

## ORIGINAL RESEARCH ARTICLE

# A Clinical Trial to Determine the Efficacy of *Abhaya Nagara Churna* in the Management of *Tamaka Swasa*~Bronchial Asthma

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### ABSTRACT

**Background:** *Tamaka Swasa* is the manifestation of vitiated *Kapha* and *Vata Dosha* in the form of various symptoms such as *Swasakrucchrata*, *Kasa*, and *Pinasa*, which are associated with vitiation of *Pranavaha Srotas*. It shares various similarities with Bronchial Asthma which is an airway disease manifesting as recurrent episodes of dyspnea, cough, nasal congestion, and wheezing.

**Objective:** This study was aimed to evaluate the effectiveness of *Abhaya Nagara Churna* in improving the value of symptom severity score of five major symptoms of *Tamaka Swasa* along with the action of drug in reduction of inhaler use and diurnal symptom frequency reduction.

**Material and Methods:** The study was single-centered and open-label clinical trial involving participation of 30 subjects diagnosed with asthma and fulfilling the conditions mentioned in inclusion criteria. Patients were administered *Abhaya-Nagara Churna* for 28 days in 3:1 ratio twice daily with warm water after every meal. Evaluation of Inhaler use frequency, nocturnal and daytime symptom frequency, and symptom severity were done and observations were drawn using suitable statistical tests.

**Results:** The observation on the various parameters established a statistically significant improvement in all parameters with p-value and percentage relief for *Swasa Vega* (Frequency) as 0.00057 and 10.64% respectively, for *Swasa Vega* (Duration) 0.000023 and 50%, for *Swasa Vega* (Intensity) 0.000083 and 32.05%, for *Swasakrucchrata* 0.0832 and 10.34% and for *Ghurghurakama* 0.0000273 and 73.33%, for *Asino Labhate Saukhayama* 0.00010 and 93.75%, for *Kasa* 0.0000096 and 96%, for Inhaler Use 0.000059 and 23.36%, for nocturnal symptoms 0.000013 and 38.10%, for daytime symptoms 0.000028 and 22.83%.  $P < 0.5$  for all assessment criteria except for *Swasakrucchrata*, is signifying significant effect of drugs on all diagnostic parameters.

**Conclusion:** It is concluded that *Abhaya-Nagara Churna* effectively counters the symptomatic component of *Tamaka Swasa* along with improving overall quality of life in patients.

## 1. INTRODUCTION

*Tamaka Swasa* is a *Pranavaha Sroto Vikara* where the term “*Tamaka*” is derived from “*Tama Glanou*” or “*Tamyati Anena Iti Tamaka*,” which defines the term *Tamaka* as a diseased condition presented with tiredness/sadness or darkness in front of eyes.<sup>[1]</sup> It derives its root from the term “*Tam*” which translate to “chest oppression.” *Swasa* is derived from root *Swasa*

with *Ghanj Prataya* which means to respire.<sup>[2]</sup> *Swasa* can be interpreted in two ways, viz, *Vayu Vyapare Rogabhede* which means the term *Swasa* has two meaning, that is, natural respiration and a type of disease. According to Acharaya Shushruta, when “*Prana Vayu*” becomes *Viguna* and attains *Pratiloma gati* and gets obstructed by *Kapha*, it is unable to perform its normal functions and the condition is known as *Swasa Roga*.<sup>[3]</sup>

The disease is manifested as a result of various aggravating factor which vary from environmental triggers to deranged food and lifestyle habits. The environmental triggers responsible for causing *Tamaka Swasa*

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involves *Sheeta Sthana Ambu* (cold environment and water), *Raja* (Dust), *Megha* (cloudy or Rainy seasons), and *Dhuma* (Smoke).<sup>[4]</sup> The lifestyle habits that vitiate the natural state of the body and result in derangement of *Doshas* include *Ati Vyayama* and *Gramyadharm* (increased exercise and sexual activities), *Apatarpana* (Excess fasting), *Ruksha Ahara* (Dry diet), *Vishamasana* (irregular diet)<sup>4</sup> Dietary habits that lead to *Tamaka Swasa* are *Ruksha, Kapha or Vata Vardhaka Ahara* (Dry diet, a diet that vitiates the *Vata* and *Kapha Dosh*), any diet that causes the formation of *Ama Dosh* leading to blockage of *Srotas* and *Agni Mandya*.<sup>[4]</sup> *Tamaka Swasa* is further caused as a secondary disease. The primary diseases leading to manifestation of *Tamaka Swasa* are *Pratishaya, Kasa, Chardi, Atisara, Jwara, Visuchika, Udavarta, Pandu, and Raktapitta*.<sup>[4]</sup>

