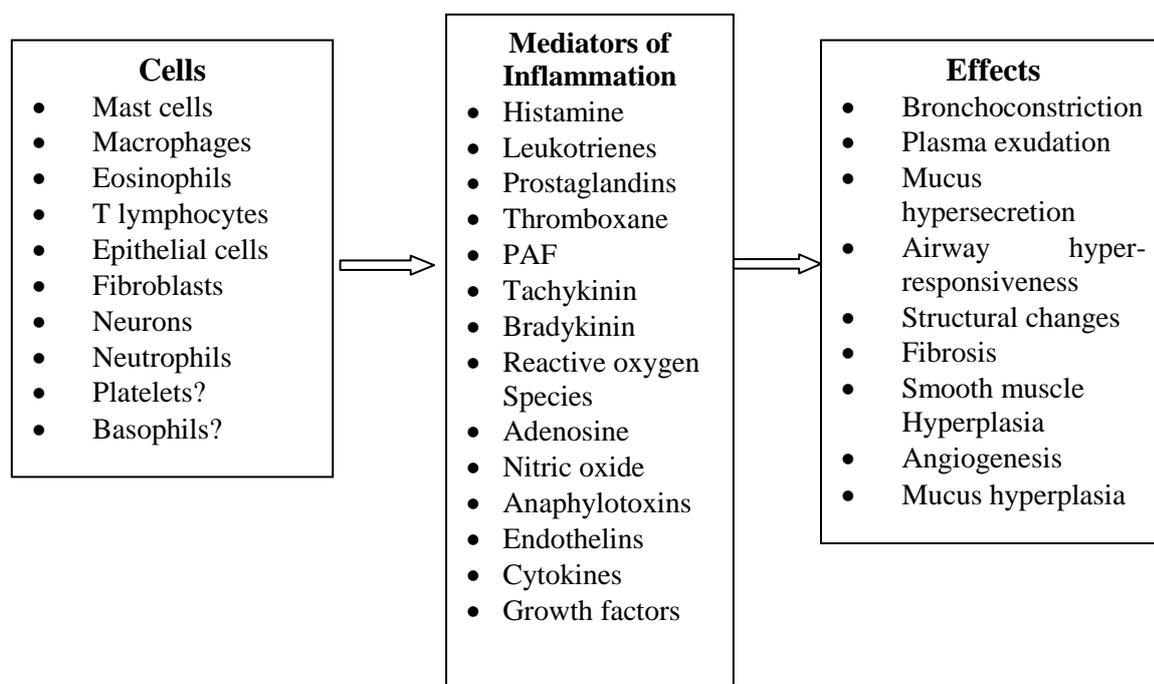
with an eye to understand the latter's *yogvaahi* (pharmaceutico potentiator) property. The clinical study was done at Rajiv Gandhi Govt. Post Graduate Ayurvedic College and Hospital, Paprola. It can be fairly understood from the study that soma yoga can be used as an alternative medicine for effective control of the disease but further study in double group is recommended.

**KEYWORDS:** Asthma is a significant burden, not only in terms of health.

## INTRODUCTION

Asthma is a serious global health problem with world wide incidence ranging from 1% to 18% in different countries, with 300 million affected individuals.<sup>[1]</sup> Asthma is a significant burden, not only in terms of health care costs but also, of lost productivity and reduced participation in the social networks of life. The pathological, physiological and clinical manifestations of asthma are a result of a complex interaction of environmental stimuli with the local resident cells, including the epithelial lining and those migrating from the blood stream. The interaction involves several inflammatory cells, mediators and cytokines to manifest the disease process. The various inflammatory cells, mediators and their effect can be understood in the diagram below.

### Pathogenesis of Asthma<sup>[2]</sup>



The Global Initiative for Asthma Control was implemented in 1993 after W.H.O. and the National Heart, Lung and Blood Institute collaborated to convene a workshop on the

problem. The GINA guidelines updated in 2008 promote the classification of the disease on the basis of asthma control which includes the control of its clinical manifestations and the responsiveness to the treatment given. As the cost of lab markers goes high, treatment is aimed at controlling clinical features of the disease including drug function abnormalities. On this basis a working scheme has been designed by GINA as below:

**Table 1: Levels of Asthma Control.**<sup>[3]</sup>

Characteristic	Controlled (all of the following)	Partly controlled (Any measure present in any week)	Uncontrolled
Daytime symptoms	None (twice or less/ week)	More than twice/ week	Three or more features of partly controlled asthma present in any week
Limitations of activities	None	Any	
Nocturnal symptoms/awakening	None	Any	
Need for reliever/ rescue treatment	None (twice or less/week)	More than twice/week	
Lung function (PEF or FEV <sub>1</sub> )	Normal	<80% predicted or personal best (if known)	
Exacerbations	None	One or more/year*	

FEV<sub>1</sub>- forced expiratory volume in the first second; PEF – peak expiratory flow.

