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MANAGEMENT OF TAMAKA SHWASA VIS-A VIS BRONCHIAL ASTHMA WITH TEKARAJA CHURNA, NAYOPAYA KASHAYA AND VASAVALEHA- A CLINICAL TRIAL

Shrikanta[1], Mytrhey R C[2]

[1]PG Scholar, [2]Professor and HOD, Department of Post Graduate studies in Kayachikitsa. GAMC, Mysuru, India.

Corresponding Author: shrikantsoudri@gmail.com

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ABSTRACT

Tamaka shwasa is one of the five types of *shwasa*. It is predominantly *kaphavataja vyadhi* originating from *pittasthana*. Aggravated *vata* leads to its *pratiloma gati* and enters *pranavaha srotas* afflicts the *kapha* produces *peenasa, ghurghuraka, shwasakricchrata, kasa, pramoha, parshvagraha, Vishushkaasyata*. This disease shows a close resemblance with bronchial asthma. Bronchial asthma is a multi-factorial disease, which needs treatment at different levels. Formulations that act on agnimandya, and shwasa, and which also possess the rasayana property are to be selected. Drugs having *Kaphavataghna, ushna*, and *vatanulomana* properties are useful in the management of *tamaka shwasa*. In the present study, the combined efficacy of *Tekaraja churna*, Nayopaya kashaya, and Vasavaleha was assessed based on both objective and subjective criteria.

Keywords: Tekaraja churna, vasavaleha, nayopaya kashaya, tamaka shwasa, bronchial asthma.

INTRODUCTION

Asthma is a type of hypersensitive reaction in a group of genetically susceptible individuals. According to the global initiative for asthma (GINA), asthma is defined as a chronic inflammatory disorder of the airways which is associated with airway hyper responsiveness. It leads to recurrent episodes of wheezing, breathlessness, chest tightness, and coughing particularly at night and in the early morn-

ing. Asthma affects both children and adults. It is estimated that as many as 300 million people of all ethnic backgrounds suffer from asthma. The prevalence of asthma in india is 2.5-5.0%. In contemporary medical science, the management of bronchial asthma is carried out with the usage ofbronchodilators, leukotriene antagonists, mast cell stabilizers, and corticosteroids. These drugs have proven effective in the management of bronchial asthma. Still, long-lasting usage produces adverse effects and also reduces the effectiveness of therapy. Hence there is a need for natural herbal alternatives which can give long-term benefits. Research on individual drugs of these formulations shows bronchodilator, anti-inflammatory, and antioxidant action. Thus, with the background of theoretical and research studies, the following formulations were selected for the study viz, *nayopayam kashaya* and *vasavaleha*.

OBJECTIVE OF STUDY

To evaluate the combined efficacy of Tekaraja churna, Nayopayam kashaya, and vasavaleha in the management of Bronchial asthma vis-à-vis Tamaka shwasa.

MATERIALS AND METHODS

MATERIALS: The Materials used in the study were: Tekaraja churna[1], Nayopaya kashaya[2], Vasavaleha[3]

Details of these drugs are detailed below.

TEKARAJA CHURNA

Table no 1: showing ingredients of *Tekaraja churna*

Name of plant	**Botanical name**	***Rasa***	***Guna***	***Virya***	***Vipaka***	***Karma***
Bharangi	Clerodendrum serratum	*Katu, tikta, kashaya*	*Laghu Ruksa*	*Ushna*	*Katu*	*Vatakaphahara, deepana Pachana*
Pushkaramula	Inula racemosa	*Katu, tikta*	*Laghu*	*Ushna*	*Katu*	*Kapha Vatajit*
Maricha	Piper nigram	*Katu, tikta*	*Laghu, teeksh-na Ruksa*	*Ushna*	*Katu*	*Deepana, chedana, ruchya, kapha Vatajit*
Pippali	Piper longum	*Madhura, Katu, tikta*	*Laghu, Snigdha*	*Anushna*	*Madhura*	*Deepana, ra-sayana, vrushya, rechaka, va-takaphahara*
Hareetaki	Terminalia chebula	*Madhura, Amla Katu, tikta, Kashaya*	*Laghu, Ruksa*	*Ushna*	*Katu*	*Deepana, hridya, Medya, Anulomana, Rasayana*
Bhringaraja	Eclipta alba	*Katu, tikta*	*Laghu, Ruksa*	*Ushna*	*Katu*	*Kaphavatahara Rasayana Keshya Balya*
Saindhava la-vana	-	*Lavana*	*Sukshma Snigdha Laghu Anabhishandi*	*Shita*	*Madhura*	*Deepana Pachana Tridoshahara*