Leading to the aggravation of *Vata* and *Kapha Doshas* along with their infiltration of *Pranavaha Srotas*, a set of symptoms manifest that characterize *Tamaka Swasa*. These symptoms include *Swasakrucchrata* (dyspnea), *Kasa* (cough), *Pinasa* (Nasal congestion), *Asino Labhate Saukhayama* (Orthopnea), and *Ghurghurakama* (Wheezing).<sup>[5]</sup> These symptoms hold similarity with the bronchial asthma, which is a chronic respiratory disorder with recurrent symptoms of breathlessness, wheezing, sleep disturbance, and nasal congestion. Similar to *Tamaka Swasa*, these symptoms are exacerbated due to cold, dust, strong smell, smoke, occupational pollutants, and indoor biomass.<sup>[6]</sup>

The present study is analysis of the raw data of the patients enrolled in a study titled “A comparative Study to Evaluate the Effectiveness of *Abhaya Nagara Churna* and *Vasavaleha* in management of *Tamaka Swasa*~ Bronchial Asthma.”

As per *ayurveda* literature, *Swasa* is treated by administration of diets or the drugs which are *Kapha-Vata shamaka, Ushna*, and *Vataanulomana*.<sup>[7]</sup> Further ideal therapy is described as “*Shudhastu Samyetyo Na Kopyeta*” that is, a drug or treatment which alleviate the disease and do not cause any other disease as a result of treatment. Thus, both *Haritaki* and *Shunthi* are widely practiced medicine in *Ayurveda*, with easy availability in every kitchen and no recorded toxicological side effects in humans.

Therefore, *Abhaya-Nagara churna* mentioned in *Bhaisajya Ratnavali Hikka-Swasa Rogaadhikara*, consisting of *Haritaki* and *Shunthi* in the ratio of (3:1), with *Ushnaodaka* (warm water) as *anupana* seems to be an ideal therapeutic intervention for management of *Tamaka Swasa*.<sup>[8]</sup>

*Haritaki* is *Kashaya Pradhana Pancharasa, Ushna* and *Tridosha Shamaka*. It has *Kanthy* and *Swarya* effect on *Pranvaha Srotas* and specifically mentioned in *Swara Vikar, Swasa, Kasa, and Rajyakshama*.<sup>[9]</sup> According to *Charaka, Haritaki* is *Doshaanulomni* and it is also *Vata hara*, thus it leads to *Anulomana* of *Vata*. It is also mentioned that it swiftly abolishes *Srotovibandha* and *Pralepa*(~Congestion) of *Hridaya* (Heart) and *Urha Pradesh* (thoracic region).<sup>[10]</sup> Thus, it can nullify the *Kaphavibandha* which causes *Pratiloma gati* of *Vata* which are basic pathognomonic characteristics of *Swasa*.

*Shunthi* is *Katu Rasa, Madhura Vipaka, Ushna Virya, and Vata-Kapha ghana*. It has *Laghu, Snigdha, and Vata Anulomana Karma*.<sup>[9]</sup>

Thus, it is also an ideal drug to nullify the *Samprapti* (Pathology) of *Swasa* by causing *Vata-Kapha shamana* (pacifying *Vata* and *Kapha*) and *Anulomana* of the *Pratiloma Vata*.<sup>[11]</sup>

## 2. MATERIALS AND METHODS

### 2.1. Participants

Patients were selected from OPD/IPD of Ch. Brahm Prakash Ayurved Charak Sansthan and were diagnosed based on classical features of

*Tamaka Swasa* and according to Global Initiative for Asthma (GINA) diagnostic criteria.

The patients diagnosed with asthma and fulfilling all the mentioned inclusion criteria while at the same time devoid of any exclusion criteria were further asked to provide consent for the study. Patients who provided written consent for the study were finally enrolled for the trial.

Data pertaining to exact criteria for inclusion and exclusion, history, and follow-up of the patients and raw data pertaining to the selected assessment criteria were analyzed for this article and details are as follows:

### 2.2. Inclusion Criteria

Patients between 18 and 60 years of age, irrespective of gender, cast, and religion presenting with *Roopa* of *tamaka swasa* and with mild to moderate clinical features of Bronchial asthma according to GINA's diagnostic criteria for Asthma were selected for this study.

### 2.3. Exclusion Criteria

Patients diagnosed with heart disease, other infectious disease, arterial hypertension and patients with chronic asthmatic bronchitis, bronchiectasis, COPD were excluded from the study. Patients who had long-term history of smoking, and lactating mothers and pregnant ladies, patients on other therapies along with our trial drug and not willing for this herbal treatment were excluded from the study. Written informed consent was obtained from each patient and the institutional ethical committee approved clinical protocol.

