

A COMPARATIVE CLINICAL STUDY OF SHUNTHYADI CHURNA AND SHWASKUTHAR RASA IN THE MANAGEMENT OF TAMAKA SHWASA W.S.R. TO BRONCHIAL ASTHMA**Rajnik Jadav¹, Alankruta Dave² and Jitendra Varsakiya³**¹PhD Scholar, Department of Kayachikitsa, IPGT and RA, Gujarat Ayurved University Jamnagar.²I/C HOD, Associate Professor, Department of Kayachikitsa, IPGT and RA, Gujarat Ayurved University Jamnagar.³PhD Scholar, Department of Kayachikitsa, IPGT and RA, Gujarat Ayurved University Jamnagar.***Corresponding Author: Rajnik Jadav**

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ABSTRACT

Bronchial asthma is a chronic inflammatory disorder of the airways in which the chronic inflammation causes an associated increase in airway hyperresponsiveness that leads to recurrent episodes of asthmatic exacerbation. According to Ayurveda it resembles with '*Tamaka Shwasa*' which is a type of *Shwasa Roga* mentioned by *Charaka* as *Yapya Vyadhi*. *Shunthyadi Churna* is mentioned by *Yogratnakara* for the management of *Shwasa Roga* which is the formulation made of six herbs. **Aim:** To evaluate the effect of *Shunthyadi Churna* and to compare it with *Shwaskuthar Rasa* in the management of *Tamaka Shwasa* w.s.r. to bronchial asthma. **Materials and Methods:** Total 46 patients (23 in each group) of *Tamaka Shwasa* between the age group of 18 to 60 years fulfilling the inclusion criteria were selected randomly from the OPD and IPD of Department of Kayachikitsa and assigned into 2 groups, wherein 41 patients (21 in SC group + 20 in SKR group) completed the study. *Shunthyadi Churna* in the dose of 3gms and *Shwasakuthara Rasa* in the dose of 250 mg with honey were administered three times a day after food for the period of 6 weeks. **Result and Conclusion:** Both the drugs SC (60.74%) and SKR (58.80%) showed percentage wise good result on signs and symptoms of *Tamaka Shwasa* which have been selected as assessment criteria. But it was assumed that SC had better effect in *Vata Pradhana Samprapti* and SKR in *Kapha Pradhana Samprapti*.

KEYWORDS: *Tamaka Shwasa*, Bronchial asthma, *Shunthyadi Churna*, *Shwasakuthar Rasa*.**INTRODUCTION**

According to Ayurveda *Tamaka Shwasa* is one of the five types of *Shwasa Roga* and it has its own etiopathology and management. In *Charaka Samhita* it is mentioned as *Yapya Vyadhi* and according to that *Charaka* has given its management separately.^[1]

According to modern medical science this disease resembles with Bronchial asthma. It affects all age groups but often starts in childhood. Asthma is a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role. The chronic inflammation causes an associated increase in airway Hyper-responsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness and coughing, particularly at night or in the early morning. These episodes are usually associated with widespread but variable airflow obstruction that is often reversible either spontaneously or with treatment.^[2] In an attack, the lining of the passages swell causing the airways to narrow and reducing the flow of air in and out of the lungs.

Taking unwholesome diet, concentrated drinks, smoking, cold drinks, allergens, chemical irritants, congested work places, respiratory infections, etc. are the major risk factors of the provocation of the diseases of respiratory tract and same for Bronchial asthma too.^[3]

The Global prevalence of asthma is approximately 4.5% and 334 million people in the world are suffering from asthma. About 250,000 to 345,000 deaths annually occur due to asthma world-wide.^[4]

Asthma is a chronic condition which usually requires continuous and almost lifelong medical care. In modern medicine, management of asthma is done by bronchodilators and corticosteroids. But long term use and dependency on allopathic drugs leads to increasing its severity along with other side effects. So with the help of *Ayurveda* if we can control attacks of *Shwasa* or decrease dose of other medicine, it will be very useful to the society. With this purpose *Shunthyadi Churna* was selected from *Yogratnakar Shwas Chikitsa Prakranam* which contains *Shunthi*, *Pippali*, *Maricha*, *Nagdala*, *Tvak* and *Ela*. *Vata* and *Kapha* are the main *Doshas*

which are involved in *Tamaka Shwasa Samprapti* and this formulation is having *Kaphavatashamaka Karma* due to *Katu*, *Tikshana* and *Ushna Virya* properties.