NAYOPAYAM KASHAYA

Table no 2: showing *rasa panchaka* of *nayopayam kashaya*

Name of plant	Botanical name	*Rasa*	*Guna*	*Virya*	*Vipaka*	*Karma*
Bala	Sida cordifolia	*Madhura*	*Guru, snigdha, picchila*	*Shita*	*Madhura*	*Vatakaphahara*
Jiraka	Cuminum cyminum	*Katu*	*Laghu Ruksa*	*Ushna*	*Katu*	*Deepana Pachana Vednasthapana*
Sunthi	Zingiber offic-inale	*Katu*	*Laghu Ruksa Snighda Guru*	*Ushna*	*Madhura*	*Deepana, pachana, kaphaghna, Swasaha-ra, kasaghna,*

VASAVALEHA

Table no 3: showing *rasa panchaka* of *vasavaleha*

Name of plant	Botanical name	*Rasa*	*Guna*	*Virya*	*Vipaka*	*Karma*
Vasa	Adhatoda vasica	*Tikta*	*Rukshna*	*Sheeta*	*Katu*	*Deepana, anuloma*
Pippali	Piper longum	*Katu*	*Rukshna*	*Sheeta*	*Madhura*	*Deepana, anuloma*
Sita		*Madhura*	*Snigdha*	*Sita*	*Madhura*	*Vatahara, dhatuvri-dhakara*
Go-ghrita		*Madhura*	*Snigdha, guru*	*Sheeta*	*Madhura*	*Tridoshahara*
Madhu		*Kashaya, madhura*	*Rukshna, guru, picchi-la, yogavahi*	*Sheeta*	*Madhura*	*Tridoshahara*

MATERIALS:

The materials taken for the study were

1. ***Tekaraja churna***
2. ***Nayopayam kashaya***
3. ***vasavaleha***

1. *Tekaraja churna*

Tekaraja churna specifically prepared for the study was procured from S N Pandit and sons co Pvt, Lim-ited, a GMP-certified ayurvedic medicine, and man-ufacturer, in Mysuru.

2. *Nayopayam kashaya*

Nayopayam kashaya for the study specifically pre-pared for the study was procured from S N Pandith and sons co Pvt, Limited, a GMP-certified ayurvedic medicine, and manufacturer, in Mysuru.

3. *Vasavaleha*

Vasavaleha for the study was procured from Alva's ayurveda pharmacy, Dakshina Kannada, Karnataka.

METHODS – SOURCE OF THE DATA

Subjects were selected from the OPD and IPD of Government Ayurveda Medical College and Hospi-tal, Mysuru, and Government Hi-Tech Panchakarma Hospital- a teaching hospital, Mysuru, and special was also conducted for the study.

SAMPLE SIZE

The study was completed on 15 subjects of tamaka shwasa vis-à-vis Bronchial asthma. The selected subject's detailed profile was prepared as per the proforma designed for the study.

SAMPLING METHOD

It was a clinical study with a pre-post-test design.

INCLUSION CRITERIA

- Subjects between the age group of 18-60 years were included irrespective of gender.
- Subjects having *pratyatma lakshana* of *tamaka shwasa* i.e., *peenasa, Ghurghuraka, shwasa, kasa, Pramoha, Parshvasgraha, lalata sweda, Vishushkashyate* were included.
- Subjects with classical signs and symptoms of bronchial asthma of mild to moderatenature as per GINA criteria were included.
- Both fresh and treated cases presenting with the symptoms of *tamaka shwasa* vis-a-vis bronchial asthma were selected. (Fresh cases include freshly detected and untreated cases of *tamaka shwasa* vis-a-vis bronchial asthma and Treated cases include those already diagnosed as *tamaka shwasa* vis-à-vis bronchial asthma) were included with a flush-outperiod of 7 days. (If they were on active treatment)

EXCLUSION CRITERIA

- Subjects having bronchial asthma with infective conditions like pulmonary tuberculosis, and pneumonia was excluded.
- Subjects with uncontrolled diabetes mellitus and hypertension were excluded (RBS>300mg/dl, bloodpressure>160/100mm of hg)
- Pregnant and lactating mothers were excluded.
- Subjects with severe persistent bronchial asthma as per GINA criteria were excluded.

