

ORIGINAL RESEARCH ARTICLE

A Comparative Study of *Chitrakadi Churna* and *Marichyadi Churna* in the Management of *Kaphaj Kasa* W.S.R. to Productive Cough in L.R.T.I.

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ABSTRACT

Background: *Kaphaj Kasa* is the most common disease which affects all age groups. It is very commonly present in economically poor people because of deficient quality diet. This disease exhibits itself through the features such as *Sthivan*, *Utkelsha*, *Swas Kashtata*, and *Chardi* in modern science it may be correlated with productive cough in LRTI.

Objectives: This was a Clinical comparative study of *Marichyadi Churna* and *Chitrakadi Churna* in the management of *Kaphaj Kasa*.

Methods: A total of 40 sample sizes of clinically diagnosed *Kaphaj Kasa* patients were selected randomly and allocated into two groups (Group A and Group B), each consists of 20 patients. Gradation was adopted to indicate the signs and symptoms before, during, and after the treatment. Subjects were managed with *Marichyadi Churna* in Group A and *Chitrakadi Churna* in Group B with Madhu as *Anupana* for 21 days. Follow-up was done. The variation in observed data recorded before, during, and after the treatment, that is, BT, AT 15th, AT 21th. The obtained result data were subjected to paired t-test and unpaired t-test.

Results: Both the treatment therapies were found to be very effective in the management of *Kaphaj Kasa* w.s.r. to productive cough in LRTI. However, *Marichyadi Churna* was found more effective than *Chitrakadi Churna* in comparison between the duo.

1. INTRODUCTION

Today's environment exposes us several toxins by pollution, overpopulation, and in addition to this; there has been revolution in our eating habits and lifestyle. We are exposed to stress and strain that create number of causes which attribute to ill health.

Productive cough is treated by expectorants, antihistamines, demulcents, and decongestants, in medicines. However, these drugs have side effects such as drowsiness, blurred vision, nausea, and slowed breathing.

Human respiratory tract exposed to such environment causes "Cough" as major symptom, which is described as "*Kasa*" in Ayurveda, which is an independent disease also.

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Forceful expulsion of *vayu*^[1] from throat is called as *Kasa*. There are five types of *Kasa*, namely, *Vataj*, *Pittaj*, *Kaphaj*, *Kshataj*, and *Kshayaj*, among which *Kaphaj Kasa* is one of the common diseases, affecting the community. There are various *Aoushadhi* yogas described in Ayurveda for *Kasa*.

The essential disposition of living activity is said to be breathing which is a basic activity of *Pranavaha Srotas*. *Kaphaja Kasa*^[2] is a disease of *Pranavaha Srotas* that is one of the types of *Kasa*.

According to Ayurveda, *Kasa* is an independent disease as well as symptoms. It has separate pathogenesis, signs symptoms, types, and treatment, *Kaphaja Kasa*^[3] is having the following symptoms – *Sthivan*, *Utklesh*, *Swaskashtata*, and *Chardi*, which are closely compared to productive caught in LRTI.

Among these various yogas, “*Churna*” is the easiest form to take, which is also cost-effective. Hence, “*Marichyadi Churna and Chitrakadi Churna*” were selected for this study for the management of *Kaphaj Kasa*.

1.1. Aim and Objectives

1.1.1. Aim

This was a comparative Clinical study of *Marichyadi Churna* and *Chitrakadi Churna* in the management of *Kaphaj Kasa*.

1.1.2. Objectives

The objectives of the study are as follows:

1. To study *Kasa Vyadhi* and productive cough in L.R.T.I, Comprehensively.
2. To study the effect of *Marichyadi Churna* in *Kaphaj Kasa*.
3. To study the effect of *Chitrakadi Churna* in *Kaphaj Kasa*.
4. To compare the effect of *Marichyadi Churna* and *Chitrakadi Churna* in the management of *Kaphaj Kasa* in detail.

2. MATERIALS AND METHODS

2.1. Source of Data

- Patients of classical signs and symptoms of *Kaphaj Kasa* were selected randomly from OPD and IPD of our hospital.
- To collect the information regarding drug *Marichyadi Churna* and *Chitrakadi Churna* used in study in GMP certified laboratory.