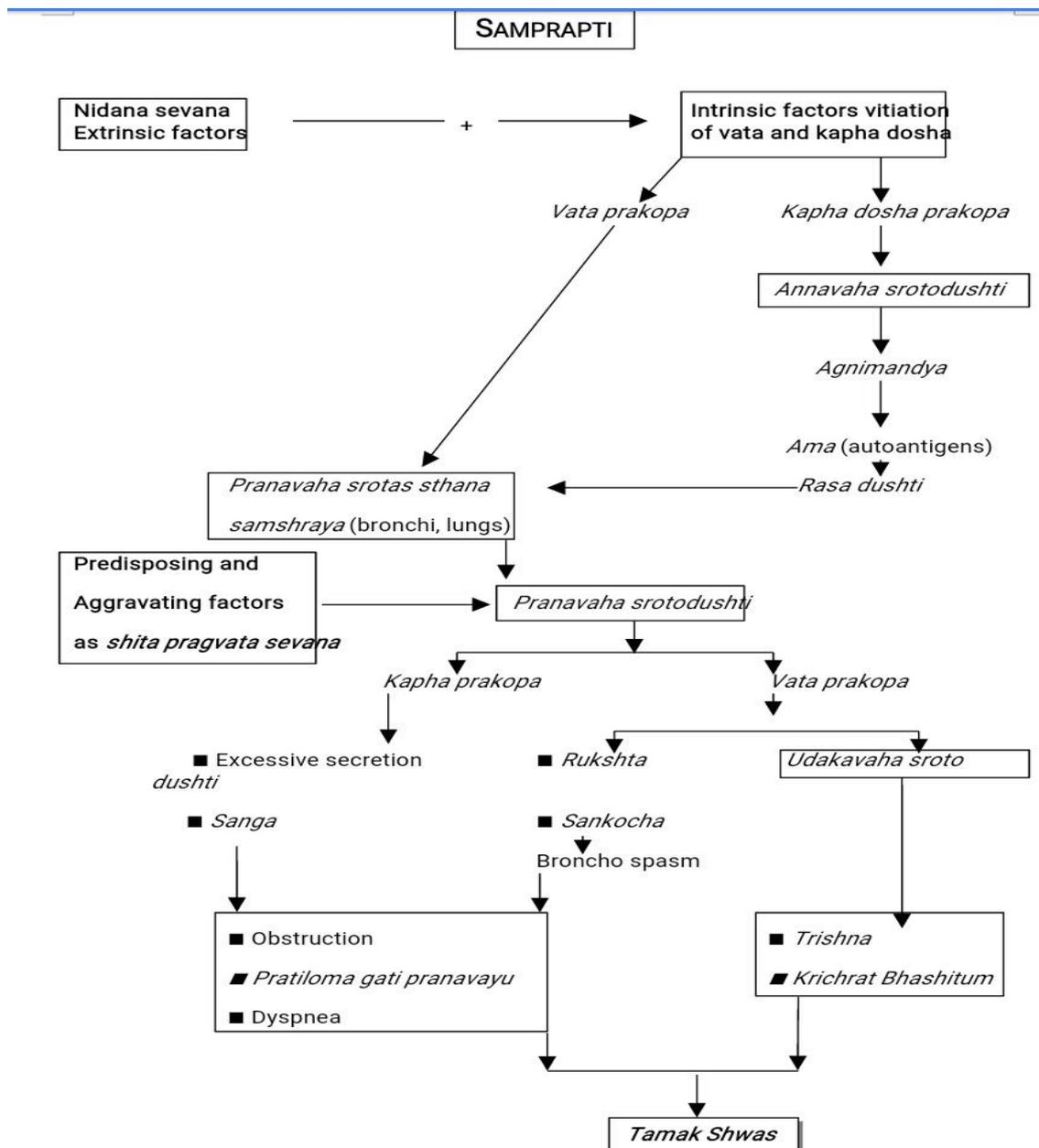
\* Any exacerbation should prompt review of maintenance treatment to ensure that it is adequate.

<sup>‡</sup> By definition an exacerbation in any week makes it an uncontrolled asthma week.

(From GINA Update 2008)

In Ayurveda *shwas roga* is the disease incorporating breathing problems. *Tamak shwas* is the variety having clinical picture as of bronchial asthma. It is a disease of the *Pranavaha srotas*, channels related to respiration/breathing, but the disease process finds its origin in the *Amashya* especially *Pitta* sthana<sup>[4]</sup> i.e. portion of the alimentary canal which is mainly concerned with the digestion. *Kapha* and *Vata doshas*<sup>[5]</sup> are the predominant humors while along with the *Pranavaha srotas*, *Udakavaha srotas*<sup>[6]</sup> (channels carrying water) and *Annavaha srotas*<sup>[7]</sup> are also involved. It is difficult to cure or *yapya*.<sup>[8]</sup> The factors responsible for the disease are external factors or *Bahya Hetu*<sup>[9]</sup> like improper food, organism, meteorological and climatic influences etc. which influence the intrinsic factors the *tridoshas*- the *vata*, *pitta* and *kapha* represent the whole biochemical phenomenon occurring in the body resulting in disturbance in the homeostasis. It is the *Tridoshas* which are involved in either

conferring a predisposition to or actually causing the morbidities. *Vata* and *kapha* are the intrinsic factors implicated in this disease. *Tamak shwas* is aggravated by cloudy, cold, rainy and humid weather and also by *Kaphavardhaka ahar*<sup>[10]</sup> i.e. *Aahara*, *vihara* and *ritu* having predominance of *shita guna* such as cold water, yoghurt, heavy diet, winter season, cold air, cold places etc. The pathology of the disease can be understood as obstruction (*sanga*) of *pranavaha srotas* is due to excessive production of *kapha* and constriction of the trachea-bronchial tree is by vitiated *vata*. Due to obstruction there occurs difficulty in respiratory process (*shwas-nihshwasa*) and other characteristic features of *tamak shwas* as *Ghurghurakam*. The etiopathogenesis or the *samprapti* can be understood as in the picture below:



