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CLINICAL EVALUATION OF POUSHKARADI KASHAYAM IN TAMAKA SWASA Vis-à-vis TO BRONCHIAL ASTHMA

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ABSTRACT

Background: Bronchial asthma is one of the most distressing diseases and is quite common in all the socio-economic strata, in all the age groups and almost all over the world. The same being understood *as tamaka swasa* (Bronchial asthma) in texts of Ayurveda. Even though many formulations are explained in classics for treating *Tamaka Swasa*, only few are used in present scenario. Here it is intended to find out the efficacy of *Poushkaradi kashaya* in the management of *Tamaka swasa* by considering *Dasamoola katutrayam Kashayam* as control drug. **Aim:** To evaluate the efficacy of *Poushkaradi Kashayam* in the treatment of *Tamaka swasa* Vis-à-vis to Bronchial asthma. **Materials and Methods:** A minimum of 40 patients who fulfilled the diagnostic and inclusion criteria were allotted randomly by lottery method into two equal groups of minimum 20 patients each as Group A and Group B. Group A-Trial group *(Poushkaradi kashayam)* Group B-Control group *(Dasamoola katutrayam kashayam).* **Statistical Analysis:** Students paired, and unpaired "t" test were used, and the results were considered significant or insignificant depending upon P value. **Result:** *Poushkaradi kashayam* got more clinically significant result (percentage of improvement) in all the parameters than *Dasamoola katutrayam kashayam*. **Discussion and Conclusion:** *Poushkaradi kashayam* got more clinically significant result in all the parameters than *Dasamoola katutrayam kashayam*. *Poushkaradi kashaya* is more effective in acute cases of *Tamaka swasa* and *Dasamoola katutrayam kashaya* is more effective in chronic cases of *Tamaka swasa.*

Keywords: *Tamaka swasa, Bronchial asthma, Poushkaradi kashayam, Dasamoola katutrayam kashayam*

INTRODUCTION

Bronchial asthma is one of the most distressing disease and is quite common in all the socio-economic strata, in all the age groups and almost all over the world[1]. Asthma affects 339 million people worldwide and remains a worldwide health problem[2]. One in every 10 asthma patients in the world is in India[3].This is the most common chronic respiratory disease with a case

burden of approximately 358.2 million in 2015 in India[4].

Tamaka swasa as a disease entity was known to the ancient ages from very beginning. In *Ayurveda,* the description of *Tamaka swasa* is mentioned in various classics. The *Lakshanas* explained under *Tamaka swasa* are like the clinical features of Bronchial asthma.

This disease is thought to be caused by a combination of genetic and environmental factors. Changing lifestyle, demographic factors, urbanization and industrialization, all these are the triggering factors of Bronchial asthma. The treatment protocol of Bronchial asthma includes decreasing airway inflammation, hyperactive responsiveness of airway and increasing immunity.

According to the *Ayurveda Chikitsa Sidhanta,* it is explained that *Virechana, Kapha-Vatahara* drugs and *Vatanulomana* are the prime line of treatment in *Tamaka swasa*[5]. *Poushkaradi Kashayam*[6], which contains ingredients like *Poushkara moola, Katphala, Bharangi, Viswa, and Pippali. Pouskara moola*[7] is the first ingredients of this *Kashaya* which is *Agryaushadha* for *Swasa, Kasa, Hikka and Parswasoola.* Since these symptoms seen in *Tamaka swasa, Poushkaradi moola* can be considered as first choice in the management of the same. And other ingredients of this *Kashaya* are *Vata- Kapha hara*. The efficacy of this *Kashaya* in the management of *Tamaka Swasa* need to be assessed. Here it is intended to find out the efficacy of this *kashaya* in the management of *Tamaka swasa* by considering *Dasamoola katutrayam Kashayam* [8] as control drug.