By taking in consideration the above facts, this comparative clinical study was planned to evaluate the efficacy of *Shunthyadi Churna* in the management of *Tamaka Shwasa* (Bronchial asthma) and to compare its efficacy with *Shwasakuthar Rasa*.

AIMS AND OBJECTIVE

To evaluate the effect of *Shunthyadi Churna* and to compare it with *Shwaskuthar Rasa* in the management of *Tamaka Shwasa* w.s.r. to Bronchial asthma.

MATERIALS AND METHODS

A total of 46 patients of between the age of 18 to 60 years fulfilling the diagnostic of *Tamaka Shwasa* were selected and registered in this study from the OPD and IPD of Kayachikitsa department, IPGT and RA, Jamnagar. The study was carried out after obtaining ethical clearance of Institutional Ethics Committee (PGT/7/-A/Ethics/2014-15/1538 dated 02-09-2014). It was also registered with Clinical Trial Registry of India (CTRI) vide CTRI/2016/06/007053 and prior to registration informed written consent of each patient was taken.

For diagnosis, a detailed medical history was taken and physical examination was done in detail according to both modern and Ayurvedic clinical methods and was noted down in specially prepared proforma.

Inclusion criteria

- Patients having signs and symptoms of *Tamaka Shwasa* described in Ayurvedic texts and modern texts will be included.
- Age group: 16 – 60 years.
- Chronicity less than 10 years.
- Uncomplicated cases of *Tamaka Shwasa*.

Exclusion criteria

- Patients of age less than 16 and above 60 years.
- The patient suffering from tuberculosis, Cardiac complains, Endocrine disorders like Diabetes mellitus, Hypo or Hyperthyroidism, etc.
- Patients having complications like cor-pulmonale, emphysema, pneumonia, malignancy, etc and breathlessness due to severe anaemia, renal failure, etc.

Trial drug details

The details of the trial drug are as given below. (Table No. 1&2)

Grouping and Posology

The patients were allocated in 2 groups.

1) *Shunthyadi Churna* (SC) group

In this group 23 patients were registered and among them 21 patients had completed the treatment course.

Shunthyadi Churna in the dose of 3gm with honey was administered 3 times a day after food for a period of 6 weeks.

2) *Shwaskuthar Rasa* (SKR) group

In this group, 23 patients were registered and among them 20 patients had completed the treatment course. *Shwaskuthar Rasa* in the dose of 250mg with honey was administered 3 times a day after food for a period of 6 weeks.

Pathyapathya was advised to all the patients as per classics in both the groups¹. After completion of treatment, patients were asked to follow up for 2 weeks. Both the formulations were procured from the pharmacy of IPGT and RA, Gujarat Ayurved University, Jamnagar.

Criteria of assessment^[5]

The enrolled volunteers were assessed at baseline (day 0 visit) and then after the end of the trail, that is the 6 weeks of medication. Classical symptomatology of the disease *Tamaka Shwasa* and cardinal symptoms of Bronchial asthma were taken as subjective criteria of *Rogabala* for assessment. Laboratory investigations like CBC with Absolute Eosinophil count, PEFr were taken as objective criteria for assessment. Improvement in *Rogabala* along with *Deha*, *Agni* & *Chetasabala* was considered for assessment.

Statistical analysis

Statistical evaluation of the data obtained was done using mean, standard deviation, percentage, mean difference; Wilcoxon sign rank test and student's t-test.

OBSERVATIONS

A total of 46 patients of *Tamaka Shwasa* were registered in two groups for the purpose of treatment, out of which 41 patients completed the course of the treatment (21 in SC group and 20 in SKR group) and 05 were dropped out.

