



A COMPARATIVE CLINICAL EVALUATION OF KATPHALADI CHURNA AND PIPPALYADI CHURNA IN MANAGEMENT OF TAMAKA SWASA

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ABSTRACT

Since time immemorial man has been in a constant endeavor to find the solutions for the life-threatening and agonizing disorders, which afflicts the human race. One such condition is '*Tamaka swasa*'¹ which is known by the name Bronchial Asthma in modern parlance, wherein remissions and exacerbations are the typical features, leaving the patient in a pathetic situation. The Objective of the study is to evaluate the comparative efficacy of *Katphaladi Churna*⁷ and *Pippalyadi Churna*⁸ in the management of *Tamaka Swasa* through subjective and objective parameters. The present study registers 40 out of 64 patients. Out of these 24 patients were discontinued. The remaining 40 patients of *Tamaka Swasa* fulfilling the criteria of diagnosis and inclusive criteria were included in the study, fewer than two groups as distributed patients in Group–A are 20 patients and Group–B is 20 patients. While comparing between the group result shows that *Pippalyadi Churna* is statistically more effective in *Swasa Krichrata* (Dyspnoea), *Pratishaya* (Rhinorrhoea), *Kanthodavamsa* (Hoarseness of voice) and AEC than the *Katphaladi Churna*. In the overall result, *Pippalyadi Churna* is more effective than the *Katphaladi Churna* in the management of *Tamaka Swasa*. Both of the trial drugs proved to be a safe and effective oral formulation, which helps in the management of *Tamaka swasa*, when the disease is not too advanced and not associated with complications also when correctly used by the patient as per instructions.

Keywords: *Tamaka Swasa*, *Swasa Krichrata*, *Pratishaya*, *Kanthodavamsa*, AEC, *Katphaladi Churna* and *Pippalyadi Churna*.

INTRODUCTION

*Tamaka Swasa*¹ is one among the five varieties of *Swasa* explained in almost all the classics of *Ayurveda*, which is analogous with Bronchial Asthma mentioned in contemporary medicine. For centuries *Tamaka Swasa* was reminded to be a challenging and unremitting disease, in both sexes and it may occur at any age.

As a result of urbanization, industrialization, poor sanitation and excessive air pollution, allergic conditions have become rampant in and around society. Large community studies have revealed that 15 % of the population have at least one kind of allergic manifestation, such as asthma, urticaria, food and other allergies². The study also reveals that about 15 % of the children report an episode of wheezing, characteristics of asthma and 5 % of them have a diagnosis of bronchial asthma³.

According to different authors, it accounts that 155 million of the world population suffers from Bronchial Asthma which occurs at all ages. About half of cases develop before age 10 and another third occurs before age 40. In childhood, there is 2:1 male / female preponderance but the sex ratio equalizes by age 30. As the ratio of Bronchial Asthma increases, it needs the proper treatment, which can control the disease⁴.

Now we face a resurgence of this illness as a result of massive migration to changes in lifestyles, occupation, food habits, cosmetics, extensive use of fertilizers, pesticides, exposure to the polluted air. In short, the change in the way of lifestyle in all fields has influenced the origin of the disease asthma⁵.

Asatmeindriyarthasamyoga (inappropriate use of Sensory organs), *Prajnaparadha* (an offence against wisdom) and *Parinama* (Result) play an important role in the manifestation of all the diseases. This is true in the case of *Tamaka Swasa Roga* also. Mainly *Ghranendriya* (Sens Organ), *Rasanendriya* (Test Organ) and *Sparshnendriya* (Touch Organ) and their *Samyoga* (Combination) with respective *Asatmya Arthas* (Against the Nature) take part in causing *Tamaka Swasa*. *Sharirika* (Physical) and *Mansika*

(Mental) *Prajnaparadha*, climatic and seasonal variation (*Parinama*) contribute individually or collectively for worsening the condition of a patient with *Tamaka Swasa*.

The bronchodilators, corticosteroids or immunotherapy drugs used to treat Bronchial Asthma are proved either ineffective in eradicating the underlying pathology, or their action is limited up to providing symptomatic relief. Thus, long term use of these medicines may cause side effects and intern affects other systems of the body. Irregularities on the part of patients also lead the disease into chronic stage⁶.

The objective of this study on *Tamaka Swasa* is to suppress the aggravated *Dosa* without disturbing the non-aggravated *Dosa*. To enable the patient to achieve normal levels of routine work or normal lung's function and prevent the recurrent episode of *Tamaka Swasa*.