DIAGNOSTIC CRITERIA

The diagnosis was done on the basis of signs and symptoms, as mentioned in *Ayurveda* and contemporary medical science and GINA criteria for bronchial asthma.

LAKSHANA OF TAMAKA SHWASA ARE:

1. *Swasakrichrata* (Dyspnea)
2. *Kasa* (Cough)
3. *Kapha nishtivanam* (expectoration)
4. *Ghurghuraka* (Wheezing)
5. *Peenasa* (Coryza)
6. *Parshwagraha* (chest tightness)
7. *Aseeno labhate Soukhyam* (comfortable in sitting posture)
8. *Vishushkaasyata* (Dryness of mouth)

ASSESSMENT PARAMETERS

Medicines were given for 30 days and grading of symptoms and PEFR assessment was done on the 0^{th} dayand 31^{st} day.

PRIMARY ASSESSMENT CRITERIA:

Peak Expiratory Flow Meter Rate in Lit/m

Table showing assessment grades of PEFR

peak expiratory flow meter rate of more than 300Lit/m	0(Normal)
peak expiratory flow meter rate 200 –300 Lit/m	1(Mild)
peak expiratory flow meter rate 80—200 Lit/m	2(Moderate)
peak expiratory flow meter rate less than 80Lit/m	3(Severe)

SECONDARY ASSESSMENT CRITERIA:

Grading was given for subjective symptoms of tamaka shwasa for the following complaints[4].

1. *Swasakrichrata* (Dyspnea)
2. *Kasa* (Cough)
3. *Kapha nishtivanam* (expectoration)
4. *Ghurghuraka* (Wheezing)
5. *Peenasa* (Coryza)
6. *Parshwagraha* (chest tightness)
7. *Aseeno labhate Soukhyam* (comfortable in sitting posture)
8. *Vishushkaasyata* (Dryness of mouth)

ASSESSMENT SCHEDULE

The first assessment (Pre-test) was done before administering the intervention (0^{th} day) and the second assessment (Post-test) was done after the completion of the intervention. i.e., on the 30^{th} day.

INVESTIGATIONS

Necessary investigations were conducted in required cases to rule out other systemic diseases or complications.

INTERVENTION

- 12 grams of *Tekaraja churna* with honey as *anupana* in three equally divided doses after the food was administered to subjects.
- 90ml of *nayopayam kashaya* in three equally divided doses with lukewarm water after the food was administered to subjects.
- 12grams of *vasavaleha* in three equally divided doses with lukewarm water after the food was administered to subjects.

STATISTICAL METHODS

The results were analyzed statistically by using the following statistical methods:

Descriptive statistics –Mean, Standard deviation, Frequency, Percent

Inferential testing-

- Chi-square test
- Repeated measures ANOVA
- Paired sample and individual sample "T" test