Distribution of patients according to age, gender, addiction, and family history of asthma is depicted at the Table no. 3-6 respectively. As chief complaint *Shwasakastata* was observed in 100% patients, *Kasa* in 92.68%, *Kaphanishthivanam* was found in 46.34% patients, *Peenasa* was found in 82.93% patients, *Parshvashula* was observed in 39.02% patients (Table no. 7). Maximum numbers of patients included in the trial (48.78%) were suffering from Bronchial asthma for 1 to 5 years. (Table no. 8). Maximum numbers of patients (73.17%) were taking aerosol (Table no. 9), PEFr ranged <60 was observed in majority of the patients (63.41%) (Table no. 10).

RESULTS

In all the symptoms related to *Shwasakastata*, trial drug showed a remarkably high percentage improvement. In the SC group, parameters like frequency of *Shwasa Vega*, duration of attack, *Pranavaha Srotodusti*

Lakshanas and use of emergency medicine were reduced by 61.11%, 39.68%, 74.21% and 87.70% respectively and in SKR group these were reduced by 57.5%, 50%, 75% and 68.33% (Table no. 11). In SC group *Kasa* and *Peenasa* was reduced by 46.03% and 56.35% respectively however in SKR group these were reduced by 25% and 42.50% respectively (Table no. 11). The difference of decrease in AEC in group SC and group SKR was statistically significant. (P = 0.016). It shows that SC is better than SKR for decrease in Absolute eosinophil count (Table no. 12). In the SC group there was an increase in the P.E.F.R. by 33.33% however in SKR group it was increased by 32.5% (Table no. 13).

Effect on other Hematocrits

On Haemoglobin concentration and Lymphocyte count, SKR showed better effect than SC. SC showed very good result on TLC (6.26%↓) which was statistically significant, absolute Eosinophils count (21.13% ↓), as well as on ESR (1.26% ↓), so SC may be better for allergic and inflammatory conditions whereas SKR

Showed significant result on ESR (14.27%) may be better in inflammatory condition than SC.

Effect on other Biochemical Values

In the SC Group there only statistically significant changes were observed in alkaline phosphatase which was reduced by 1.5%. S. Triglyceride, S. Creatinine and S. Uric acid was also reduced percentage wise but no statistically significant.

Effect on Spirometry Readings

In SC group spirometry readings were mildly improved percentage wise but no any statistically significant change were found. In SKR group statistically significant changes were found in FEV1 (36.69%) and FEV1% (23.14%) and percentage wise it showed better improvement than SC. So it can be said that SKR is more effective to improve lungs function and removes obstruction of airways in asthmatic patients.

Table No.1: Group A: *Shunthyadi Churna*^[12] Details.

Drug Name	Botanical Name	Ratio	Part Used
<i>Shunthi</i>	<i>Zingiber officinale</i>	6 parts	Rhizome
<i>Pippali</i>	<i>Piper longum</i>	5 parts	Fruit
<i>Maricha</i>	<i>Piper nigrum</i>	4 parts	Fruit
<i>Nagadal</i> (Kalkatti)	<i>Piper bettle</i>	3 parts	Leaves
<i>Tvak</i>	<i>Cinnamomum zeylanicum</i>	2 parts	Stem bark
<i>Ela</i>	<i>Elettaria cardamomum</i>	1 parts	Fruit
Sharkara : same to the total quantity of all above ingredients			

Table No. 2: Group B: *Shwaskuthar Rasa*^[13] Details.

Sr. No	Name	Botanical / English Name	Part used	Quantity (%)
1	<i>Shuddha Parada</i>	Mercury	Processed Liquid Metal	6.25
2	<i>Suddh Gandhaka</i>	Sulphur	Processed Mineral	6.25
3	<i>Shuddha Vatsanabha</i>	<i>Aconitum chasmanthum</i>	Root	6.25
4	<i>Suddha Tankana</i>	Borax	Processed Mineral	6.25
5	<i>Manahsila</i>	Realgar	Processed Mineral	6.25
6	<i>Marich</i>	<i>Piper nigrum</i>	Fruit Epicarp	56.25
7	<i>Shunthi</i>	<i>Zingiber officinale</i>	Rhizome	6.25
8	<i>Pippali</i>	<i>Piper longum</i>	Fruit Epicarp	6.25

Table no. 3: Age Wise Distribution of 41 Patients of *Tamaka Shwasa*.