Objectives of the study

1. To evaluate the efficacy of *Poushkaradi Kashayam* in the treatment of *Tamaka swasa* Vis-à-vis to Bronchial asthma.
2. To compare and ascertain the efficacy of *Poushkaradi Kashayam* and *Dasamoola Katutrayam kashayam* in the treatment of *Tamaka swasa* Vis-à-vis to Bronchial asthma.

Materials and Methods: A minimum of 40 patients who fulfilled the diagnostic and inclusion criteria were randomly selected for the study. Registered patients were allotted randomly by lottery method into two equal groups of minimum 20 patients each as Group A and Group B.

Inclusion criteria: Patients with *Pratyatma lakshana* of *Tamaka swasa*s**,** Bronchial asthma of mild and moderate stages, Age between 18 to 60 years and irrespective of their gender.

Exclusion criteria: *Tamaka swasa* associated with the age group below 18 and above 60 years**,** *Tamaka swasa* as *paratantra vyadhi* and was associated with other systemic illness.

Method of Preparation of *kashayam*

1-part drug: 16-part water → boil →1/8th (reduction)[9]
50g of *Kashaya choornam* was taken and added with 800ml of water, heated and reduced to 100ml.

Observation period &Treatment period

Patients were assessed clinically before treatment and on 15th, 30th and 15 days after stoppage of medicine.

The response of patient's disease condition to the drug were observed and recorded before, during and after the treatment according to the specially designed case proforma which included detailed history, physical examination, laboratory investigations and assessment based on the objective and subjective parameters for which appropriate scoring patterns were adopted.

Diagnosis Criteria

The extensive proforma was compiled based on classical signs and symptoms of *Tamaka swasa* w.s.r to Bronchial asthma as per the Ayurveda and modern sciences.

A complete history taking with respiratory system examination were done and collected accordingly. A complete history taking of *Dasavidha pareeksha, nidana panchaka* etc of each patient were compiled and filled in proforma. PEFR and laboratory findings were also considered.

Investigations

Blood – Hb%, TC, DC, ESR, AEC, PEFR, Radiology (if necessary), Sputum- AFB (if necessary)

Study design: Single Blind with pre and post-test design.

Interventions: A minimum of 40 patients who fulfilled the diagnostic and inclusion criteria irrespective

of their gender, cast, religion, education and socio-economic status were taken for the study.

Group A -Trial group

Sample size →20 patients
Intervention drug → *Poushkaradi Kashayam*
Dose → 50 ml twice daily 1 hour before food
Treatment duration → 30 days
Anupana → *Madhu*
Dosage of *Madhu* 12.5 ml.[10]

Group B -Control group

Sample size → 20 patients
Intervention drug → *Dasamoola katutrayam kashayam*
Dose → 50 ml twice daily 1 hour before food
Treatment duration → 30 days
Anupana → Madhu
Dosage of *Madhu* 12.5 ml.[10]

Assessment criteria: Subjects were assessed based on the assessment criteria and were observed for changes in the severity of symptoms on 15th, 30th and 15th day after the stoppage of medicine. Laboratory parameters were observed before and after the treatment.

Subjective: Cough, Breathlessness, Sputum, Difficulty in speech, Body position, Involvement of accessory muscles.

Objective: Peak flow meter test**,** Respiratory rate**,** Breath sounds.

Concomitant Diet and Regimen: Patient was advised the proper diet and regimen according to the disease and patient present conditions and the importance of *pathya* in the case of *tamaka swasa* as it a *yapya vyadhi*. *Pathya* according to the disease, patients can take food which are *laghu*, *ushna,* old rice, barley, wheat, green gram, horse gram, garlic, gooseberry, goats' milk, goats' ghee, old ghee. Patients can also take soup with horse gram and soup with radish and *Ushnodakam. Ushnopacharam* is also essential and should be followed.

Drop-out criteria: 44 patients were selected for the study, 22 in group A and 22 in group B. Out of that total drop-out was 4,2 from group A and 2 from group B.

Adverse effects and compliances: Any adverse effect as such about the drug is not been noted in this study.