2.2. Methods of Collection of Data

It is a comparative clinical study where minimum of 40 patients of *Kaphaj Kasa* were selected. The signs and symptoms were recorded as per the proforma designed for the study before and after treatment.

- Group A: Patients were administrated with *Marichyadi Churna* (5 g) 3 time in day.
- Group B: Patients were administrated with *Chitrakadi Churna* (5 g) 3 time in day.

2.3. Inclusion Criteria

The following criteria were included in the study:

- Sex – both male and female patients of *Kaphaj Kasa* are selected.
- Age – between 16 and 60 years.

2.4. Exclusion Criteria

The following criteria were excluded from the study:

- Age <16 years and >60 years.
- Patients with *Vataj, Pittaj, Kaphaj, Kshtaj Kasa*.
- Patients with severe systemic diseases like – IHD, DM, Liver disease, CVA,
- Tuberculosis, HIV, CA-lungs.
- *Garbhini* and lactating mothers were excluded.
- *Ati Durbala* patients.

2.5. Study Design

This was a double arm clinical study.

2.6. Sample Size

The numbers of patients taken for study were 40, excluding the dropouts. The patients selected for the study were divided into two groups – Group A and Group B, consisting of 20 patients in each.

2.7. Source of Formulations^[4]

Treatment protocol is given in Table 1. *Marichyadi Churna* and *Chitrakadi Churna* was prepared in the Rasa Shastra and Bhaishajya Kalpana Dept. according to the references.^[5]

2.8. Parameters of the Study

The subjective and objective parameter of study is given below.

2.9. Subjective Criteria

- *Sthivan* (Cough with expectoration)
- *Angagaurav* (Heaviness of body parts)
- *Utklesha* (Nausea)
- *Chardi* (Vomiting)
- *Mandagni* (Loss of appetite)
- *Jwara* (Fever)
- *Kasa Vega* (Nature of cough)
- *Shwaskashta* (Breathlessness).

2.10. Objective Criteria

- Complete blood count
- ESR
- Sputum examination (If required)
- Chest X-ray (If required).

2.11. Criteria of Assessment

The signs and symptoms score will be adopted for assessment is given in Table 2.

2.12. Sample Size

2.12.1. Sample size calculation

With reference to the book of research methodology, the formula of sample size of finite population is as follows.

$$n = \frac{Z^2 pq}{e^2}$$

n = Sample size

Z = 1.96

p = Prevalence of disease 13%

q = 1-p = 0.80

e = Error of Margin = 0.10%

$$n = \frac{(1.96)^2 \cdot 0.13 \times 0.80}{0.10^2}$$

$$= \frac{3.84 \times 0.13 \times 0.80}{0.01}$$

$$= \frac{0.3993}{0.01}$$

$$= 39.93 \sim 40$$

Sample size = 40 patients

Sampling method: Random Sampling Method.

2.13. Statistical Analysis

The information was gathered was analyzed based on subjective and objective parameters taken before and after the treatment and was

subjected to statistical analysis. As this is a clinical study, student (Paired) t test was used to test the significance of the therapy.

3. RESULTS

Group A: On the symptom *Sthivan*, the effect of *Marichyadi Churna*, that is, before the treatment the mean score was 2.00 and reduced to 0.80 after the treatment and further it was reduced after follow-up to 0.70. This change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given above in the Table 3.

Group B: On the symptom *Sthivan*, the effect of *Chitrakadi Churna*, that is, before the treatment the mean score was 1.75 and reduced to 0.85 after the treatment and further it was reduced after follow-up to 0.65. This change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the Table 3.

3.1. Effect Treatment on *Angagaurav* (Heaviness of Body Parts) is Given in Table 4

Group A: On the symptom *Angagaurav*, the effect of *Marichyadi Churna*, that is, before the treatment the mean score was 1.90 and reduced to 0.80 after the treatment and further it was reduced after follow-up to 0.65. This change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the table

Group B: On the symptom *Angagaurav* the effect of *Chitrakadi Churna*, that is, before the treatment the mean score was 1.70 and reduced to 0.75 after the treatment and further it was reduced after follow-up to 0.60. This change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the table.

