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A clinical study to evaluate the efficacy of *Tekaraja Churna* in the management of *Tamaka Shwasa vis-a-vis* Bronchial Asthma

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ABSTRACT

Tamaka Shwasa is one among 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, Vishuskasyata*. This disease shows close resemblance with bronchial asthma. According to global initiative for asthma (GINA), asthma 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 early morning. Asthma affects both children and adults. It is estimated that as many as 300 million people of all ethnic backgrounds suffer from asthma. Prevalence of asthma in india is 2.5-5.0%. In this present study, *Tekaraja Churna* mentioned in *Sahasrayoga* was selected for the management of mild to moderate grade bronchial asthma.

Key words: *Tekaraja Churna, Tamaka Shwasa, Bronchial Asthma*

INTRODUCTION

In the modern urban world, many hazardous agents from the environment as well from the industries concentration of pollutants is increasing in the air. Hazardous agents from the environment are producing wide variety of diseases in human beings, one such disease is bronchial asthma. Studies have explored the potential role of indoor and outdoor allergens, microbial exposure, diet, vitamins, breast feeding,

tobacco smoke, air pollution and obesity but no clear consensus has emerged. Many among asthmatics need daily medication. Doctrines and practice of any medicinal scheme does not claim effective treatment that can abolish this illness from the root. There is need of evolving more effective treatment which relieves human sufferings. Hundreds of medicinal combinations are mentioned in the classics for the treatment of *Tamaka Shwasa* and are claimed to be effective. But very few of such medicinal measures are proved by method of randomized clinical study. Hence there is a dire requirement of exploring the efficacy of remaining therapeutic measures. In the current study, *Tekaraja Churna* which consists *Bharangi, Pushkaramula, Maricha, Pippali, Haritaki, Bhrngaraja* which are having *Katu, Tikta, Kashaya Rasa, Ushna Virya, Katu Vipaka, Kapha-Vataghna* and *Shwasahara* properties. Drugs such as *Pippali* and *Haritaki* has *Rasayana* property also. These properties may help in *Samprapti Vighatana* of the *Tamaka Shwasa*. Researches on individual drugs of this formulation shows bronchodilator, anti-inflammatory and anti-

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oxidant action. Thus, with the background of theoretical and research studies, this formulation was selected for the study.

OBJECTIVE OF STUDY

To evaluate the efficacy of *Tekaraja Churna* in the management of *Tamaka Shwasa*.

vis-à-vis Bronchial Asthma

MATERIALS AND METHODS

Materials

The Materials used in the study were:

Tekaraja Churna^[1]

In the present study *Tekaraja Choorna* was selected, details of the drugs are detailed below.

Name of plant	Botanical name	Rasa	Guna	Virya	Vipaka	Karma
<i>Bharangi</i>	Clerodendrum serratum	Katu, Tikta, Kashaya	Laghu, Ruksha	Ushna	Katu	Vatakapahara, Deepana, Pachana
<i>Pushkaramula</i>	Inularis racemosa	Katu, Tikta	Laghu	Ushna	Katu	Kaphavatajiti
<i>Maricha</i>	Piper nigrum	Katu, Tikta	Laghu, Teekshna, Ruksha	Ushna	Katu	Deepana, Chedana, Ruchya, Kaphavatajiti
<i>Pippali</i>	Piper longum	Madhura, Katu, Tikta	Laghu, Snigdha	Anushna	Madhura	Deepana, Rasayana, Vrushya, Rechaka, Vataka

						phahara
<i>Hareetaki</i>	Terminalia chebulata	Madhura, Amla, Katu, Tikta, Kashaya	Laghu, Ruksha	Ushna	Katu	Deepana, Hridya, Medya, Anulomana, Rasayana
<i>Bhringaraja</i>	Eclipta alba	Katu, Tikta	Laghu, Ruksha	Ushna	Katu	Kaphavatahara, Rasayana, Keshya, Balya
<i>Saindhava Lavana</i>	-	Lavana	Sukshma, Snigdha, Laghu, Anabhishtyandi	Shitana	Madhura	Deepana, Pachana, Tridoshahara

Source of drugs and method of preparation

Tekaraja Churna were specifically prepared for the purpose of the study and procured from SN Pandit and sons Pharmacy (GMP Certified Unit), Shankar matt main road, opposite to Nataraja Choultry, Mysuru.

Methods

Source of the data

Subjects were selected from the OPD and IPD of Government Ayurveda Medical College and Hospital, 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 preformed designed for the study.