Age group in years	No of Patients		Total	Percentage
	SC Group	SKR Group		
16-30	1	2	3	7.31%
31-40	6	4	10	24.39%
41-50	7	7	14	34.15%
51-60	7	6	13	31.71%

Table no. 4: Gender Wise Distribution of 41 Patients of *Tamaka Shwasa*.

Sex	No of Patients		Total	Percentage
	SC Group	SKR Group		
Male	13	11	24	58.54%
Female	8	9	17	41.46%

Table no. 5: Addiction Wise Distribution of 41 Patients of *Tamaka Shwasa*.

Addiction	No of Patients		Total	Percentage
	SC Group	SKR Group		
Smoking	1	3	4	9.76%
Tobacco chewing	7	3	10	24.39%
No addiction	13	14	27	65.85%

Table no. 6: Family History of 41 Patients of *Tamaka Shwasa*.

Family History	No. of Patients		Total	Percentage
	SC Group	SKR Group		
Present	10	12	22	53.66%
Absent	11	8	19	46.34%

Table no. 7: Chief Complaints Reported In 41 Patients of *Tamaka Shwasa*.

Chief Complaints	No. of Patients		Total	Percentage
	SC Group	SKR Group		
<i>Shwaskastata</i>	21	20	41	100%
<i>Kasa</i>	20	18	38	92.68%
<i>Kaphanisthivan</i>	11	8	19	46.34%
<i>Peenasa</i>	19	15	34	82.93%
<i>Parshvashula</i>	7	9	16	39.02%

Table no. 8: Distribution of 41 Patients of *Tamaka Shwasa* on the Basis of Chronicity.

Chronicity (in years)	No. of Patients		Total	Percentage
	SC	Group		
1month - 1 year	3	4	7	17.07%
1 – 5 yrs	12	8	20	48.78%
5 – 10 yrs	6	8	14	34.15%

Table no. 9: Distribution of 41 Patients of *Tamaka Shwasa* on the Basis of Treatment Taken.

Medicine taken before treatment		No. of Patients		Total	Percentage
		SC Group	SKR Group		
Allopathic	Tablet	12	15	27	65.85%
	Aerosol	20	10	30	73.17%
No medicine		1	2	3	7.32%

Table no. 10: Distribution of 41 Patients of *Tamaka Shwasa* on the Basis of PEFR.

PEFR (%)	No. of Patients		Total	Percentage
	SC Group	SKR Group		
<60	12	14	26	63.41%
60-80	4	2	6	14.63%
>80	4	3	7	17.03%

Table no. 11: Effect of Both Drugs on Symptoms.

Symptoms	SC			SKR		
	N	%	Statistically	N	%	Statistically
<i>Shwasa Vega</i>	21	61.11↓	HS	20	57.50↓	HS
Duration of attack	21	39.68↓	HS	20	50.00↓	HS
Emergency drug used	21	87.70↓	HS	20	68.33↓	HS
<i>PVS Dusti Lakshana</i>	21	74.21↓	HS	20	75.00↓	HS
<i>Kasa</i>	21	46.03↓	HS	20	25.00↓	S
<i>Peenasa</i>	21	56.35↓	HS	20	42.50↓	HS
PEFR	21	33.33↑	S	20	32.50↑	S

Table no. 12: Effect of Therapy on AEC (%).

Group	N	Difference in means	Unpaired t - test				Significance
			S.D. (+/-)	S.E. (+/-)	't'	'p'	
SC	21	38.213	25.872	5.646	2.514	0.016	S
SKR	20	16.772	28.714	6.421			

Table no. 13: Effect of Therapy on PEFR.

Group	N	Mean Score			% relief	S.D.	P value
		B.T.	A.T	Mean Diff.			
SC	21	2.19	1.48	0.71	33.33	0.96	0.005
SKR	20	1.95	1.12	0.75	32.5	1.07	0.008

Table no. 14: Effect of Both Drugs on Roga Bala, Agni Bala, Deha Bala and Chetasa Bala.