3.2. Effect Treatment on *Utklesha* (Nausea) is Given in Table 5

Group A: On the symptom *Utklesha*, the effect of *Marichyadi Churna*, that is, before the treatment, the mean score was 2.15 and reduced to 0.75 after the treatment and further it was reduced after follow-up to 0.60. This change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the table.

Group B: On the symptom *Utklesha*, the effect of *Chitrakadi Churna*, that is, before the treatment, the mean score was 1.90 and reduced to 0.80 after the treatment and further it was reduced after follow-up to 0.70. This change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the table.

3.3. Effect Treatment on *Chardi* (Vomiting) is Given in Table 6

Group A: On the symptom *Angagaurav*, the effect of *Marichyadi Churna*, that is, before the treatment, the mean score was 2.05 and reduced to 0.80 after the treatment and further it was reduced after follow-up to 0.60. This change that occurred with the treatment is

statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the table.

Group B: On the symptom *Chardi*, the effect of *Chitrakadi Churna*, that is, before the treatment, the mean score was 1.80 and reduced to 0.80 after the treatment and further it was reduced after follow-up to 0.65. This change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the table.

3.4. Effect Treatment on *Mandagni* (Loss of Appetite) is Given in Table 7

Group A: On the symptom *Mandagni*, the effect of *Marichyadi Churna*, that is, before the treatment, the mean score was 1.95 and reduced to 0.75 after the treatment and further it was reduced after follow-up to 0.55. This change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the table.

Group B: On the symptom *Mandagni*, the effect of *Chitrakadi Churna*, that is, before the treatment, the mean score was 2.00 and reduced to 0.85 after the treatment and further it was reduced after follow-up to 0.60. This change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the table.

3.5. Effect of Treatment on *Jwara* (Fever) is Given in Table 8

Group A: On the symptom *Jwara*, the effect of *Marichyadi Churna*, that is, before the treatment, the mean score was 1.85 and reduced to 0.70 after the treatment and further it was reduced after follow-up to 0.50. This change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the table.

Group B: On the symptom *Jwara*, the effect of *Chitrakadi Churna*, that is, before the treatment, the mean score was 1.90 and reduced to 0.85 after the treatment and further it was reduced after follow-up to 0.70. This change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the table.

3.6. Effect of Treatment on *Kasa Vega* (Nature of cough) is Given in Table 9

Group A: On the symptom *Kasa Vega*, the effect of *Marichyadi Churna*, that is, before the treatment, the mean score was 1.60 and reduced to 0.60 after the treatment and further it was reduced after follow-up to 0.45. This change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the table.

Group B: On the symptom *Kasa Vega*, the effect of *Chitrakadi Churna*, that is, before the treatment, the mean score was 1.75 and reduced to 0.75 after the treatment and further it was reduced after follow-up to 0.65. This change that occurred with the treatment is statistically

highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the table.

3.7. Effect of Treatment on *Shwaskashta* (Breath Lessness) is Given in Table 10

Group A: On the symptom *Shwaskashta*, the effect of *Marichyadi Churna*, that is, before the treatment, the mean score was 1.55 and reduced to 0.55 after the treatment and this change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage relief are given in the table.

Group B: On the symptom *Shwaskashta*, the effect of *Chitrakadi Churna*, that is, before the treatment, the mean score was 1.55 and reduced to 0.65 after the treatment and this change that occurred with the treatment is statistically highly significant ($P < 0.01$). Further details with standard deviation, standard error of mean, t value, P values, and percentage *Shwaskasht* are life are given in the table.

Over all Effect Treatment on Both Groups are Shown in Table 11, Graphs 1 and 2.

3.9. Over All Effect of the Therapy is Shown in Table 12 and Graph 3

The effect of *Marichyadi Churna* in Group-A and *Chitrakadi Churna* in Group-B is shown in the above table/graph. Percentagewise improvement are observed on 15th day in ign and symptoms like *Sthivan* 60% and 51%, *Angagaurav* 58% and 56%, *Utklesha* 65% and 58%, *Chardi* 61% and 56%, *Mandagni* 62% and 57%, *Jwara* 62% and 65%, *Kasa Vega* 62% and 57% and *Shwaskashta* 61% and 56%, respectively, in Group-A and Group-B which are highly significant ($P < 0.01$).

