

A COMPARATIVE CLINICAL STUDY TO EVALUATE THE EFFICACY OF LAVANGADI GUTIKA AND PIPPALYADI GUTIKA IN KAPHAJA KASA

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ABSTRACT

Kasa is one of the *Pranavaha Srothodusti vikara* which hinders normal life. *Kaphaja Kasa* is a type of *Kasa* with *Vata* and *Kapha* as predominant *doshas* and present with *Prabhuta*, *Ghana* and *Bahala kapha*. *Kaphaja Kasa* can be best compared with Chronic Bronchitis. If left untreated it leads to various conditions like *Swasa*, *Kshaya*, *Chardi*, *Svarasaadha* etc. This signifies the importance of its early management. The present study was conducted on 40 diagnosed subjects of *Kaphaja Kasa* who were randomly allocated into 2 groups with 20 patients each. *Lavangadi gutika* was taken in Group A and *Pippalyadi gutika* in Group B. Medicines was given for 30 days and the data was collected from the subject at baseline, 16th day, 31st day and on 46th day (follow up). The result of the study showed that there was a statistically significant difference in the assessment parameters in both the groups from baseline. However no statistically significant difference was observed between the effect of *Lavangadi gutika* and *Pippalyadi gutika* in the management of *Kaphaja Kasa* suggesting that both interventions were having a significant effect on the condition.

Keywords: *Kaphaja Kasa*, *Lavangadi gutika*, *Pippalyadi gutika*

INTRODUCTION

Respiratory disorders have become more prevalent these days due to air pollution, occupational hazards etc. Decreased immunity and non-adaptability against environmental influences lead to various respiratory problems. In recent years, there has been an extraordinary increase in incidence related to the respiratory system. Cough is the fifth most common symptom for which patients seek medical care¹.

Kasa is one of the most common ailments affecting the *Pranavaha srotas* and *Kaphaja Kasa* is one among them. *Vata* and *Kapha* are the two key *dosha* involved in the pathogenesis of *Kaphaja Kasa*. *Kaphaja Kasa* presents with cough along with copious thick, slimy sputum.² If *Kasa* is left untreated, it leads to diseases like *Swasa*, *Kshaya*, *Chardi*, *Sva-rasaadha* etc. Hence it should be treated at the earliest³.

Cardinal symptoms of *Kaphaja Kasa* are similar to chronic bronchitis. According to estimates from national interviews taken by the National Center for Health Statistics, approximately 9.5 million people or 4% of the population were diagnosed with Chronic Bronchitis⁴.

Long term use of corticosteroids and bronchodilators causes various adverse side effects like the weakened immune system, loss of bone mineral density, loss of appetite, dryness of mouth, throat irritations etc. So, there is a serious and urgent need for safer management without adverse side effects.

Many herbal formulations are described in Ayurveda and must be explored for their therapeutic effect in *Kasa*. Hence in the present study, *Pippalyadi gutika*⁵ mentioned in *Yogaratanakara kasa chikitsa* was evaluated for its therapeutic efficacy and compared with the effect of *Lavangadi gutika*⁶ mentioned in *Vaidhyajivanam, swasa kasa chikitsa* for the therapeutic action in *Kaphaja Kasa*.

OBJECTIVES OF STUDY:

1. To evaluate the therapeutic effect of *Lavangadi gutika* in the treatment of *Kaphaja Kasa*
2. To evaluate the therapeutic effect of *Pippalyadi gutika* in the treatment of *Kaphaja Kasa*
3. To compare the therapeutic effect of *Lavangadi Gutika* and *Pippalyadi Gutika* in the treatment of *Kaphaja Kasa*

MATERIALS AND METHODS:

SOURCE OF DATA:

Raw drugs required were identified and collected from the source of availability and the medicines were prepared according to the literature references at Rasashastra and Baishajya Kalpana Laboratory, Alva's Ayurveda Medical College, Moodbidri.

CLINICAL SOURCE:

- Patients diagnosed as *Kaphaja Kasa* were randomly selected from the Kayachikitsa Outpatient Department and In-Patient Department of Alva's Ayurveda Medical College and Hospital, Moodbidri.
- Medical camps and other referrals.

METHODS OF COLLECTION OF DATA

a) SAMPLE SIZE:

Minimum of 40 patients, irrespective of gender, religion, occupation, marital status, educational status, socioeconomic status, fulfilling the diagnostic criteria, inclusion criteria were selected for the study. They are randomly divided into two equal groups, groups A and B of 20 patients each.

STUDY DESIGN: Parallel group comparative clinical study

BLINDING: Single-blind

METHOD OF SAMPLING: Lottery Method

b) PLAN OF STUDY

Table 1: Shows interventions

GROUP A	GROUP B
<i>Lavangadi gutika</i>	<i>Pippalyadi gutika</i>
Matra - 500mg twice daily after food	Matra -500mg twice daily after food
Anupana - Warm water	Anupana – Warm water
Duration – 30days medication + 15days follow up	Duration – 30days medication + 15days follow up

OBSERVATIONAL PERIOD:

- Assessments during the trial period: On the 0th, 16th and 31st day of the study period.
- Follow up assessment was done after 15 days i.e on the 46th day of the study period.
- Total study duration including Follow up: 45days.