All the statistical methods were done using SPSS for windows

OBSERVATION AND RESULTS

In the present study, a total of 15 subjects were registered for the study. The observations were made in all the registered subjects based on the parameters like age, gender, religion, education, Socioeconomic status, Occupation, locality, family history, history of atopy, *ahara, shwasakricchrata, kasa, kapha nistivana, ghurghuraka, peenasa, parshwagraha, aseeno labhate soukhyam, shushkasyata, purvarupa,* and *nidanarthakara roga.* The statistical analysis of the results was done using descriptive statistics and Chi-square test analysis using Service product for statistical solution (SPSS) for windows software. Among 15 patients, a maximum of 4 belonged to the age group 20-30years, 3 belonged to the age group 31-40 years, 7 subjects belonged to the age group 40-50 years and 3 belonged to the age group 50-60years, 8 were male and 7 were female, 10 were Hindu, 5 belonged to Islam religion. Among 15 subjects, 4 were daily wage workers, 3 were students, 2 were factory workers, and 6 subjects were homemakers. Among 15 subjects, 12 were from Urban areas and 3 belonged to Rural areas. Among 15 individuals, 13 subjects had mixed food habits and 2 were vegetarians. It was observed that a family history of Bronchial asthma was present in 12 individuals and absent in 3 individuals. In the present study, among 15 volunteer's different sites of onset were observed. In majority, had childhood onset i.e., 10 subjects and 5 had adult-onset bronchial asthma. All 15 subjects reported worsening symptoms in winter and rainy seasons.

RESULTS

The data was collected from the subjects based on the scoring given to each of the symptoms as mentioned in the assessment criteria. The data was collected before and after the intervention of the study. The results were analyzed statistically, and an overall assessment was done. Since the data was following a normal distribution pattern, Nonparametric tests like Chi-Square and Wilcoxon sign rank tests were used for the statistical analysis.

1. PEFR

13 subjects had improvement in PEFR reading, and 2 subjects had the same grade of PEFR after the completion of the intervention.

2. SHWASAKRICCHRATA

11 subjects had improvement in *shwasakricchrata*, 4 subjects had the same grade of *shwasakricchrata* and none of them had increased *shwasakricchrata* after the completion of the intervention period.

3. *KASA*

In group B, 8 subjects had improvement in *kasa*, seven subjects had the same grade of *kasa* after the completion of the intervention period.

4. *KAPHA NISHTIVANA*

11 subjects had improvement in *kapha nishtivana*, and 4 subjects had the same grade of *kapha nishtivana* after the completion of the intervention period.

5. *GHURGHURAKA*

11 subjects had improvement in *ghurghuraka*, and 4 subjects had the same *ghurghuraka* after the completion of the intervention period.

6. *PEENASA*

4 subjects had improvement in *peenasa*, and 10 subjects had the same grade of *peenasa* after the completion of the intervention period.

7. PARSHWAGRAHA

6 subjects had improvement in *parshwagraha*, 8 subjects had the same grade of *parshwagraha*, and one subject had increased *parshwagraha* after the completion of the intervention period.

8. ASEENO LABHATE SOUKHYAM

7 subjects had improvement in *aseeno labhate soukhyam*, 7 subjects had the same grade of *aseeno labhate soukhyam* and 1 subject had increased *aseeno labhate soukhyam* after the completion of the intervention period.

9. SHUSHKASYATA

6 subjects had improvement in *shushkasyata*, and 9 subjects had the same grade of *shushkasyata* after the completion of the intervention period.

DISCUSSION

PROBABLE MODE OF ACTION OF *TEKARAJA CHURNA*

Tekaraja churna is mentioned in *sahasrayoga churna prakarana.* It contains 6 ingredients *bharangi, pushkaramula, maricha, pippali, haritaki,* and *saindhava lavana*. The main ingredient of this *churna* is one *kudava (*192 grams*)* of *maricha,* which is boiled with *bhringaraja swarasa* till the complete evaporation of liquid. Then the remaining *churna* is added with the quantity of one *tola* each. Formulations having *kapha-vatahara*, *ushna*, and *vatanulomana* drugs are more suitable for *tamaka shwasa*[5]. The contents of *Tekaraja churna* have all these properties, hence the formulation is suitable for *tamaka shwasa*. Drugs like *bharangi* and *pushkaramula* possess *Shwasahara* property. *Bharangi* is mentioned under *Shwasahara Dashemani gana* in *charaka samhita.* It has *kapha vatahara* property and has *ushna guna.* It is a proven bronchodilator and mast cell stabilizing drug through various research. *Maricha* and *pippali* have the properties such as *katu, tikta rasa,* and *ushna veerya.* These drugs have *kaphahara* property which acts as a mucolytic agent and helps to liquefy the accumulated mucus in the airways. Piperine which is the common phytoconstituent in both *maricha* and *pippali* reduces Th2 cytokines (interlukin-4, interlukin-5) and histamine production.[181] Both of them have *deepana, and pachana* properties which help to treat associated *agnimandya* in *tamaka shwasa*. *Pratiloma gati* of *vayu* is said to be the root cause of *tamaka shwasa*. *Haritaki* has *vatanulomana* property. It also has anti-inflammatory action by inhibiting nitric oxide synthesis. *Saindhava lavana* has *kapha vilayana* and *kapha chedaka* properties which help to prevent the accumulation of mucus in the airways. *Sroto shodhana* action of *saindhava* helps to keep airways patent in *tamaka shwasa* patients. *Bhringaraja* is of *ruksha and ushna guna* which helps in causing the *shoshana* of excess mucus in the airways. Its extracts are shown significant immunomodulatory action by increasing phagocytosis.