**Samprapti Ghataka (factors responsible for the etiopathogenesis)**

<i>Dosha</i>	-	<i>Vata, Kapha</i>
<i>Dushya</i>	-	<i>Rasa</i>
<i>Srotasa</i>	-	<i>Pranavaha, Annavaha, Udakavaha</i>
<i>Udbhavasthana</i>	-	<i>Pittasthana – amashaya</i>
<i>Vyaktisthana</i>	-	<i>Urah, Phuphussa</i>
<i>Srotodushti</i>	-	<i>Sanga, Vimargagamana</i>
<i>Rogomarga</i>	-	<i>Abhyantara</i>

Treatment line of *tamak shwas* has been given in the classical texts as below<sup>[11]</sup>

1. Patients with strong body built and having predominance of Kapha *dosha* are advised *samshodhana* therapy which includes *vamana* and *virechana* followed by *samshamana karma* like *dhumapana* and *leha*.
2. Patients having weak body build and *vatic* predominance are advised to undergo *samshaman* therapy which includes *sneha*, *yusha* and *rasadi* which are having *brimhana* and *vata shamaka* properties.

The guidelines for *Samshaman* therapy are as below<sup>[12]</sup>:-

1. *Kaphaghna aushadha anna* and *pana*.
2. *Vataghna aushadha anna* and *pana*.
3. *Ushna aushadha anna* and *pana*.
4. *Vatanulomaka aushadha anna* and *pana*

The drugs or diet should not alleviate one *dosha* and aggravate the other. The drug which alleviates *vata* should be preferred over the other.

Along with these early evening meals are advised besides *pranayama* and controlled regular exercise.

Bronchial asthma can be correlated with the clinical features of *Tamak shwas* as below –

**Table 2:**

<i>Tamak shwas</i>	Bronchial asthma
<i>Ghurghurakam</i>	Wheezing
<i>Ativ Tivra vegam shwasam</i>	Fast respiration
<i>Shwasam pranapravedakam</i>	Respiration causing discomfort
<i>Parshva graham</i>	Tightness in the chest.
<i>Muhurmuha shwasa</i>	Shortness of breath.

<i>Pramoha</i>	Syncopal attack due to excessive bouts of cough
<i>Shleshmano uchhyamane tu bhavati dukhitah</i>	Discomfort during expectoration
<i>Shlesmano vimokshante labhte sukham</i>	Relief in dyspnea after expectoration
<i>Aseenolabhte saukhyam</i>	Comfortable in sitting posture
<i>Shayono shwas peeditah</i>	Dyspnea increases on lying down
<i>Na Nidram labhate</i>	Sleeplessness

Occurrence of the side effects owing to the prolonged treatment of asthma and reduced responsiveness to the existing treatment modalities makes one think of the use of alternative medicines for effective disease control and thus the scope of newer drugs. The drug under study being combination of a herb known for having anti asthmatic property, *somalata* with a herbomineral compound *Rasa Sindura* can be considered in the management of asthma both as a reliever as well as controller medication.

The present work has been taken up with the motive to evaluate the *shwashar* effect of the formulation *Soma Yoga*. Also the drug *Soma Yoga* has not been taken up for any research work so far.

### Reasons for Drug Selection

*Somalata* (*Ephedra gerardiana*) is known for its antiasthmatic property. *Rasa Sindura* is said to have *yogavahitva* property. To assess the same it was decided to take up the formulation *Soma Yoga*- to see *ras sindura's* pharmaco-potentiator effect with *somalata*, in a clinical study in patients of bronchial asthma.

### AIMS AND OBJECTIVES OF THE STUDY

1. To study detail etiopathogenesis of *shwas roga* with special reference to *tamak shwas* and its relation with bronchial asthma.
2. To review the literature regarding individual components of the formulation *Soma yoga*, *Shwas Roga* and the pharmaceutical concept of *Kupipakva Kalpana*.
3. To perform clinical study to assess the *Shwashara* effect of *Soma yoga* on *Shwas roga* w. s. r. to Bronchial asthma.

### MATERIAL AND METHODS

The present study is aimed at determining the *shwashar* effect of *Soma Yoga* with the objective of having an insight into the *yogavahitva* property of *Rasa Sindura* along with *Soma Lata churna*.

Selection of Patients: Total 19 patients were selected from the Hospital of Rajiv Gandhi Government Post Graduate Ayurvedic College, Paprola, Distt Kangra, H. P. They were included in the trial irrespective of their age, sex, socio-economic status.

