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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 constant endeavor to find the solutions for the life threatening and agonizing disorders, which afflicts the human race. One of such condition is 'Tamaka swasa' which is known by the name Bronchial Asthma in modern parlance, wherein remissions and exacerbations are the typical features, leaving the patient in pathetic situation. The Objective of the study is to evaluate the comparative efficacy of Katphaladi Churna and Pippalyadi Churna in the management of Tamaka Swasa through subjective and objective parameter. 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 group as distributed patients in Group–A are 20 patients and Group–B are 20 patients. While comparing between the group result shows that Pippalyadi Churna is statistically more effective in Swasa Krichrata, Pratishaya, Kanthodavamsa and AEC than the Katphaladi Churna. In 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. Since centuries Tamaka Swasa 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 the society. Large community studies have revealed that 15 % of the populations have at least one kind of allergic manifestations, such as asthma, urticaria, food and other allergies[2]. The study also reveals that about 15 % of the children report an episode of wheezing, characteristics of asthma and 5 % of them have diagnosis of bronchial asthma[3].According to different authors, it accounts that 155 million of 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 is able to control the disease[4].Now we face a resurgence of this illness as a result of massive migration to changes in life styles, occupation, food habits, cosmetics, extensive use of fertilizers, pesticides, exposure to the polluted air. In short, the change in the way of life style in all fields has influenced the origin of the disease asthma[5].Asatmeindriyarthasamyoga, Prajnaparadha and Parinama play an important role in manifestation of all the diseases. This is true in case of Tamaka Swasa Roga also. Mainly Ghranendriya, Rasanendriya and Sparshnendriya and their Samyoga with respective Asatmya Arthas take part in causing Tamaka Swasa. Sharirika and Mansika Prajnaparadha, climatic and seasonal variation (Parinama) contribute individually or collectively for worsening the condition of 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 system of the body. Irregularities on the part of patients also lead the disease into chronic stage[6].

The objective of this study on Tamaka Swasa is to suppress the aggravated dosa without disturbing the non- aggravated dosa. To enable 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 in Kashyap Samhita 2nd chapter describes the formulation Pippalyadi Churna[8] in management of Swasa Roga. The present study is planned to evaluate the clinical efficacy and comparative effect of the drugs Katphaladi Churna & Pippalyadi Churna in patients of Tamaka Swasa.

Aim & Objectives:

The study is conducted with the following aims and objective:

1. To evaluate the clinical efficacy of Kataphaladi Churna[9] in management of Tamaka Swasa.
2. To compare the clinical efficacy and effect of Kataphaladi Churna with Pippalyadi Churna[10] in Tamaka Swasa.
3. To study in detail about the disease Tamak swasa[11] covering both classical and modern literature.
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]:

Katphala	-	**1 part**
Puskaramula	-	**1 part**
Pippali	-	**1 part**
Karkatasringi	-	**1 part**

(b) Pippalyadi Churna[13]:

Pippli	-	**1 part**
Barangi	-	**1 part**
Hingu	-	**1 part**
Karkatasringi	-	**1 part**
Girika	-	**1 part**

Method of Preparation: Above said drugs were taken in dried form, each were put in Khalva Yantra and pounded to make fine powder. They all were mixed thoroughly to make homogenous mixture. Then sieved, stored in airtight containers.

Methods:

Aim of studies:

- To suppress the aggravated dosa without disturbing the non- aggravated dosa.
- To enable patient to achieve normal levels of routine work or normal lungs function and prevent the recurrent episode of tamaka swasa.
- To evaluate the effect of Katphaladi Churna in management of Tamaka Swasa.
- To compare the effect of Katphaladi Churna with Pippalyadi Churna in Tamaka Swasa.

Source Of Data:

a. Literary Data: All the available literatures 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 therapeutically 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 AFI[14] guidelines.

c. Clinical Data-: Patients diagnosed with Tamaka Swasa 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 incidentally selected & randomly categorized into 2 groups based on simple randomization technique.

Study Design: Single blind randomized clinical trial.

(a) Inclusion Criteria:

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

(b) Exclusion Criteria:

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

Diagnosis:

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 interview. 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 respiratory system, and findings were recorded as per the Performa. PEFR was also done to confirm the diagnosis.