Symptoms	SC			SKR		
	N	%	Statistically	N	%	Statistically
ROGABALA						
Frequency of attack	21	61.11↓	HS	20	57.50↓	HS
Duration of attack	21	39.68↓	HS	20	50.00↓	HS
Emergency drug used	21	87.70↓	HS	20	68.33↓	HS
PVS Dusti Lakshana	21	74.21↓	HS	20	75.00↓	HS
Asino Labhte Saukhyam	21	76.19↓	HS	20	72.50↓	HS
Kasa	21	46.03↓	HS	20	25.00↓	S
Kaphanisthivanam	21	85.71↓	HS	20	72.50	HS
Kasatah Sanniruddhyate	21	40.48↓	S	20	45.00↓	S
Shlesh. Vimok.Saukh.	21	78.57↓	HS	20	57.50↓	HS
Peenasa	21	56.35↓	HS	20	42.50↓	HS
Parshvashula	21	33.33↓	S	20	45.00↓	S
Kandthodhvansana	21	69.05↓	HS	20	80.00↓	HS
Ushnabhinandati	21	50.79↓	HS	20	50.83↓	HS
Vishushkasyata	21	35.71↓	S	20	60.00↓	HS
Wheeze	21	81.75↓	H	20	80.00↓	HS
PEFR	21	33.33↑	S	20	32.50↑	S
AGNIBALA						
Jaranashakti	21	65.87↑	HS	20	50.00↑	HS
Abhyavaharanshakti	21	42.86↑	HS	20	32.50↑	HS
Ruchi hi Aaharakale	21	57.14↑	HS	20	55.00↑	HS
Vatmutrapurishmukti	21	69.05↑	HS	20	60.00↑	HS
DEHABALA						
Balavridhi	21	56.35↑	HS	20	52.50↑	HS
Swar Varna Yoga	21	42.86↑	S	20	25.00↑	S
Sharira Upachaya	21	50.00↑	HS	20	32.50↑	S
CHETASABALA						
Nidra Labho Yathakalam	21	80.95↑	HS	20	52.50↑	HS
Sukhen Cha Pratibodhanam	21	64.29↑	HS	20	30.00↑	S
Mano Budhi Indriya Avyapatti	21	47.62↑	S	20	35.00↑	S
Vaikarika Swapna Adarshan	21	23.81↑	NS	20	30.00↑	S

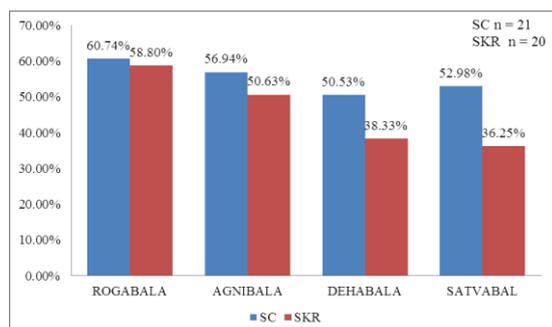


Chart no. 1: Overall Effect of Both the Therapy.

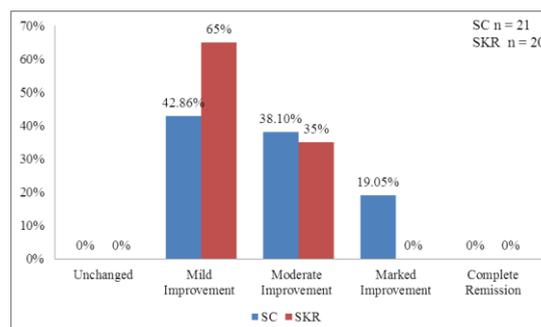


Chart no. 2: Overall Assessment.

DISCUSSION

The results of trial drug in frequency and duration of *Shwasakastata*, *Peenasa*, *Asino Labhte Saukhyam*, *Kaphanisthivanam*, *Shleshma Vimokshante Saukhyam* and *Pranavahasrotodusti Lakshana* were statistically highly significant in both groups but percentage wise in comparison to control drug trial drug was more effective. The results in *Kasa*, *Kasatah Sannirudhyate*, *Parshvashula* were statistically significant in control group and highly significant in trial group. Most of the other symptoms showed statistically highly significant result in both groups. Most of the associated symptoms were decreased in both the groups but trial drug was more effective in most of the symptoms.