The effect of *Marichyadi Churna* in Group-A and *Chitrakadi Churna* in Group-B is shown in the above table/graph. Percentagewise improvement is observed on 21st day in sign and symptoms like *Sthivan* 65% and 63%, *Angagaurav* 66% and 65%, *Utklesha* 72% and 63%, *Chardi* 71% and 64%, *Mandagni* 72% and 70%, *Jwara* 73% and 63%, *Kasa Vega* 72% and 63% and *Shwaskashta* 64% and 61%, respectively, in Group-A and Group-B which are highly significant ($P < 0.01$).

4. DISCUSSION

4.1. Effect on *Sthivan* (Cough with Expectoration)

About 65% relief is observed in Group A patients as 63% relief is observed in Group B patients. The results are statistically significant in both groups.

4.2. Effect on *Angagaurav* (Heaviness of Body Parts)

About 66% relief is observed in Group A patients as 65% relief is observed in Group B patients. The results are statistically significant in both groups.

4.3. Effect on *Utklesha* (Nausea)

About 72% relief is observed in Group A patients as 63% relief is observed in Group B patients. The results are statistically significant in both groups.

4.4. Effect on *Chardi* (Vomiting)

About 71% relief is observed in Group A patients as 64% relief is observed in Group B patients. The results are statistically significant in both groups.

4.5. Effect on *Mandagni* (Loss of Appetite)

About 72% relief is observed in Group A patients as 70% relief is observed in Group B patients. The results are statistically significant in both groups.

4.6. Effect on *Jwara* (Fever)

About 73% relief is observed in Group A patients as 63% relief is observed in Group B patients. The results are statistically significant in both groups.

4.7. Effect on *Kasa Vega* (Nature of Cough)

About 72% relief is observed in Group A patients as 63% relief is observed in Group B patients. The results are statistically significant in both groups.

4.8. Effect on *Shwaskashtata* (Breathlessness)

About 64% relief is observed in Group A patients as 61% relief is observed in Group B patients. The results are statistically significant in both groups.

4.9. Overall Effect Treatment on Both Groups

Among 40 patients, 4 (20%) patients shown complete remission, 16 (80%) patients shown marked improvement in Group A (*Marichyadi Churna*), 2 (10%) patients shown complete remission, and 18 (90%) patients shown marked improvement in Group B (*Chitrakadi Churna*). No patients was unchanged after treatment in both groups and also there is no side effect of the treatment in both groups.

4.10. Effect of *Marichyadi Churna*

The drug *Marichyadi churna* consists of ingredients which excellently balancing each other in *Rasa-panchaka* and enhancing the *Vata-Kaphahara*^[6], *Deepana*, *Pachana*^[7] and *Vatanulomana*^[8] properties. *Vata-Kaphahara*^[9] property of most of the contents alleviates both *Vata* and *Kapha*, which are the main *Dosha* in the pathogenesis of *Kasa*. The main factor in this disease as in many other diseases is *Aama* and the *Deepana-Pachana* properties of the drug will digest the *Aama* by kindling the *Jatharagni*^[10] as well as *Rasagni* and *Bhutagni*^[11]. Further the *Shothahara Karma* of most of the contents will neutralize the *Strotorodha* in *Pranavaha Srotas* due to *Shotha* created by *Sama Vata*.

The *Dosha-Prashamana*^[12] effect (*Machich*, *Pippali*, *Dadim*, *Guda*) the main *Doshas* which contribute to the *Samprapti* viz. *Vata* and *Kapha*. *Deepana-Pachana Karma* (*Maricha*, *Pippali*) digest *Aama*. *Vatanulomana*^[4] property maintains the normal flow of *Vata*. *Kasa*, *Shothahara Prabhava* of all the ingredients act on the symptoms. *Strotorodh Nivarana*^[13] *Prabhava* removes *Strotorodha* from the *Pranavaha* and *Rasavaha Strotas*.

Maricha has anti-asthmatic, antimicrobial, anti-oxidant, anti-inflammatory, Hepato-protective, digestive, immunomodulatory, and effect of piperine on metabolism.