Inclusion Criteria: Age between 18 to 60 yrs, patients having signs and symptoms of Bronchial Asthma/ *Tamak Shwas* and characteristic symptoms when symptomatic or during exacerbation.

Cough (*kasa*), Wheezing (*ghurghuraka*), Breathlessness (*krichra shwas*), Tightness in the chest (*parshvagraha*).

Exclusion Criteria: Patients not following Inclusion criteria, voluntary withdrawal, patients not giving consent for the trial, having other systemic diseases as HTN, CHF, or Cor-Pulmonale, Respiratory Failure, D.M. etc.

Diagnosis was made on the basis of a detailed history taking, clinical examination and lab investigations. Patients with acute exacerbation which included; *ateeva Tivra vegam shwas* (Breathlessness), *Ghurghuruka shabda* (Wheezing), *Kasa* (Cough), *Parshvagraha* (Tightness in chest) were taken up for the research. Previously diagnosed cases of Bronchial Asthma and use of bronchodilators, Experience of tightness or heaviness in chest at the onset of paroxysm usually associated with non productive cough, Nocturnal paroxysms or early morning exacerbation, Seasonal exacerbations, Aggravation of symptoms on exposure to dust, smoke, fumes, specific allergens etc., Paroxysms followed by exercise, Relief after expectoration, Relief in sitting position, Presence of rhonchi in the chest were taken as the diagnostic features. Systemic examination was done to exclude other findings. Lab Investigations were performed and assessed before and after the trial.

1. Routine blood Examination- Hb gm%, TLC – Total leukocyte count, DLC – Differential leukocyte count, ESR mm fall in 1<sup>st</sup> hour  
Biochemical tests: Fasting Blood Sugar, SGOT, SGPT, Blood Urea, Serum Creatinine  
Urine examination: Routine, Microscopic  
Stool examination: Ova, Cyst
2. Chest X Ray- To rule out any other pathology
3. ECG – Done to exclude other pathologies and findings like P. pulmonale, Right ventricular hypertrophy

4. Spirometry – Spirometry was done in all the patients to assess the effect of the drug on FEV<sub>1</sub>%.

### Duration of Study and Assessment

The drug was given in a dose of 600mg twice a day in capsules of 300 mg each with warm water initially for 15 days with the *pathya–apathya* regimen and was repeated after reassessment for another 15 days.

**Table 3: Parameters for Assessment of Response of the Trial Drug.**

Sr. No.	Symptoms	Grade
1.	<b>Breathlessness- Shwas</b>	
	No breathlessness	0
	Breathlessness on severe exercise	1
	Breathlessness on moderate exercise	2
	Breathlessness on mild exercise	3
2.	<b>Wheezing (Ghurghuruka shabda)</b>	
	No wheeze	0
	Twice in 24 hours	1
	3-4 times in 24 hours	2
	Throughout the day	3
3.	<b>Cough (number of bouts)</b>	
	Absent	0
	Twice in 24 hours	1
	3-4 times in 24 hours	2
	Continuous cough	3
4.	<b>Cough (duration)</b>	
	No cough	0
	2 minutes	1
	5 minutes	2
	7 minutes	3
	>7 minutes	4
5.	<b>Tightness in chest</b>	
	No tightness	0
	Only chest tightness	1
	Chest tightness + non productive cough	2
	Chest tightness + Non productive cough + Wheezing	3
6.	Chest tightness + Non productive cough + Wheezing + Breathlessness	4
	<b>Rhonchi</b>	
7.	None	0
	Occasional, localized	1
	Generalized	2
7.	<b>Posture</b>	
	Can lie in any posture	0
	Can lie straight with elevated head	1

	Can lie propped up	2
	Remains sitting	3
8.	<b>Sleep disturbance</b>	
	Sleeps in any posture	0
	Sleeps in propped up position	1
	Sleeps in sitting position	2
	Cannot sleep in any position	3
9.	<b>Paroxysmal dyspnea</b>	
	Absent	0
	Once in fortnight	1
	1-2 times in a week	2
	More frequent	3
10.	<b>Intervention with modern medicine</b>	
	No need	0
	Need occasionally	1
	Need once daily	2
	Need twice daily	3
	Need thrice daily	4
11.	<b>Other symptoms</b>	
	Absent/Cured	0
	Symptoms diminished	1
	Symptoms present	2

The other symptoms assessed were as follows: *Arati*, *Lalaate sweda*, *Aasya shushkta*, *Krichrat bhashitum*, *Kanthodhwamsa*, *Peenasa*.

## OBSERVATION AND RESULTS

Total nineteen patients were registered under the trial. Four patients could not complete the trial and were considered dropped out. The demographic data is presented for nineteen patients while the clinical profile is given for fifteen patients.