Here an attempt is made to explain the relevant details, as taken out from the Ayurvedic classics in a comparative manner, supported by modern investigations. All that we need is to strictly adhere to the recipes step by step and practice it to achieve success.

In *Sarangadhar Samhita Madhyam Khanda* 6th Chapter recommended the use of *Kataphaladi Churna*⁷ in management of *Tamaka Swasa* and *Kashyap Samhita* 2nd chapter describes the formulation of *Pippalyadi Churna*⁸ in management of *Swasa Roga*. The present study is planned to evaluate the clinical efficacy and comparative effect of the drugs *Kataphaladi Churna* & *Pippalyadi Churna* in patients of *Tamaka Swasa*.

Aim and Objective:

1. To study in detail the disease *Tamak swasa* covering both classical and modern literature.
2. To evaluate the clinical efficacy of *Kataphaladi Churna* & *Pippalyadi Churna* in the management of *Tamaka Swasa*.
3. To compare the clinical efficacy and effect of *Kataphaladi Churna* with *Pippalyadi Churna* in *Tamaka Swasa*.
4. To establish the effective treatment with trail drugs for *Tamaka Swasa*.

MATERIALS & METHODOLOGY:

A Comparative Clinical Study on the Management of *Tamaka Swasa* reference to *Katphaladi Churna* and *Pippalyadi Churna* was carried out with the following materials and methods.

Materials:

The drugs selected for the clinical study were:

(a) *Katphaladi Churna*¹²:

<i>Katphala</i>	-	1 part
<i>Puskaramula</i>	-	1 part
<i>Pippali</i>	-	1 part
<i>Karkatasringi</i>	-	1 part

(b) *Pippalyadi Churna*¹³:

<i>Pippli</i>	-	1 part
<i>Barangi</i>	-	1 part
<i>Hingu</i>	-	1 part
<i>Karkatasringi</i>	-	1 part
<i>Girika</i>	-	1 part

Method of Preparation:

Above said drugs were taken in dried form, each was put in *Khalva Yantra (Stone Mortar Pastel)* and pounded to make a fine powder. They all were mixed thoroughly to make a homogenous mixture. Then sieved, stored in airtight containers.

SOURCE OF DATA:

a. Literary Data: All the available works of literature of *Tamaka Swasa* reviewed including *Ayurvedic* classical, contemporary sciences including published scientific papers in reputed journals both in print and online media.

b. Pharmaceutical Source: The formulation *Katphaladi Churna* and *Pippalyadi Churna* used as the therapeutic interventions in the study. The raw drugs identified pharmacognostically and *Churna* prepared in the pharmacy attached to A.L.N. Rao Memorial Ayurvedic Medical College, Koppa as per the standard method of preparation of *Churna Kalpana* according to AFI¹⁴ guidelines.

c. Clinical Data:- Patients diagnosed with *Tamaka Swasa* were selected incidentally from OPD and IPD of A.L.N. Rao Memorial Ayurveda Medical College and Hospital, Koppa and its associated Hospitals.

Methods of Collection of Data:

Patients diagnosed with *Tamaka Swasa* fulfilling the eligibility criteria were incidentally selected & randomly categorized into 2 groups based on a simple randomization technique.

Study Design: Single-blind randomized clinical trial.

(a) Inclusion Criteria:

- All cases with classical clinical signs and symptoms of *Tamaka Swasa* included.
- Patients between the age group of 16 to 60 years.
- Disease chronicity less than one year.

(b) Exclusion Criteria:

- Patients of *Tamaka Swasa* are less than 16 years and more than 60 years of age.
- Pregnant women and lactating mothers.
- Patients suffering from a systemic disorder like Hypertension, Diabetes etc.
- Patients of *Tamaka Swasa* are associated with COPD, Pulmonary Tuberculosis, Pleural effusion, Emphysema and complicated from chronic lung disease.

Diagnosis: The diagnosis was entirely based on the signs and symptoms of *Tamaka swasa* mentioned in Ayurvedic classics and modern books.

Method of examination of the patients:

In this study, the data was collected from the patients with the help of interviews. The detailed data related to general history, history of past illness, present illness family history, food habits, history of treatment taken so far etc, was recorded in the Performa of the case sheet. The systemic examinations of patients were done in detail with due concentration to the respiratory system, and findings were recorded as per the Performa. PEFr was also done to confirm the diagnosis.

Laboratory Investigation:

- Haematology (Hb%, TC, DC, ESR)
- Absolute Eosinophil Count.
- Radiology: Chest X-ray. (Whenever necessary)
- Peak Expiratory Flow Meter Reading (PEFR).