PROBABLE MODE OF ACTION OF *NAYOPAYAM KASHAYA*

This *kashaya yoga* is explained in *kashaya prakarana* of *sahasrayoga*. On analysing the *rasa panchaka* of *nayopayam kashaya*, it is observed that most of the drugs are having *katu rasa, laghu-ruksha-teekshna* and *sukshma guna, ushna veerya* and *katu vipaka*. *Katu rasa* does *deepana, pachana, kleda shoshana*, and reduces *kapha*. It removes *Srotorodha* and facilitates the normal flow of *vata* through the airways. The constituents of *nayopayam kashaya* namely *bala* and *Jeeraka* help in bringing back the normal movement of *vata*. *Bala* has also got the qualities like *brimhana* and *rasayana,* thereby improving the functions of *pranavaha srotas. Shunti* helps in *kapha vilayana* and is *kasaghna*. *Bala* has got anti-inflammatory action and anti-spasmodic action (Histamine induced). Aqueous extract of *shunti* decreases the formation of prostaglandins and leukotrienes which are believed to be the initiators of the pathogenesis of bronchial asthma. Gingerol is an active constituent of this drug and possesses antitussive action. It can be concluded that the airway resistance caused due to inflammatory process, bronchial spasms and excessive mucus

production can be best treated by the use of *nayopayam kashaya*.

3. PROBABLE MODE OF ACTION OF *VASAVALEHA*

Vasavaleha is explained in the *Rajyakshma adhikarara* of *bhaishajya ratnavali*. On analysing the *rasa panchaka* of *vasavaleha*, it is observed that most of the drugs are having *katu*, *tikta* and *madhura rasa*, *laghu-rukshna-teekshna guna* and *katu, madhura vipaka*. *Vasavaleha* acts on the disease by *vata-kaphaghna karma*. *Sukshma* and *teekshna guna* of *vasa*, *pippali*, and *madhu* help in *Kapha vilayana*. *Vatahara* drugs such as *sita, and ghrita* helps in *vatanulomana* and thereby normalising the *gati* of *prana* and *udana*. *Ghrita*, *pippali* also acts on *pitta sthana* by improving the function of *agni*. *Ghrita* and *pippali* help in improving the immunity of the body with their *rasayana guna*, thus preventing the recurrence of symptoms. Vasicine which is an active constitute of the drug *vasa* has an expectorant action. Bromhexine and vasaka which are known as expectorants are derived from the plant *vasa.* Bromhexine has mucolytic action and Vasaka is a secretion enhancer drug that increases the water content of secretions and makes it easier to expectorate the excess mucus.

CONCLUSION

Management of tamaka shwasa vis-a-vis bronchial asthma with a combination of Tekaraja churna, Nayopaya kashaya, and Vasavaleha was found effective both statistically and clinically. A multidimensional approach was found beneficial. Correcting the agni at the level of amashaya with Nayopaya kashaya is helpful in mitigating the kledaka kapha and preventing the frequency of attacks. Tekaraja churna has both bronchodilator as well as mucolytic action whose action is specifically needed for asthma. The presence of vasavaleha has both vyadhi pratyanika as well as rasayana kind of action. So present combination of formulations has the potential to relive all kinds of asthma symptoms, effective in reducing the frequency of attacks. No severe adverse effects were observed during the course of the intervention.

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