### Demographic Profile

Maximum numbers of patients were in the age group of 30-40 yrs (42%) followed by 21% patients in the age group of 50-60 yrs. *Sex*- maximum numbers of patients were females (73.68%). This finding goes with the 2008 GINA report which also indicates greater incidence of the disease in the female adults though the reason for the same is still not known. *Marital Status*-94.74% patients were married. Age of the patients can be considered as a major factor contributing to this finding. *Religion* The entire patients followed Hinduism which is due to the majority of population in the area being Hindu. *Education* The data supports the fact that the awareness about the disease is more in the educated class which formed 42.10% of the total patients. *Occupation* 63.15% of the total patients were

housewives while 15.78% belonged to the service class and farmers/ labourer each. As the females formed the majority in the patients under the trial this is a likely finding. Also as the feeding area is rural the housewives are more exposed to household dust, smoke and the particulate matter from the fields and surrounding jungles in the area. The housewives in the area also assist in the farming work which exposes them to the risk factors including pollens, molds and grain dusts. *Socio economic status*- maximum number of patients belonged to the middle and lower class (89.47%). Possible reason could be the increased density of middle and lower class people in the adjoining area. *Diet*- Most of the patients in the study had a vegetarian diet pattern. *Addiction*-73.68% patients had no addiction to smoking or alcohol. Female dominance in the trial is probably responsible for this finding. *Family history*- 36.84% patients gave a positive family history which reveals that individuals of the same family are more prone to bronchial asthma. *Prakriti*- Dominance of *vatakaphaj prakriti* (57.89%) was seen. Nature of disease being *vatakaphaj* it is likely to occur in individuals of same *prakriti*. *Vatakaphaj* individuals have a tendency to suffer from this disease more than other *prakriti*. *Use of modern anti asthmatic drugs* 89.48% of the patients were on modern anti asthmatic drugs which included inhalational therapy which is a strong diagnostic feature of bronchial asthma. *Duration of illness* Maximum patients were in the duration period of 1-5 years (52.6%) followed by 6-10 years (26.37%).

## Clinical Profile

### Distribution According to the Symptoms Present at the Time of Registration

**Table 4:**

<i>Sr. No.</i>	<i>Symptoms</i>	<i>No. of patients</i>	<i>% age</i>
1.	Breathlessness	15	100%
2.	Wheezing	14	93.3%
3.	Cough	14	93.3 %
4.	Tightness in chest	14	93.3%
5.	<i>Shayano shwas</i>	14	93.3%
6.	<i>Anidra</i>	13	86.67 %
7.	Paroxysmal dyspnea	15	100 %
8.	Modern medication	13	86.67 %
9.	Rhonchi	14	93.3 %

It was observed that main symptoms remained breathlessness and incidence of paroxysmal dyspnea which were present in all the patients (100%). Wheezing, cough, tightness in chest, *shayano shwas* and presence of rhonchi followed with 93.33% incidence. Use of modern

medication was seen in 86.67% patients, sleep disturbance due to breathlessness was seen in 86.67% patients.

### Incidence of Other Associated Symptoms

**Table 5:**

Sr. No.	Associated symptoms	No. of patients	% age
1.	Arati	15	100%
2.	Lalaat sweda	10	66.67%
3.	Aasya shushkta	14	93.33%
4.	Kanthodhwamsa	12	80%
5.	Peenasa	5	33.3%
6.	Krichhratbhashitum	14	93.33%

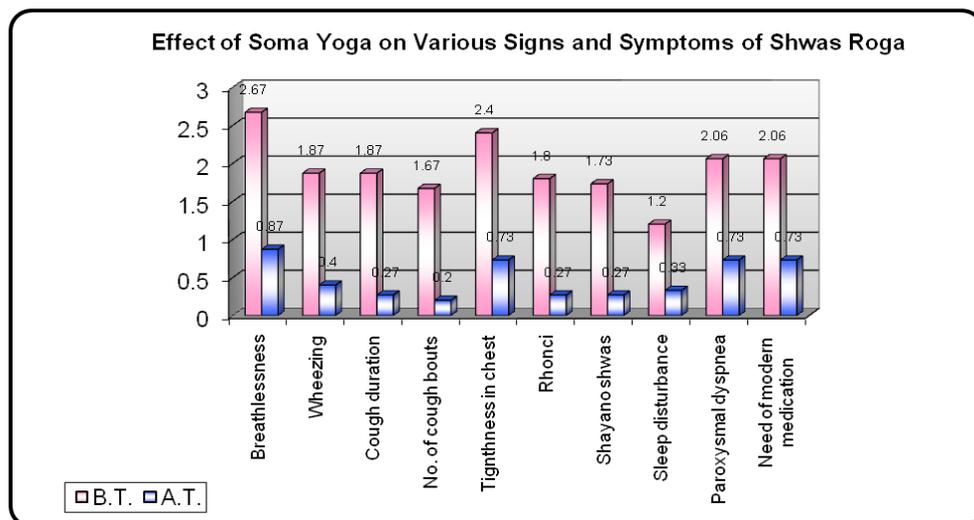
In other associated symptoms it was noticed that *Arati* was present in the entire fifteen patients (100%) followed by *Aasya shushkta* and *Krichrat bhashitum* with an incidence of 93.33%. *Kanthodhwamsa* was present in 12 patients (80%). *Lalaate sweda* being a sign of severe distress was present occasionally in 10 patients with incidence of 66.67%. Only 5 patients (33.33%) had the complaint of sneezing or running nose during or before the episode of asthma.