Sampling method

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

Inclusion Criteria

- Subjects between the age group of 15-60 years were included irrespective of gender.
- Subjects having *Pratyatma Lakshana* of *Tamaka Shwasa* i.e. *Peenasa, Ghurghuraka, Shwasa, Kasa, Pramoha, Parshvagraha, Lalata Sweda, Vishushkasyata* were included.
- Subjects with classical signs and symptoms of bronchial asthma of mild to moderate nature 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 includes; freshly detected and untreated cases of *Tamaka Shwasa* vis-a-vis bronchial asthma and Treated cases includes; already diagnosed as *Tamaka Shwasa* vis-à-vis bronchial asthma) were included with flush out period of 7 days. (if they were on active treatment)

Exclusion Criteria

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

Diagnostic Criteria

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

Assessment Parameters

Medicines were given for 30 days and grading of symptoms and PEFr assessment was done on 0th day, and 31st day.

Primary Assessment Criteria

Peak Expiratory Flow meter Rate in Lit/m

Peak expiratory flow meter rate more than 300 Lit/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 80 Lit/m	3 (Severe)

Secondary Assessment Criteria

Grading was done for subjective symptoms of *Tamaka Shwasa* for the following complaints.^[2]

- Shwasakricchrata* (Dyspnea)
- Kasa* (Cough)
- Kapha Nishtivanam* (expectoration)
- Ghurghuraka* (Wheezing)
- Peenasa* (Coryza)
- Parshwagraha* (chest tightness)
- Aseeno labhate Soukhyam* (comfortable in sitting posture)
- Vishushkaasyata* (Dryness of mouth)

Assessment Schedule

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

Investigation

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 food was administered in 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 were 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 3 belonged to the age group of 20-30years, 6 belonged to the age group 31-40 years, 3 subjects were belonged to the age group 40-50 years and 3 belonged to age group 50-60years, 8 were male and 7 were female, 12 were Hindu, 3 belonged to Islam religion. Among 15 subjects, 3 were daily wage worker, 3 were students, 3 were factory workers, 5 subjects were homemakers, and 1 subject was bank employ.

Among 15 subjects, 13 were from urban area and 2 belonged to rural area. Among 15 individuals, 13

subjects had mixed food habits and 2 were vegetarians. It was observed that family history of Bronchial asthma was present in 10 individuals and absent in 5 individuals. In the present study, among 15 volunteer's different sites of onset were observed. In majority, had childhood onset i.e., 9 subjects and 6 had adult onset bronchial asthma. All 15 subjects reported with worsening of 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 analysed statistically and overall assessment was done. Since the data was following normal distribution pattern, Non parametric tests like Chi Square, Wilcoxon sign rank tests were used for the statistical analysis.

1. PEFR

11 subjects had improvement in PEFR reading, 3 subjects had same grade of PEFR and 1subject had worsening of PEFR after the completion of the intervention period.

2. Shwasakricchrata

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

3. Kasa

12 subjects had improvement in *Kasa*, 3 subjects had same grade of *Kasa* after the completion of the intervention period.

4. Kapha Nishtivana

12 subjects had improvement in *Kapha Nishtivana*, 1 subject had same *Kapha Nishtivana* and 2 subjects had increased *Kapha Nishtivana* after the completion of the intervention period.

5. Ghurghuraka

12 subjects had improvement in *Ghurghuraka*, 2 subjects had same *Ghurghuraka* and 1 subject had

increased *Ghurghuraka* after the completion of the intervention period.

6. *Peenasa*

8 subjects had improvement in *Peenasa*, 7 subjects had same grade of *Peenasa* after the completion of the intervention period.

7. *Parshwagraha*

12 subjects had improvement in *Parshwagraha* 3 subjects had same grade of *Parshwagraha* after the completion of the intervention period.

8. *Aseeno Labhate Soukhyam*

9 subjects had improvement in *Aseeno Labhate Soukhyam* 6 subjects had same grade of *Aseeno Labhate Soukhyam* after the completion of the intervention period.

9. *Shushkasyata*

1 subjects had improvement in *Shushkasyata*.

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*. 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* are added with the quantity of one *Tola* each. Formulations having *Kapha-Vatahara*, *Ushna* and *Vatanulomana* drugs are more suitable for *Tamaka Shwasa*.^[3] Contents of *Tekaraja Churna* has 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 researches. *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. Both of them have *Deepana*, *Pachana* property 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 Chhedaka* properties which help to prevent accumulation of mucus in 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.

CONCLUSION

Tekaraja Churna was found effective in the management of *Tamaka Shwasa* vis-a-vis bronchial asthma both statistically and clinically. No severe adverse effects were observed during the course of intervention. Few subjects complained of burning sensation at epigastric region while taking this *Churna*. This might be due to underlying gastritis in them and all of them were belonged to *Pitta Prakruti*. So, it is important to assess the *Prakruti* of individual before administering the *Tekaraja Churna*. Drugs like *Maricha*, *Pippali* may cause *Pitta Prakopa* in susceptible individuals. Reducing dose or changing the *Anupana* can be helpful in such patients.

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