The ingredient like *Maricha*, *Pippali* has anti-inflammatory, antimicrobial, immunomodulatory, hypolipidemic, and anti-viral activity.

Yavakshar is pungent in taste, *Katu Vipaka*, *Sheeta Virya*, *Laghu*, and *Ruksha* in *Guna*. It pacifies *Tridosha*, *Deepan*, and *Sangrahi* in action.

4.11. Effect of *Chitrakadi Churna*

Chitrak - *Chitraka* clad by the vernacular names *Agni*, *Agnika* or *Jyothi* is a potent appetizing herb. The strong carminative nature of this herb is used in treating diseases such as bronchitis, dysentery, leukoderma, itching, and consumption.

Pippali - *Pippali* or Indian long pepper is extensively used for the treatment of indigestion, *kasa*, etc. It also improves digestion and skin health.

Pippalimool - *Pippalimool*, also known as celery has potent, has antispasmodic, diuretic, anthelmintic, laxative, and stimulant properties. It is used for treating *Kasa Asthma*, and other breathing disorders.

Gajappapali – *Gajapippali*, also known as *Hastipippali* having *Deepana*, *Shwasakasahara Karma* as having *Katu Rasa*, *Ushna Veerya*, *Katu Vipaka*. It is useful to treat *Atisara* (Diarrhoea) and increases appetite, that is, *Vanhivardhini*.

The probable mode of the effect of *Chitrakadi churna* may be due to the *Vata* and *Kaphashamaka*^[14] alleviating properties of all the drugs. It helps in alleviating *Prakupita*^[15] (aggravated) *Vata* and *Kapha* and thereby it causes relief in *Strothovarodha* (obstruction of channels) and *Kaphavilayana* (liquefaction of *kapha*).

5. CONCLUSION

On comparison between Group A and Group B, the Group A showed marginally good result than Group B, that is, *Marichyadi Churna* has shown better result than *Chitrakadi Churna*. Both the drugs helped in *Samprapti Vighatana* (regaining of physiology) of the disease. The drug was well tolerated by children and there were no adverse effects reported. It is cost-effective, easily administrable, and safe.

6. ACKNOWLEDGMENT

None.

7. AUTHORS' CONTRIBUTIONS

All the authors contributed equally in design and execution of the article.

8. FUNDING

Nil.

9. ETHICAL APPROVALS

Ethical clearance was obtained from the institutional ethical committee via order number – SSRAMC/IECC/2018.

10. CONFLICTS OF INTEREST

Nil.

11. DATA AVAILABILITY

This is an original manuscript and all data are available for only research purposes from principal investigators.

12. PUBLISHERS NOTE

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Table 1: Treatment protocol

S. No	Group name	Group A	Group B
1.	Drug Name	<i>Marichyadi Churna</i>	<i>Chitrakadi Churna</i>
2.	Dosage	(5 g)	(5 g)
3.	Route	Oral	Oral
4.	Anupana	<i>Madhu</i>	<i>Madhu</i>
5.	Times of Administration	Thrice in day	Thrice in day
6.	Study duration	21 days	21 days
7.	Treatment duration	14 days	14 days
8.	Follow-up after treatment	15 th and 21 st day	15 th and 21 st day

Table 2: The signs and symptoms score will be adopted for assessment

S. No.	Symptoms	Criteria	Grade
1.	<i>Sthivan</i>	No <i>Sthivan</i>	0
		1–3 times/day	1
		4–6 times/day	2
		More than 6 times/day	3
2.	<i>Angagaurav</i>	No <i>Angagaurav</i>	0
		Mild <i>Angagaurav</i>	1
		Moderate <i>Angagaurav</i>	2
		Severe <i>Angagaurav</i>	3
3.	<i>Utklesha</i>	No <i>Utklesha</i>	0
		1–2 times/da.	1
		3–4 times/day	2
		More than 4 times/day	3
5.	<i>Chardi</i>	No <i>Chardi</i>	0
		Occasional (once a week)	1
		Frequent (2-3 times a week)	2
		Continuous (once a day)	3
4.	<i>Mandagni</i>	Normal hunger	0
		Hunger delayed by 6 h	1
		Hunger delayed by 8 h	2
		Hunger delayed by 12 h	3
6.	<i>Jwara</i>	No <i>Jwara</i>	0
		Alpa (98.35°F–99.5°F)	1
		Madhyam (98.6°F–101°F)	2
		More than 101°F	3
7.	<i>Kasa Vega</i>	No <i>Kasa</i>	0
		<i>Kasa</i> once or twice a day	1
		<i>Kasa</i> continuous in day	2
		<i>Kasa</i> disturbing daily activities	3
8.	<i>Shwaskashtata</i>	Respiration rate (18–24/min)	0
		Respiration rate (25–28/min)	1
		Respiration rate (29–32/min)	2
		>33/min	3