Peak expiratory flow meter: A popular instrument for assessing airflow obstruction is the peak flow meter. There is a simpler version called the mini peak flow meter. This machine measures the maximal rate

of flow which is achieved during forced expiration and most healthy people will achieve values of greater than 400 litres/ minute. Patients with airflow obstruction will have reduced flow rates, with values below 200 litres/ minute being very severe and those below 100 litres extremely severe.

Method: - Measurement of PEFR was made with a peak flow meter. The subject takes a maximal inspiration and then gives a maximum expiratory blast through the instrument. The pointer sticks the point of maximum exertions and the PEFR can be read directly from the scale. On each occasion, three readings are taken, and the best value was recorded.

Table 1: Showing Treatment Schedule

	Group A	Group B
Sample Size	20 Patients	20 Patients
Medicine	<i>Katphaladi Churna</i>	<i>Pippalyadi Churna</i>
Dose	6gm Thrice in a day	6gm Thrice in a day
Anupana	Honey	Honey
Duration	4 weeks	4 weeks
Follow Up	4 weeks	4 weeks

Note:- During treatment patient was advised to follow *Pathy-Apathya* strictly.

Assessment of Results: The symptoms will be recorded before treatment, during the treatment on the 15th day, 30th day and 45th day. The evaluation had done on the basis of statistical analysis of the results obtained by using the Statistical test “appropriate paired students 't' test”. During the Follow up time, the response was taken after 30days.

Assessment Criteria: The state of the disease *Tamaka swasa*, changes after the intervention, improvement or otherwise as determined by adopting standard methods of scoring by means of objective and subjective parameters. The **subjective parameters** include *Swasa Krichata, Ghurghuraka, Kasa, Kaphanishteevana, Pratishaya, Kantodhvamsa, Krichabhashana, Aseeno Labhate Sukham, Aruchi* and Nature of attack were analyzed and graded from 0-3. In the **objective Parameter** Peak flow meter test was analyzed and graded from 0-3.

The assessment was done initially before the intervention and thereafter the interval of 8thday, 15th day and 22nd day, 30th day and also the follow up of 30 days after the treatment. These assessment criteria are detailed as follows.

STATISTICAL ANALYSIS: Here the effect of drug administration has been critically analyzed by the statistical data. Descriptive Statistical Data which

includes Mean, Standard Deviation (S.D), Standard Error (S.E), t- value and P- value were calculated for all the variables. The post-therapeutic effect of the administered drug is assessed by paired student ‘t’ test. For all the tests, a 'P' value of < 0.05 is considered as the statistical significance level for obtaining an accurate result.

OVERALL ASSESSMENT CRITERIA

To assess the overall effect of the therapies net results obtained on various parameters of assessment both before and after treatment were taken into consideration. Then it was graded in terms of percentage of relief in symptoms.

RESULTS: The results were obtained in the patients of *Tamaka Swasa*. As per the assessment criteria, each of the patient's disease features was scored and scoring was done with respect to his/her presenting complaints following a specially prepared Performa before starting the treatment regime (BT) and after completion of treatment (30 days). Respective scores were subjected for statistical analysis using students paired ‘t’ and unpaired ‘t’ test for within-group and between groups respectively. Following is the obtained result data of the 20 patients in each group of *Tamaka Swasa*.

Table 2: Showing Comparative statistical assessment of Group-A and Group-B subjective parameters

Subjective Parameters	Group	Mean	Mean Difference	%	SD	SE	't' Value	'P' Value	Remark
<i>Swasa Krichrata</i>	A	1.550	-0.450	29.03%	0.605	0.135	-2.932	0.006	SD*
	B	2.000			0.324	0.0725			
<i>Ghurghuraka</i>	A	1.650	0.150	9.09%	0.587	0.131	0.630	0.533	ND
	B	1.500			0.889	0.199			
<i>Kasa</i>	A	1.800	0.000	0	0.410	0.0918	0.000	1.000	ND
	B	1.800			0.410	0.0918			
<i>Kaphanisteevana</i>	A	1.600	-0.350	21.87%	0.598	0.134	-1.990	0.054	ND
	B	1.950			0.510	0.114			
<i>Anidra</i>	A	1.250	-0.0500	4%	0.716	0.160	-0.191	0.849	ND
	B	1.300			0.923	0.206			
<i>Pratishya</i>	A	0.650	-0.650	50%	0.745	0.167	-2.450	0.019	SD*
	B	1.300			0.923	0.206			
<i>Kanthodhvamsam</i>	A	1.300	-0.450	34.61%	0.733	0.164	-2.196	0.034	SD*
	B	1.750			0.550	0.123			
<i>Krichra Bhasana</i>	A	1.150	-0.150	13.04%	0.875	0.196	-0.527	0.601	ND
	B	1.300			0.923	0.206			
<i>Asseno labhate Sukham</i>	A	1.300	0.0500	3.84%	0.657	0.147	0.191	0.849	ND
	B	1.250			0.967	0.216			
<i>Aruchi</i>	A	1.500	-0.300	20%	0.607	0.136	-1.143	0.260	ND
	B	1.800			1.005	0.225			