The overall assessment considering the improvement in *Roga Bala*, *Deha Bala*, *Agni Bala* and *Chetasa Bala* considering all the parameters outlined in the assessment criteria were 60.74%, 56.94%, 50.53%, 52.98% respectively in SC group and 58.80%, 50.63%, 38.33%, 36.25% respectively in SKR group (Chart no. 1) and the final result showed that 42.86% of patients in the SC group had mild improvement, 38.10% had moderate improvement and 19.05% markedly improved. In the control group 65% had mild improvement and 35% were observed with moderate improvement. No any patient was found with complete remission in both groups because of *Yapya* nature of *Tamaka Shwasa* (Chart no. 2).

Probable mode of action of *Shunthyadi Churna*

The drug *Shunthyadi Churna* consists many ingredients which excellently balancing each other in *Rasa-panchaka* and enhancing the *Vata-Kaphahara*, *Deepana*, *Pachana* and *Vatanulomana* properties. *Vata-Kaphahara* property of most of the content alleviates both *Vata* and *Kapha*, which are the main *Doshas* in the pathogenesis of *Tamaka Shwasa*. The main factor in this disease as in many other diseases is *Ama* and the *Deepana-Pachana* properties of the drug will digest the *Ama* by kindling the *Jatharagni* as well as *Rasagni* and *Bhutagni*. Further the *Shothahara Karma* of most of the contents will neutralize the *Srotorodha* in *Pranavaha Srotas* due to *Shotha* created by *Sama Vata*.

The main logics behind the actions are

- The *Dosha-Prashamana* effect (*Shunthi*, *Pippali*, *Maricha*, *Nagadala*, *Tvak*) acts on the main *Doshas* which contribute to the *Samprapti* viz. *Vata* and *Kapha*.
- *Deepana-Pachana Karma* (*Shunthi*, *Pippali*, *Maricha*, *Nagadala*, *Sukshaila*) digest *Ama*.
- *Vatanulomana* property (*Shunthi*, *Pippali*) maintains the normal flow of *Vata*.
- *Shwasa*, *Kasa*, *Shothahara Prabhava* of all the ingredients act on the symptoms.
- *Srotorodhnivarana Prabhava* (*Shunthi*, *Maricha*) removes *Srotorodha* from the *Pranavaha* and *Rasavaha Srotas*.

The pharmacological studies already reported on the individual drugs also favour its effect in disease Bronchial Asthma like *Shunthi* has anti-inflammatory, anti-microbial, immunomodulatory, hypolipidemic, and anti-viral activity.^[6] *Pippali* has anti-inflammatory, anti-asthmatic, anti-depressant, anti-bacterial, analgesic, anti-oxidative and immunomodulatory activity.^[7] *Maricha* has anti-asthmatic, anti-microbial, anti-oxidant, anti-inflammatory, Hepato-protective, digestive, anti-depressant, immunomodulatory and effect of piperine on metabolism.^[8] *Nagadala* has anti-allergic, anti-filarial, anti-bacterial, gastro-protective, anti-oxidant, immunomodulatory and anti-asthmatic effect.^[9] *Tvak* has anti-inflammatory, Anti-bacterial, Gastro-protective, Anti-oxidant and lipid peroxidation activity.^[10] *Ela* has anti-asthmatic, gastro-protective activity.^[11]

CONCLUSION

Both the drugs SC and SKR both showed percentage wise good results in *Tamaka Shwasa* and it can be assumed that SC had better effect in *Vata Pradhana Samprapti* and SKR had in *Kapha Pradhana Samprapti*. SC did not show any major adverse effects however SKR can't be prescribed for a longer time because it contains minerals also. As *Tamaka Shwasa* is a *Yapya Vyadhi* and it required prolonged medication, so it is better to prescribe SC having all the herbal ingredients and has no adverse effects.

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