Statistical analysis: Students paired "t" test was carried out within the groups and unpaired "t" test between the groups. The results were considered Significant or Insignificant depending upon P value.

Result

Table 1: Effect of treatment in Group -A

Symptoms	Mean BT	Mean	Difference d	%	SD	SE	t	p
Cough	2.1	AT- 0.6	1.5	71.43	0.598	0.134	1.729	0.0002
		AF- 0.1	2	95.24	0.308	0.069	2.093	0.0003
Breathlessness	1.95	AT- 0.25	1.7	87.18	0.83	0.18	1.73	0.021
		AF- 0.05	1.9	97.44	0.44	0.09	2.09	0.04
Sputum	2.1	AT- 0.8	1.3	61.90	0.41	0.092	1.73	0.0001
		AF- 0.3	1.8	85.71	0.47	0.105	2.09	0.0003
Difficulty in speech	1.8	AT - 0.35	1.45	80.56	0.59	0.13	1.73	0.005
		AF- 0.05	1.75	97.22	0.22	0.05	2.09	0.01
Body position	1.95	AT- 0.7	1.25	64.10	0.66	0.15	1.73	0.0001
		AF- 0.2	1.75	89.74	0.52	0.12	2.09	0.0003
Involvement of accessory muscles	1.65	AT- 0.4	1.25	75.76	0.5	0.11	1.73	0.01
		AF- 0.15	1.5	90.91	0.37	0.08	2.09	0.02
PEFR	1.8	AT- 1.2	0.6	33.33	1.005	0.225	1.73	0.08
		AF- 1.1	0.7	38.89	0.91	0.203	2.09	0.162
Respiratory rate	1	AT- 0.35	0.65	65	0.59	0.13	0.165	0.164
		AF- 0.3	0.7	70	0.57	0.13	0.329	0.33
Breath sound	1.75	AT-0.45	1.3	74.29	0.51	0.123	1.729	0.0004
		AF- 0	1.75	100	0	0	2.09	0.0008

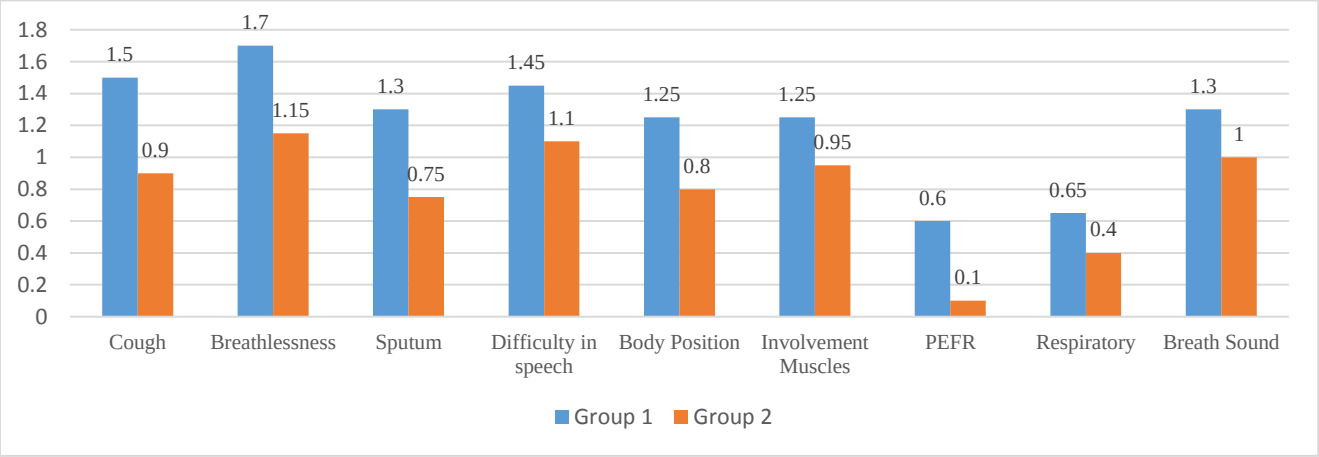
Table 2: Effect of treatment in Group - B