Laboratory Investigation:

- Hematology (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. These machine measures the maximal rate of flow which is achieved during a forced expiration and most healthy peoples will achieve values of grater then 400 liters/ minute. Patients with airflow obstruction will have reduced flow rates, with values below 200 liters/ minute being very severe and those below 100 liters 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 Showing Treatment Schedule-:

	Group A	**Group B**
Sample Size	20 Patients	20 Patients
Medicine	Katphaladi Churna	Pippalyadi Churna
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 advised to follow pathy-apathya strictly.

Assessment of results:

The symptoms will be recorded before treatment, during the treatment at 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 taken after 30days.

Assessment criteria: The state of the disease Tamaka swasa, changes after the intervention, improvement or otherwise was 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 **objective parameter** Peak flow meter test was analyzed and graded from 0-3. Assessment was done initially before the intervention and there after 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. 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 accurate result.

Overall Assessment Criteria

To assess the overall effect of the therapies net result 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 obtained in the patients of Tamaka Swasa. As per the assessment criteria, each of the patient's disease feature was scored and scoring 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.

1. Comparative statistical assessment of Group-A and Group-B subjective parameters:

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

	B	1.800	-0.300	20%	1.005	0.225	-1.143	0.260	ND

2. 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 significant difference in some of the subjective parameter. In subjective parameter Swasakrichrata, Pratishya and Kanthodhvamsa having more mean difference in Group – B compare to Group – A which is listed in above mentioned table.

In objective parameter AEC having more mean difference in Group – B compare to Group – A which is listed in above mentioned. Overall, the Group – B shows highly significant then the Group – A in subjective and objective parameter 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 katu-tikta-kasaya rasa, laghu-tikshna-ruksha guna, usna virya, katu vipaka and kapha-vata samaka properties. Thus, the Katphaladi Churna is 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 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, 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 facilitates 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 bronchial tree is also relived by Pippalyadi Churna. The trial drug formulation is Ushna veerya pradana 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 assists 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 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 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 the groups.

DISCUSSION ON RESULTS

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

For the comparison between the two-group unpaired 't' test was done for statistical analysis. The result shows there is statistically significant difference in some of the subjective parameter. In subjective parameter **Swasakrichrata, Pratishya and Kanthodhvamsa** there was more mean difference in Group – B compared to Group – A.In objective parameter **AEC**, more mean difference was observed in Group – B compared to Group – A.Overall, the Group – B shows highly significant result then the Group – A in subjective and objective parameter respectively by comparing 'P' value and 't' value.

Probable reason for better symptomatic and overall result 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 relive this symptom.

On Kanthodhvamsa: These symptoms are the result of **shook purana galasyata** which occurs because of vata dosa. Vata and kapha are of sheeta guna in nature. The virya of the selected Pippalyadi Churna is usna. This usna virya liquefy the kapha and pacifies 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 esinophill 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 parameter both trail drugs proved to be equally good. The reason of their similar effectiveness 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 close resemblance between natures of Tamaka Swasa with Bronchial Asthma.
- For the disease Tamaka Swasa which is episodic in nature, etiological factors may be exposure of dust, smoke etc. Also, there is no significance of sex and religion incidence seen in this disease.
- Tamaka swasa affects invariably patients of any age with more incidences in the age 25-43 years, which was commonly found to occur in the people working in the field and dusty conditions.
- Evidence of family history as related to the disease Tamaka swasa was not predominantly found in the clinical trial.
- One of the exciting factors may be role of Aruchi in majority of patients. 90% and 85% in both group A & B respectively. It may be due to vitiated Kapha dosa.
- Strength of the patient decreases with the chronicity of the disease.
- In the manifestation of disease, the role of Vata and Kapha was equally seen in all the patients.
- Both of the trial drugs Katphaladi Churna and Pippalyadi Churna are statistically significant effective 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 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.
- Nidana Parivarjana had a major role in controlling the progression of this disease and hence its total abstinence was advised, in conditions where total abstinence is not possible adequate precautions has to

be taken such that the person has minimum exposure to triggering factor. Immune modulation can be advised parallel in patients so that the effect of the triggering factor is reduced.

Limitations:

- The size of 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 longer duration.
- Study should be done by using the recent advancement in the field of medical science for further re-establishment of the 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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