### Effect of Trial Drug

Effects of the trial drug *Soma Yoga* on various signs and symptoms of *Tamak Shwas* was assessed on the basis of grading system and the data subjected to statistically analysis. The same is presented in the following Tables and Bar Diagrams.

**Table 6:**

Sr. No.	Sign and Symptoms	Mean score		% relief	S.D.±	S.E. ±	‘t’	P
		B.T.	A.T.					
1.	Breathlessness	2.67	0.87	67.49	0.77	0.2	9	<0.001
2.	Wheezing	1.87	0.4	78.75	0.74	0.19	7.64	<0.001
3.	Cough duration	1.87	0.27	85.69	0.83	0.21	7.8	<0.001
4.	No. of cough bouts	1.67	0.2	88	0.92	0.24	6.2	<0.001
5.	Tightness in chest	2.4	0.73	69.5	0.82	0.21	7.95	<0.001
6.	Rhonchi	1.80	0.27	85.2	0.51	0.13	12.21	<0.001
7.	Shayano shwas	1.73	0.27	84.59	0.69	0.18	8.19	<0.001
8.	Sleep disturbance	1.2	0.33	72.5	0.64	0.17	5.25	<0.001
9.	Paroxysmal dyspnea	2.06	0.73	64.56	.72	0.19	7.15	<0.001
10.	Need of modern medication	2.06	0.73	64.56	0.82	0.21	6.3	<0.001

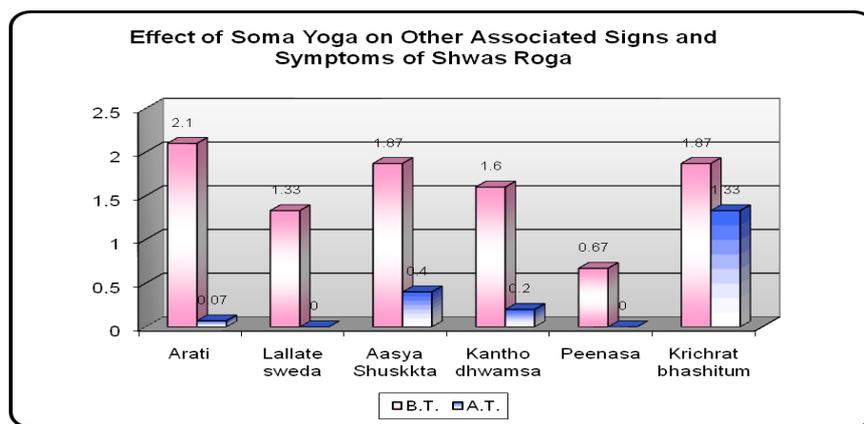


1. **Breathlessness**- Mean score before treatment was 2.67 which was reduced to 0.87 with 67.5% relief which was highly significant at  $p < 0.001$  ( $t=9$ ).
2. **Wheezing** – 78.75% relief was observed with initial mean score 1.87 changing to 0.4 after treatment. The result was significant at  $p < 0.001$ .
3. **Cough duration** – Initial mean score 1.87 changed to 0.27 after treatment with 85.7% relief which was highly significant at  $p < 0.001$  ( $t=7.8$ ).
4. **Number of cough bouts** – Initial mean score decreased from 1.67 to 0.2 with 88% relief. Effect was significant at  $p < 0.001$  ( $t=6.2$ ).
5. **Tightness in chest** – There was 69.5% relief with mean score 2.4 before treatment changing to 0.73 after treatment. Result was significant at  $p < 0.001$  ( $t=7.95$ ).
6. **Rhonchi** – Mean score before treatment was 1.80 which changed to 0.27 after treatment. Relief was 85.16% which was significant at  $p < 0.001$  ( $t=12.21$ ).
7. **Shayano shwas peeditah** – 84.59% relief was observed with a decrease in mean score from 1.73 to 0.27 which was significant at  $p < 0.001$  ( $t=8.19$ ).
8. **Sleep disturbance** – Mean score before treatment was 1.2 which changed to 0.33 after treatment with 72.5% relief, significant at  $p < 0.001$  ( $t=5.25$ ).
9. **Paroxysmal dyspnea** – 64.56% relief was observed with a decrease in mean score from 2.06 before treatment to 0.73 after treatment. The result is significant at  $p < 0.001$  ( $t= 7.15$ ).
10. **Need of modern medication** – Mean score decreased from 2.06 initially to 0.73 with a relief of 64.56%, which is significant at  $p < 0.001$  ( $t=6.3$ ).