Table 3: Showing Comparative statistical assessment of Group-A and Group-B subjective parameters

Objective Parameters		Mean	Mean Diff.	%	SD	SE	't' Value	'P' Value	Remark
PEFR	A	1.050	0.150	14.28%	0.394	0.0881	1.125	0.267	ND
	B	0.900			0.447	0.1000			
AEC	A	217.500	-92.500	42.52%	54.471	12.180	-3.850	<0.001	SD*
	B	310.000			92.623	20.711			
RR	A	3.400	-0.200	5.88%	1.314	0.294	-0.497	0.622	ND
	B	3.600			1.231	0.275			

Statistical Report

Comparative effect of Katphaladi Churna and Pippalyadi Churna in Tamaka Swasa: For the comparison between the two-group unpaired 't' test done for statistical analysis. The result shows there is a significant difference in some of the subjective parameters. In subjective parameter *Swasakrichrata*, *Pratishya* and *Kanthodhvamsa* have a more meaningful difference in Group – B compared to Group – A which is listed in the above-mentioned table.

In objective parameter AEC has a more meaningful difference in Group – B compared to Group – A which is listed above mentioned.

Overall, Group – B shows highly significance than Group – A in subjective and objective parameters respectively by comparing P-value and t value.

DISCUSSION

Probable mode of action of Katphaladi Churna (Group-A) in Tamaka Swasa

The probable effect of 'Katphaladi Churna' in *Tamaka Swasa* by means of its pharmacological

properties may be explained by the *Rasa-Panchaka* of drugs used for *Churna* preparation. Almost all the ingredients are of I *Laghu-Tikshna-Ruksha Guna*, *Usna Virya*, *Katu Vipaka* and *Kapha-Vata Samaka* properties. Thus, the *Katphaladi Churna* is a good choice in *Tamaka swasa*.

The *Katu*, *Tikta* and *Kasaya Rasa* along with *Usna Virya* does the *Deepti of Agni*. In further, it takes care of the non-formation of *ama*, which helps the prevention of disease progression.

Vata and *Kapha* are of *Sheeta Guna* in nature. The *Virya* of the selected *Kataphaladi Churna* is *Usna*. Thus, the *Usna Virya* liquefy the *Kapha* and pacifies the *Vata* even though it increases the *Pitta*.

Probable mode of action of Pippalyadi Churna (Group-B) in Tamaka Swasa

Like *Katphaladi Churna* the probable mode of action of the *Pippalyadi Churna* can also be analyzed based on the involvement of respective *Dosha*, *Dushya*, type of *Srotodushti* and *Agni* and their respective modulation by *Rasa-Panchaka* of ingredients of *Pippalyadi Churna*.

Out of the 5 drugs present in the compound preparation, the majority of the drugs present in the formulation were having *Katu-Tikta Rasa* and then comes *Kashaya*. *Katu*, *Kashaya* and *Tikta Rasa* helps in *Agni Deepthi*, *Ama Pachana* thus facilitating *ama Nirharana* and *Srothosudhi*. *Kasaya Rasa* also pacify the *Pitta Dosha* along with *Kapha*. *Pitta Dosha* is responsible for inflammatory response hence the inflammation in the bronchial tree is also relived by *Pippalyadi Churna*. The trial drug formulation is *Ushna Veerya Pradhana* and *Katu*, *Madhur Vipaka Pradhana*. These properties help in rectifying *Vata Dosha* as well as *Kapha Dosha* and help in regaining the *Anuloma Gati* of *Vayu* in *Pranavaha Srotas*.

Pippalyadi Churna has *Laghu*, *Rooksha*, *Teekshna* and *Snigdha Guna*. *Laghu Teekshna* and *Rooksha Gunas* removes the *Srotorodha* as well as mitigate *Kapha Dosha*. *Snigdha* and *Ushna Guna* helps in mitigating *Vata Dosha*, thus assisting in relieving the complaints of the disease *Tamaka swasa*.