DIAGNOSTIC CRITERIA:

Kasa (cough) with *Sandra* and *Bahula Kapha Nishteavana* (Spitting of thick phlegm in large quantity) with or without following symptoms.

- *Aasyamadhurya* (Sweetness in the mouth)
- *Aruchi* (Anorexia)
- *Shirashula* (Headache)
- *Peenasa* (Chronic rhinitis)
- *Utklesha* (Nausea)

INCLUSION CRITERIA:

- Patients fulfilling signs and symptoms of *Kaphaja Kasa*.
- Patients having age above 16 years & below 60 years.

EXCLUSION CRITERIA:

- Patients with the complication of *Kasa* like Tuberculosis, Emphysema, Pneumonia etc.
- Patients with systemic or metabolic disorders that would interfere with the present study.
- Pregnant women and lactating mothers.
- Patients on Steroids in any form.

ASSESSMENT CRITERIA:

SUBJECTIVE PARAMETER

- *Kasa* (cough)
- *Sandra and Bahula Kapha Nishteavana* (Spitting of thick phlegm in large quantity)
- *Aasyamadhurya* (Sweetness in the mouth)
- *Aruchi* (Anorexia)
- *Shirashula* (Headache)
- *Peenasa* (Chronic rhinitis)
- *Utklesha* (Nausea)

OBJECTIVE PARAMETER

- Blood investigation – Hb, TC, DC, ESR, AEC
- Chest X-Ray to rule out other conditions.
- Any relevant Investigation if required.

OBSERVATIONS AND RESULTS:

Table 2: Showing Demographic data

CHARACTERS	PREDOMINANCE	PERCENTAGE
Age	26-35	32.5%
Gender	Male	52.5%
Religion	Hindu	62.5%
Marital status	Married	62.5%
Occupation	Students	30%
Socioeconomic status	Middle class	77.5%
Habitat	Urban	90%
Dietary habit	Mixed	77.5%
<i>Prakriti</i>	<i>Kapha-vata</i>	62.5%
<i>Satmya</i>	<i>Madhyama</i>	90%
<i>Satwa</i>	<i>Madhyama</i>	65%
<i>Abhyavaharana shakti</i>	<i>Avara</i>	57.5%
<i>Jarana shakti</i>	<i>Avara</i>	60%

STATISTICAL TEST: The groups were compared from baseline to assessment time points and the statistical significance of improvement obtained was analyzed with Wilcoxon Signed Rank Test and

Mcnamer test. Comparison of the result between the groups was done using Mann-Whitney U Rank Sum Test.

Table 3: Effect on Group A and Group B in Primary complaints

CRITERIA	MEAN BT	MEAN AT2 (31 st day)	M.D	%	S. D	S. E	WSRT VALUE	p VALUE
GROUP A								
KASA	2.00	0.45	1.55	77.50	0.510	0.117	210	<0.001
KAPHA NISHTEEVAN	2.45	0.90	1.55	63.27	0.510	0.117	210	<0.001
GROUP B								
KASA	2.10	0.40	1.70	80.95	0.470	0.108	210	<0.001
KAPHA NISHTEEVAN	2.55	0.80	1.75	68.63	0.444	0.102	210	<0.001

ASSOCIATED COMPLAINTS:

Table 4: Effect in Group A and Group B on Aruchi

	N	MEAN	STD. DEVIATION	EXACT SIG. (2-TAILED)
GROUP A				
BT	20	.50	.513	BT & AT2 - 0.002
AT2	20	.00	.000	
GROUP B				
BT	20	.70	.470	BT & AT2 - .000
AT2	20	.00	.000	

Assessment of certainly associated complaints by Mean and Percentage: Statistical analysis was not done for associated complaints *Shirashoola*, *Peenasa*

and *Utklesha* as these symptoms were present only in a few patients. Hence the improvement was assessed by Mean and Percentage of the score obtained.

Table 5: Effect on Group A and Group B in other Associated Symptoms

Symptoms	Group A		Group B	
	No. Of patients	Percentage of relief	No. Of patients	Percentage of relief
<i>Shirashoola</i>	6	16.67%	5	100%
<i>Peenasa</i>	7	100%	9	100%
<i>Utklesha</i>	2	100%	1	0%

Table 6: Comparison of effects in Group A and Group B

Criteria	Mean Difference		Mann- Whitney Rank Sum Test			Remark
	Group A	Group B	U Value	Z Score	P-Value	
<i>Kasa</i>	1.55	1.7	170	0.798	0.424	Ns
<i>Kapha Nishteavana</i>	1.55	1.75	160	1.068	0.285	Ns
<i>Aruchi</i>	0.5	0.7	160	1.068	0.285	Ns
<i>Shirashoola</i>	0.28	0.08	176	0.649	0.516	Ns
<i>Peenasa</i>	0.20	0.21	190	0.256	0.795	Ns
<i>Utklesha</i>	0.03	0.10	198	0.040	0.968	Ns