Symptoms	Mean BT	Mean	Difference D	%	SD	SE	t	p
Cough	2.2	AT 1.3	0.9	40.91	0.470	0.105	1.729	0.002
		AF 0.6	1.6	72.73	0.598	0.134	2.093	0.004
Breathlessness	1.9	AT 0.75	1.15	60.53	0.85	0.19	1.73	0.002
		AF 0.4	1.5	78.95	0.64	0.14	2.09	0.004
Sputum	2.05	AT 1.3	0.75	36.58	0.571	0.127	1.73	0.000001
		AF 0.6	1.45	70.73	0.502	0.112	2.09	0.000002
Difficulty in speech	1.9	AT 0.8	1.1	57.89	0.76	0.17	1.73	0.002
		AF 0.45	1.45	76.32	0.51	0.11	2.09	0.004
Body position	2	AT 1.2	0.8	40	0.41	0.091	1.72	0.00001
		AF 0.6	1.4	70	0.59	0.133	2.09	0.00003
Involvement of accessory muscles	1.7	AT 0.75	0.95	55.88	0.44	0.09	1.73	0.005
		AF 0.45	1.25	73.53	0.51	0.11	2.09	0.01
PEFR	1.25	AT 1.15	0.1	8	1.23	0.279	1.73	0.04
		AF 1	0.25	20	1.17	0.261	2.09	0.08
Respiratory rate	0.7	AT 0.3	0.4	57.14	0.47	0.105	1.72	0.16
		AF 0.25	0.45	64.28	0.44	0.09	2.09	0.33
Breath Sound	1.8	AT 0.8	1	55.56	0.52	0.12	1.72	0.001
		AF 0.4	1.4	77.78	0.5	0.11	2.09	0.002

Table 3: Overall Comparative effect of treatment in signs and symptoms in Group A and Group B after treatment

SIGNS & SYMPTOMS	Mean diff AT		SD		t value	p value
	Group A	Group B	Group A	Group B		
Cough	1.5	0.9	0.59	0.47	4.76	0.0001
Breathlessness	1.7	1.15	0.83	0.85	2.87	0.006
Sputum	1.3	0.75	0.41	0.57	3.18	0.002
Difficulty in speech	1.45	1.1	0.59	0.76	2.08	0.045
Body Position	1.25	0.8	0.66	0.41	2.89	0.007
Involvement accessory Muscles	1.25	0.95	0.5	0.44	2.33	0.03
PEFR	0.6	0.1	1.005	1.23	0.14	0.888
Respiratory Rate	0.65	0.4	0.59	0.47	0.29	0.76
Breath Sound	1.3	1	0.51	0.52	2.14	0.04

Graph -1



Overall Comparative effect of treatment in signs and symptoms in Group A and Group B after treatment and after follow up respectively.

The result showed, in the case of cough there was a relief of 71.43% in group A while 40.91 % in group B after treatment and was 95.24% in group A while 72.73 % in group B after follow up. In the case of breathlessness, there was a relief of 87.18% in group A while 60.53% in group B. There was a relief of 97.44% in group A, while 78.95 % in group B. In the case sputum, there was a relief of 61.90% in group A while 36.58 % in group B. Relief in sputum was 85.71% in group A while 70.73 % in group B In the case of difficulty in speech, there was a relief of 80.56 % in group A while 57.89 % in group B. Relief in difficulty in speech was 97.22% in group A while 76.3 2% in group B. In the case of body position, there was a favorable change of 64.10 % in group A while 40 % in group B. Relief in body position was 89.74% in group A while 70 % in group B. In the case of involvement of accessory muscles, there was a favorable change of 75.76% in group A while 55.88 % in group B. There was a relief of 90.91% in group A while 73.53 % in group B. Relief in PEFR was 33.33% in group A while 8 % in group B. Relief in PEFR was38.89% in group A while 20 % in group B. In the case of respiratory rate, there was a relief of 65 % in group A while 57.14% in group B. Relief in RR was 70% in group A while 64.28 % in group B. In the case of breath sound, there was a relief of74.29% in group A while 55.56 % in group B. Relief in breath sound was 100% in group A while 77.78 % in group B.