Table 3: Effect treatment on Sthivan (Cough with expectoration)

Group	Mean score				% Relief		Paired 't' test			
	0 th Day	15 th Day	21 st Day	BT-AT	15 th Day	21 st Day	S.D.	S.E.	't'	P
A	2.00	0.80	0.70	1.20	60	65	0.41	0.09	13.0	<0.01
B	1.75	0.85	0.65	0.90	51	63	0.30	0.06	13.0	<0.01

Table 4: Effect treatment on Angagaurav (Heaviness of body parts)

Group	Mean Score				%Relief		Paired 't' Test			
	0 th Day	15 th Day	21 st Day	BT-AT	15 th Day	21 st Day	S.D.	S.E.	't'	P
A	1.90	0.80	0.65	1.10	58	66	0.30	0.06	15.9	<0.01
B	1.70	0.75	0.60	0.95	56	65	0.22	0.05	19.0	<0.01

Table 5: Effect treatment on *Utklesha* (Nausea)

Group	Mean score				% Relief		Paired 't' test			
	0 th Day	15 th Day	21 st Day	BT-AT	15 th Day	21 st Day	S.D.	S.E.	't'	P
A	2.15	0.75	0.60	1.40	65	72	0.50	0.11	12.4	<0.01
B	1.90	0.80	0.70	1.10	58	63	0.30	0.06	15.9	<0.01

Table 6: Effect treatment on *Chardi* (vomiting)

Group	Mean score				% Relief		Paired 't' test			
	0 th Day	15 th Day	21 st Day	BT-AT	15 th Day	21 st Day	S.D.	S.E.	't'	P
A	2.05	0.80	0.60	1.25	61	71	0.44	0.09	12.5	<0.01
B	1.80	0.80	0.65	1.00	56	64	0.32	0.07	13.7	<0.01

Table 7: Effect treatment on Mandagni (loss of appetite)

Group	Mean score				% Relief		Paired 't' test			
	0 th Day	15 th Day	21 st Day	BT-AT	15 th Day	21 st Day	S.D.	S.E.	't'	P
A	1.95	0.75	0.55	1.20	62	72	0.41	0.09	14.0	<0.01
B	2.00	0.85	0.60	1.15	57	70	0.36	0.08	13.0	<0.01

Table 8: Effect of treatment on Jwara (fever)

Group	Mean score				% Relief		Paired 't' test			
	0 th Day	15 th Day	21 st Day	BT-AT	15 th Day	21 st Day	S.D.	S.E.	't'	P
A	1.85	0.70	0.50	1.15	62	73	0.36	0.08	14.0	<0.01
B	1.90	0.85	0.70	1.15	55	63	0.22	0.05	21.0	<0.01

Table 9: Effect of treatment on Kasa Vega (nature of cough)

Group	Mean score				% Relief		Paired 't' test			
	0 th Day	15 th Day	21 st Day	BT-AT	15 th Day	21 st Day	S.D.	S.E.	't'	P
A	1.60	0.60	0.45	1.00	62	72	0.45	0.10	9.7	<0.01
B	1.75	0.75	0.65	1.00	57	63	0.32	0.07	13.7	<0.01

Table 10: Effect of treatment on Shwaskashta (Breath lessness)