Table 7: Overall effect of Group A and Group B in Percentage and numbers

Effect Of Treatment in Group a and B			
CLASS	Grading	No Of Patients in Group A	No Of Patients in Group B
0%	No improvement	0	0
1–25 %	Mild improvement	0	0
26 – 50%	Moderate improvement	6	4
51 – 75 %	Marked improvement	10	7
76 – 99%	Significant improvement	2	4
100%	Complete Relief	2	5

DISCUSSION

In the present study, the effect of *Lavangadi gutika* and *Pippalyadi gutika* on Primary outcomes *Kasa vega* and *Kapha Nishteevana* in Group A and Group B respectively were statistically significant from baseline values While comparing both the Groups statistically insignificant result at $p > 0.05$ was found, indicating both treatments were effective. 10 patients in Group A and 14 patients in Group B had *Aruchi*. The percentage of relief was 100% in both Groups. While comparing both the Groups statistically insignificant result at $p > 0.05$ was found. Other associated symptoms like *Shirashoola*, *Peenasa* and *Utklesha* were present only in some study volunteers at baseline and showed improvement on receiving treatments in both the groups.

Probable mode of action of *Lavangadi gutika*

Lavangadi gutika contains *Katu*, *Tikta*, *Kashaya rasa pradhana*, *Katu vipaka* and *Ushna veerya* drugs. So, these drugs help in *Kaphavata shamana*. *Lavanga*, *Maricha*, *Vibitaki* *tvak* has *deepana* and *paachana* property. Since *Kaphaja Kasa* is an *agnimandhya janya*, *Aamashayottha vikara* these drugs act on *Amashaya*, help in the digestion of *Ama* and improve *Agni*. *Lavanaga* because of its *Katu rasa* and *Tikshna guna* have *Kapha vilayana* property. *Vibhitaki* has *Bhedana* property that helps in the removal of *Kapha*. *Vibitaki* has bronchodilator action. Hence it relieves cough⁷. All the drugs in the *Lavangadi gutika* have *Kasagna* property. *Maricha* because of its *Katu rasa*, *Teekshna guna*, *Usna veerya* has *Kaphavata shamana* property. Due to its bronchodilator property *Maricha* is beneficial in cough and respiratory disorders⁸. *Khadira sara* has anti-inflammatory property⁹. Hence the drugs in combination help in the reduction

of *Kaphaja kasa*. These properties in the formulation's drugs have proved to be effective in the condition of *Kasa*.

Probable mode of action of *Pippalyadi gutika*

Pippalyadi gutika contains *Katu*, *Tikta Kashaya rasa pradhana*, *Ruksha*, *Tikshna*, *Ushna veerya*, *Katu vipaka dravyas*. Because of that, it has *Kaphavatahara* property. Drugs like *Pippali*, *Sunthi* etc have *deepana* and *Paachana* properties. So, it removes *ama* and kindles *agni*. *Pippali* and *Sunthi* because of their Anti-inflammatory action inhibit inflammatory mediators i.e, leukotriene, interleukins, prostaglandin released by macrophages, T lymphocytes and Neutrophils. Hence, they reduce excess mucous secretion in the respiratory tract^{10,11}. A drug like *Pippali* has *rasayana* properties, so it increases *Agni* and *Bala* and nourishes *Rasa dhatu*. Drug like *Haritaki* has *Apana anulomana* property which is initiating property for *samprapti* of *Kaphaja Kasa*. *Sati* because of its *Chedana* property removes obstruction of *Vata* by *Kapha* in *Pranavaha srotus*. Mucolytic and mucokinetic action of *Sati* depolymerises the mucopolysaccharides and liberates lysosomal enzymes which break the tenacious mucus plugs present in the respiratory tract and causes expectoration of Sputum¹². *Pushkara moola* possesses *Hridya* property, and it acts on *Hridaya* which is *the mula sthana* of *Pranavaha* and *Rasavaha srotas*. A drug like *Mulaka* has *Tridosahara* property. Because of the above properties *Pippalyadi gutika* help in the reduction of *Kaphaja Kasa* and associated symptoms.

CONCLUSION

Both *Lavangadi gutika* and *Pippalyadi gutika* showed a statistically highly significant effect on primary

outcomes *Kasa* and *Kapha nishteevana*. Associated symptom *Aruchi* showed a statistically highly significant effect in Group B and significant effect in Group A. *Peenasa*, *Shirashoola* showed 100% improvement in both Groups and *Utklesha* showed 100% improvement in Group A and No improvement in Group B. While comparing the effect in both the groups, there was no statistically significant difference between groups after treatment. As a result, H_0 is accepted and has been proven that there is no significant difference in the effect of *Lavangadi gutika* and *Pippalyadi gutika* in the symptomatic management of *Kaphaja Kasa*. Both formulations in this study had *Kaphavata hara*, *Deepana*, *Pachana*, *Kapha vilayana*, *Srotoshodhana* and anti-inflammatory properties which are needed to break down the *samprapti* of *Kaphaja Kasa*.

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