## Effect on Other Associated Symptoms

Table 7:

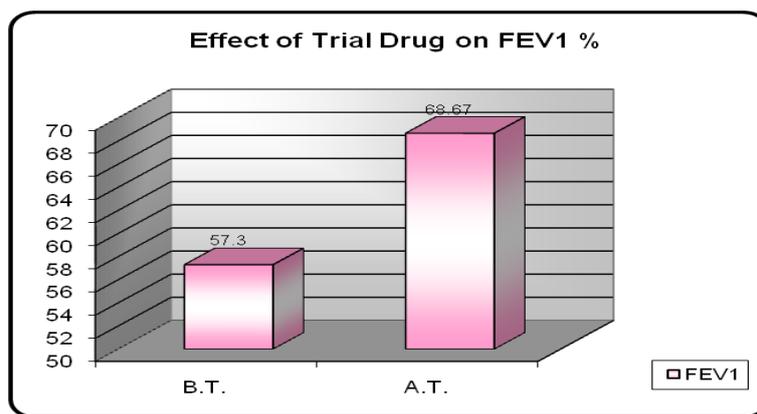
Sr. No.	Sign and Symptoms	Mean Score		% relief	S.D.±	S.E. ±	't'	P
		B.T.	A.T.					
1.	Arati	2.1	0.07	96.55	0.26	0.07	29.24	<0.001
2.	Lalaate sweda	1.33	0	100	0.97	0.25	5.29	<0.001
3.	Aasya Shushkta	1.87	0.40	78.5	0.60	0.16	9.40	<0.001
4.	Kantho dhwamsa	1.6	0.2	87.5	0.83	0.21	6.57	<0.001
5.	Peenasa	0.67	0	100	1.03	0.27	3.48	<0.01
6.	Krichrat bhashitum	1.87	1.33	92.8	0.61	0.16	10.48	<0.001



1. *Arati* – 96.55% relief was observed, which was significant at  $p < 0.001$  ( $t = 29.24$ ).
2. *Lalaate sweda* – 100% relief was observed in this case, which was significant at  $p < 0.001$  ( $t = 5.29$ ).
3. *Aasya shushkta* – The effect is significant at  $p < 0.001$  with a relief of 78.5%.
4. *Kanthodhwamsa* – Data shows 87.5% relief which is significant at  $p < 0.001$  ( $t = 6.57$ ).
5. *Peenasa* – 100% relief was observed with  $p < 0.01$  which is significant.
6. *Krichrat bhashitum* – There was 92.8% relief which was significant at  $p < 0.001$  ( $t = 10.98$ ).

**Spirometric Assessment:** As ethnic variations in spirometric values have been demonstrated appropriate predictive equations for  $FEV_1$ , and FVC should be established for each patient. As normal range of values is wider, a useful assessment of airflow limitation is  $FEV_1/FVC$  ratio which is normally greater than 0.75 to 0.80. Any value less than these suggest airflow limitation. (GINA 2008).

So  $FEV_1/FVC$  ratio was taken for assessment of effect in the present study. It was converted into  $FEV_1\%$  for convenience. The observations are as below:



Mean value of FEV<sub>1</sub>% before trial was 57.3% which increased to 68.67% post trial. There was an increase of 19.84% in FEV<sub>1</sub>%age. 10 patients showed greater than 12% increase in the FEV<sub>1</sub>%age while in 5 patients the increase was less than 12% ranging from 1.89% to 8.9%.

#### Assessment of Improvement on the Visual Analog Scale

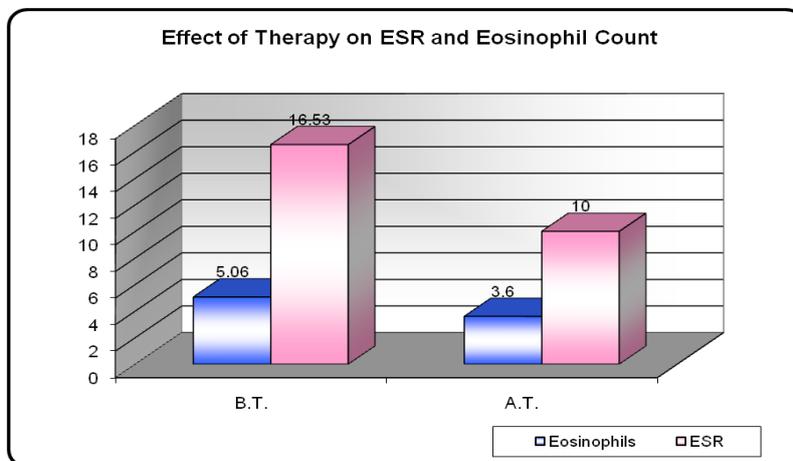
All the patients were asked to grade the improvement on the visual analog scale taking the status at the time of presentation as 100% and grading the improvement accordingly. 10 patients reported more than 75% relief in the symptomatology while 3 patients reported 50-75% relief. One patient each reported improvement of 25 -50% and less than 25%.