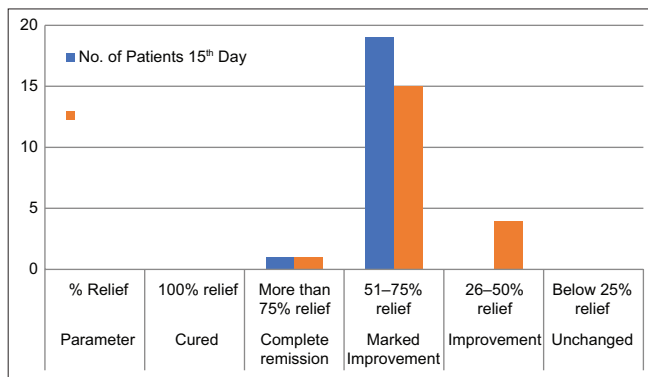
Group	Mean Score				%Relief		Paired 't' Test			
	0 th Day	15 th Day	21 st Day	BT-AT	15 th Day	21 st Day	S.D.	S.E.	't'	P
A	1.55	0.60	0.55	0.95	61	64	0.30	0.08	10.7	<0.01
B	1.60	0.70	0.65	0.90	56	59	0.30	0.06	13.0	<0.01

Table 11: Over all effect treatment on both groups

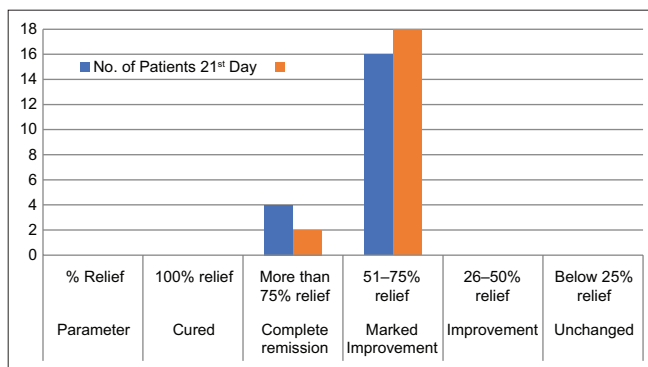
Parameter	% Relief	No. of patients 15 th day		No. of patients 21 st day	
		Group A	Group B	Group A	Group B
Cured	100% relief	0	0	0	0
Complete remission	More than 75% relief	1	1	4	2
Marked Improvement	51–75% relief	19	15	16	18
Improvement	26–50% relief	0	4	0	0
Unchanged	Below 25% relief	0	0	0	0

Table 12: Over all effect of the therapy

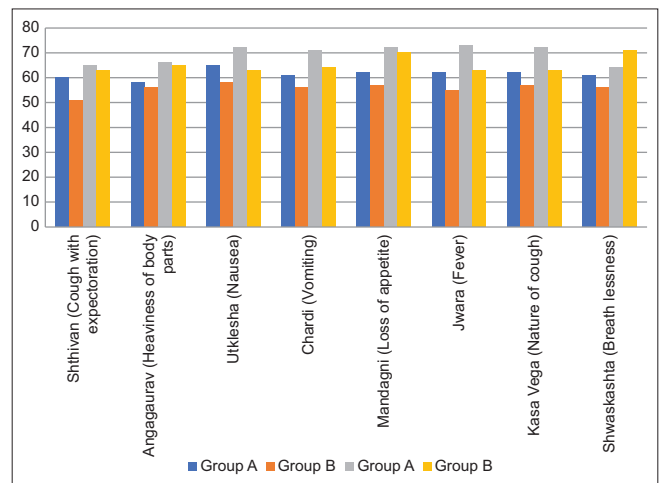
Symptoms	% Relief on 15 th day		% Relief on 21 st day	
	Group A	Group B	Group A	Group B
<i>Sthivan</i> (Cough with expectoration)	60	51	65	63
<i>Angagaurav</i> (Heaviness of body parts)	58	56	66	65
<i>Utklesha</i> (Nausea)	65	58	72	63
<i>Chardi</i> (Vomiting)	61	56	71	64
<i>Mandagni</i> (Loss of appetite)	62	57	72	70
<i>Jwara</i> (Fever)	62	55	73	63
<i>Kasa Vega</i> (Nature of cough)	62	57	72	63
<i>Shwaskashta</i> (Breath lessness)	61	56	64	71



Graph 1: Over all effect treatment on both groups on 15th day



Graph 2: Overall effect treatment on both groups on 21st day



Graph 3: Over all effect of the therapy