Probable mode of action of Anupana

Madhu (Honey) possess *Madhura rasa* with *Kashaya Anurasa* followed by *Rooksha Guna* and *Sheeta Veerya*. Its effect on *Dosha* is as follows. It scrapes *Kapha* and normalizes *Pitta* and *Rakta*. Also, its *Madhura Rasa* helps to improve the palatability of the compound. *Achrya Vagbhata* explains it having *Swasa-kasaghna* property. Besides honey is '*Yogavahi*' i.e., when it is used with other herbal preparations it enhances the medicinal qualities of those preparations and also helps them to reach the deeper tissues.

Keeping in mind the above-mentioned properties of honey, it was selected as *Anupana* in both groups.

Discussion on Results

• Comparative effect of Katphaladi Churna and Pippalyadi Churna in Tamaka Swasa:

For the comparison between the two-group an unpaired 't' test was done for statistical analysis. The result shows there is a statistically significant difference in some of the subjective parameters. In subjective parameter *Swasakrichrata*, *Pratishya* and *Kanthodhvamsa* there was a more meaningful difference in Group – B compared to Group – A.

In objective parameter *AEC*, the meaner difference was observed in Group – B compared to Group – A.

Overall, Group – B shows a highly significant result than Group – A in subjective and objective parameters respectively by comparing 'P' value and 't' value.

The probable reason for better symptomatic and overall results in Group-B

On Swasa Krichrata: This symptom of *Tamaka Swasa* was better relived by *Pippalyadi Churna*. The cause of *Swasa Krichrata* is *Pratiloma Gati* of *Vayu* and sang of *Vata Dosa* by *Kapha*. The *Anulomana* of *Vayu* and *Kapha Hara* property of ingredients of *Pippalyadi Churna* may have worked to relieve this symptom.

On Kanthodhvamsa: These symptoms are the result of *Shook Purana Galasyata* which occurs because of *Vata Dosa*. *Vata* and *Kapha* are of *Seeta Guna* in nature. The *Virya* of the selected *Pippalyadi Churna* is *Usna*. This *Usna Virya* liquefies the *Kapha* and paci-

fies the *Vata* hence improving the above-said symptoms.

On *Kaphanistivana*: *Katu Tikta Rasa* and *Usna Virya* of *Katphaladi Churna* acts as *Kapha Vilayaka* and hence produce mucolytic action thus easing the expectoration of *Dusta Kapha*.

On *Pratishaya*: The chief predominant *Doshas* in *Pratishaya* is *Vata* and *Kapha* and both these factors are better rectified by *Pippalyadi Churna* with its properties like *Vata-Kaphaghna*, *Ushna Veerya*, and *Vatanulomana*.

On AEC: The rise in eosinophil count is because of the allergic response seen in patients *Of Tamak Sawas*. Here anti-inflammatory and antihistaminic activities of *Pippali*, *Barangi* and *Hingu* might be a factor for consideration.

Note: On other subjective and objective parameters both trial drugs proved to be equally good. The reason for their similar effects may be the common ingredients *Pippli* and *Karkatasringi*.

CONCLUSION

After analyzing the result obtained from the clinical study the following conclusion can be drawn.

- Illustration of disease review reveals in the close resemblance between natures of *Tamaka Swasa* with Bronchial Asthma.
- For the disease *Tamaka Swasa* which is episodic, etiological factors may be exposure to dust, smoke etc. Also, there is no sign of sex and religious incidence seen in this disease.
- Both of the trial drugs *Katphaladi Churna* and *Pippalyadi Churna* are statistically significant effects on both subjective parameters and objective parameters.
- While comparing between the groups result shows that *Pippalyadi Churna* (Group-B) is statistically more effective in *Swasa Krichrata*, *Pratishaya*, *Kanthodavamsa* and AEC than the *Katphaladi Churna* (Group-A).
- In the overall result, *Pippalyadi Churna* is more effective than the *Katphaladi Churna* in the management of *Tamaka Swasa*.

- The trial drug *Katphaladi Churna* and *Pippalyadi Churna* proved to be a safe and effective oral formulation, which helps in the management of *Tamaka swasa*, when the disease is not too advanced and not associated with complications also when correctly used by the patient as per instructions.

Limitations:

- The size of the sample was small to draw a generalized conclusion.
- The study of this work was restricted to a particular geographical area only.

Recommendations (For further study):

- The study should be conducted on a larger sample with a longer duration.
- The study should be done by using the recent advancement in the field of medical science for further re-establishment of Ayurvedic therapeutics.
- The same *Katphaladi Churna* and *Pippalyadi Churna* study should be done after *Shodana* therapy.
- The awareness should be brought regarding the preventive measures to the public.

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