#### Effect of Trial Drug on Hematological Profile

Table 8:

Sr. No	Variable	Mean values	
		B.T.	A.T.
1.	Hb gm%	10	10.46
2.	TLC /cu mm	7180	6860
3.	DLC (%)		
	Polymorphs	63	64
	Lymphocytes	30.7	31.2
	Monocytes	1.0	1.0
	Eosinophils	5.06	3.6
	Basophils	0	0
4.	ESR (mm fall in 1 <sup>st</sup> hr.)	16.53	10
5.	FBS (mg/dl)	80.93	77.1
6.	Blood urea (mg/dl)	24.8	23.73
7.	SGOT (u/l)	37.8	35.4
8.	SGPT (u/l)	36.06	34.2

There was no significant effect on FBS, blood urea, SGOT and SGPT though there was slight increase in Hb gm% and a slight decrease in TLC count. The effect of therapy on eosinophil count and ESR is depicted in the graph below:

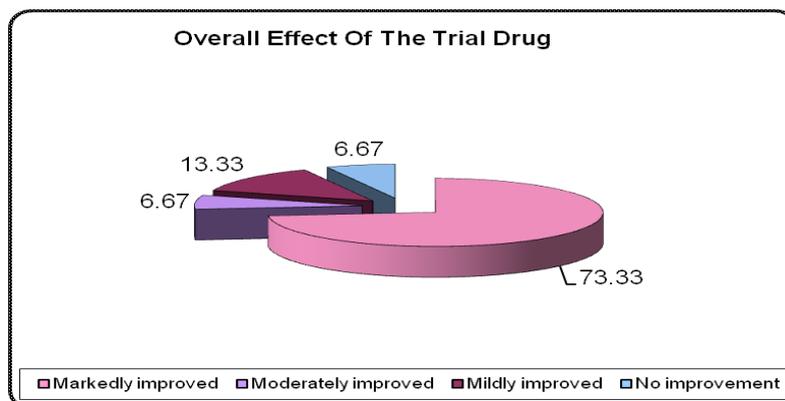


There was a decrease in ESR value from a mean score of 16.53 to 10 which is significant at  $p < 0.01$  ( $t = 3.608$ ). Eosinophil count also decreased significantly at  $p < 0.05$  ( $t = 2.82$ ).

### Overall Effect of the Therapy

**Table 9:**

Effect	Criteria	No. of patients	% age
Markedly improved	>75%	11	73.33
Moderately improved	50-75%	1	6.67
Mild improved	25-50%	2	13.33
No improvement	<25%	1	6.67



73.33% patients i.e. 11 patients showed marked improvement, while 6.67% showed moderate improvement. Two patients showed mild improvement and one patient was unimproved.

## DISCUSSION

In *tamak shwas*, the disease process finds its origin in the *Amashya* especially *Pitta sthana* i.e. portion of the alimentary canal which is mainly concerned with the digestion. *Kapha* and *Vata doshas* are the predominant humors while along with the *Pranavaha srotas*, *Udakavaha srotas* (channels carrying water) and *Annavaha srotas* are also involved.<sup>[13]</sup> *Soma* is having *ushna virya* and *katu vipaka* and has *kaphavatshamak* properties and thus acts by subsiding of the main doshas involved.<sup>[14]</sup> The properties of *Rasa Sindura* include its *tridosha shamaka* property along with the specific property of the regulation of *vayu*. It also acts as a *pitta saraka*.<sup>[15]</sup> These are probable contributing factors towards the use in bronchial asthma. Besides being *balya*, *rasayana* and *vrishya* it has got the *yogavahi* property which gives it the strength to enhance the property of any drug with which it is being used (*Sarvarogahara* with the use of different *anupanas*).<sup>[16]</sup>

*Ephedra* has ephedrine and pseudoephedrine; Ephedrine is the main alkaloid whose action has [been proved to have a close physiological as well as clinical relationship with adrenaline. *Soma* is having anti-inflammatory action, relieves the turgescence of the mucous membrane and causes a marked dilation of the bronchioles. These help in relieving the paroxysms of asthma where inflammation and broncho-constriction are the main pathological features.<sup>[17]</sup>

The *Vata jata kwath* used as a *Bhavna dravya* for *Kajjali* has been detected to have metal ion chelating activity which might be helping in rendering any free metal ion intoxic by making chelates with the same.<sup>[18]</sup> Anti-asthmatic property has also been reported for *Vata*.<sup>[19]</sup>

*Somalata* contains ephedrine which is having a direct bronchodilator action while *Rasa Sindura* is having *rasayana* properties which must be helping by having a general tonic effect on the respiratory system as well as the *rasadi dhatus* resulting in relief in various symptoms of *Shwas Roga*. While the former may be associated with the disease by direct pharmacological action, the latter may have wider field of action like immunomodulator, pharmacological potentiator as well as some direct pharmacological action.

## CONCLUSION

The following conclusions can be drawn from the present research work:

- 1) *Soma Yoga* is having *Shwashar* effect in the dose of 600mg twice daily with the *anupana* of warm water.

- 2) No adverse effects were reported by the patients and there was no significant alteration on the biochemical parameters and no signs of hepatic or renal toxicity.
- 3) The whole study suggests that *Soma Yoga* can be thought of as an important medication for the control of bronchial asthma.

The *Yogvahitva* property of *Rasa Sindura* with *Somalata* would be better assessed in a double group study with one group receiving only *Soma churna* and the other one getting *Soma Yoga* i.e. *Rasa Sindura* + *Soma churna*.

Though the present work suggests the *Shwashar* effect of *Soma Yoga* but the study needs to be evaluated on a larger number of patients and increasing the duration of follow up to see the sustenance of the effect and any latent adverse effects of the drug.

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