By evaluating all the parameters, *Poushkaradi kashayam* got more clinically significant result (percentage of improvement) in all the parameters than *Dasamoola katutrayam kashayam*. By statistical analysis, the parameter of breathlessness, *Poushkaradi kashayam* got more significant result than *Dasamoola katutrayam kashayam*. Parameters like sputum and body position, *Dasamoola katutrayam kashayam* got more significant result than *Poushkaradi kashayam*. All other parameters like cough, difficulty in speech, and involvement of accessory muscles both the *kashayas* got equally significant result. The parameters like PEFR and RR got non-significant result in both the *kashayas* after the follow-up.

DISCUSSION

Treatment protocol aims for *vatakaphahara* and *vatanulomana*. As *Tamaka swasa* is *pittastana samuthbhava,* by correcting the *Agni (jadaragni),* thereby creating equilibrium of *doshas.* Pathogenesis of *Tamaka Swasa* always involves *V-K doshas*.

Probable Mode of Action of Drugs:

Poushkaradi Kashayam is mentioned in *Sahasrayoga*. Its ingredients are *Poushkaramoola, Katphala, Bharangi, Vishwa, Pippali*. Most of the drugs in this *Kashaya* having *Kapha - Vata hara* properties, *Tiktha–Katu rasa* and *Katu vipaka*. All the drugs are having *Ushna veerya* properties. *Poushkaramoola*, *Vishwa*, and *Pippali* are having *deepana* properties. *Pippali* is having *rasayana* properties.

Poushkaramoola have potential Bronchodialatory properties. And have Anti-allergic activity, Anti-inflammatory and Analgesic activity, Mast cell stabilization activity[11]. *Katphala* is having Anti-inflammatory action, Anti-allergic action, Mast cell stabilizing impact, effective in chronic cough and asthma[12].*Bharangi* have Anti-bacterial and Anti-inflammatory activity.[13]*Pippali* is having Anti-allergic, Anti-bacterial activities and it is useful in intestinal and respiratory disorders.[14] *Vishwa* has anti-viral activity against human respiratory syncytial virus in human respiratory tract cell lines.[15]

Dasamoolakatutrayam Kashaya is also mentioned in *Sahasrayoga*. Its ingredients are drugs under *dasamoolam, trikatu* and *vasa*. Most of the drugs in this *kashaya* having *Katu –Tiktha rasa*. Except *Gokshura* and *Vasa* all are having *ushna veerya* properties. Except *Gokshura, Salaparni, Prisniparni* and drugs under *trikatu (Madhura vipaka)* having *katu vipaka*. Majority of drugs having *Kapha –Vata* hara properties and a few having *tridoshahara* properties and *Gokshura* is having *Vata Pittahara* properties. *Vishwa*, and *Pippali* are having *deepana* properties. *Pippali* is having *rasayana* properties.

CONCLUSION

The *Lakshanas* found under *Tamaka swasa* are like the clinical features of Bronchial asthma. Maximum incidence was found in male and in the age group between 40-60 years. Exposure to household dust, sweepers, salesmen, those who are prone to travelling etc. has also been observed as potential triggers. Based on the parameters explained under discussion part, *Poushkaradi kashayam* has better result than *Dasamoola katutrayam kashayam* in the management of *Tamaka swasa*. *Poushkaradi kashaya* is more effective in acute cases of *Tamaka swasa* and *Dasamoola katutrayam kashaya* is more effective in chronic cases of *Tamaka swasa*. Since it is a *yapya vyadhi*, patients are advised to be follow the same medication and *pathya* for their better & persistent relief from the symptoms.

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