### 2.4. Ethics Consideration

This study was approved by The Institutional Ethical Committee (IEC) of Ch. Brahm Prakash Ayurved Charak Sansthan, Khera Dabar, New Delhi, vide letter no. F2(605)/19-20/CBPACS/Princ/IEC/10803; dated 29.01.2022 with IEC Code no: CBP-IEC/2020/KC-01/MD/01 and also registered in Clinical Trial Registry of India (CTRI; www.ctri.nic.in) vide Registration No: CTRI/2022/04/042167, dated April 26, 2022.

### 2.5. Trial Design

The original trail entitled “A comparative Study to Evaluate the Effectiveness of *Abhaya Nagara Churna* and *Vasavaleha* in management of *Tamaka Swasa*~ Bronchial Asthma.” Was a single-centered, open label, randomized, and control trial.

### 2.6. Diagnostic Criteria

- *Swasakrucchrata* (Dyspnea)
- *Swasa Vega* (Frequency, Intensity, Duration)
- *Asino Labhate Saukhayama* (Orthopnea)
- *Swasa Ghurghurakama* (Wheeze)
- *Kasa* (Cough)
- Inhaler Use
- Daytime Symptom Frequency
- Nocturnal Symptom Frequency.

### 2.7. Intervention

*Abhaya-Nagara Churna* was orally administered in a ratio 3:1, that is, 3 g of *abhaya* and 1 g of *Shunthi* mixed together and taken with *Ushnaodaka*, with time of administration of *Prabhata Pachyatabhakta*

(morning after meal) and *Sandhya Pachyatabhakta* (evening after meal), for 28 days. Composition and Dosghnata of Abhya Nagar Churna is explained in Table 1.

### 3. OBSERVATION AND RESULTS

Demographic data like gender, age group and risk factors for symptomatology of Asthma like family history, dust, smoke, tobacco chewing, smoking and chronicity of symptoms etc. are explained in Table 2. Before and after statistical data and tests results of all the assessment parameters are explained in Table 3.

### 4. DISCUSSION

This study pertains to *Tamaka Swasa* which is a type of *Swasa Roga*. *Tamaka Swasa* is a clinical condition which involves pathological changes in the physiology of *Pranavaha Srotas* through vitiation of the *Sthanic Dosha*, that is, *Kapha Dosha*, along with *Vata Dosha* due to various risk factors which are responsible for *Dosha Vaishamyas*. *Vata* and *Kapha Prakopaka Nidana* lead to simultaneous rise in *Kapha* and *Vata Doshas*, where *Kapha* being the *Sthanic Dosha* with its main site in *Urha Pradesha* leads to plugging and obstruction of *Pranavaha Srotas*. This results in obstruction of natural flow of *Prana Vayu*. Along with this obstruction, natural *Vata Dosha* also observe pathological aggravation which leads to change in the natural flow of the *Dosha*, causing *Pratiloma gati* of the *Vata*. This vitiated *Vata* moves upward to *Pranavaha Srotas* and leads to constriction of the *Srotas* causing *Swasakruchrata*, vitiated *Kapha* leads to *Kasa*, *Ghurghurkama*.

In the present study, patient within the age group of 18–60 were selected, with maximum prevalence in the age group of 30–60, as 60% of the subjects, that is, 18 subjects out of 30 reported to be in the age group of 30–60 years.

Out of total subjects, 50% were female and 50% were male. According to a study, there is overall higher rate of asthma prevalence, severity, exacerbation rate, hospitalizations, and mortality among women than men.

Out of the 30 patients, no patient reported any major debilitating disease which could produce similar symptoms as the asthma. No patient reported any past history of tuberculosis, cardiovascular disease, hypertension, and diabetes. Along with this, patients were also asked for any food or drug allergy. No patient reported any known food or drug allergy.

### 5. DRUG ACTIVITY AND IMPACT

#### 5.1. Inhaler Use

Inhaler are used to achieve broncho dilatory action for the airway smooth muscles. Theophylline, anticholinergics, and 2-adrenergic agonists are the most often utilized bronchodilators out of the three types of bronchodilators that are currently in use.<sup>[12]</sup>  $\beta_2$ -agonists reverse and prevent the constriction of smooth muscles in airways along with some additional non-broncho dilatory effects such as plasma exudation reduction, inhibition of mast cell mediators, and sensory nerve inhibition. As Muscarinic receptor antagonists, anticholinergics, on the other hand, block cholinergic nerve-induced bronchoconstriction and mucus production, which results in bronchodilation effect.<sup>[12]</sup>

In addition to this, inhaled corticosteroids are employed for their ability to reduce inflammation and promote bronchodilation. ICS decreases the amount of surface mast cells and activated T lymphocytes in the airway mucosa as well as eosinophils in the sputum and airway

mucosa. As a result, the AHR that is found with continuous ICS medication decreases.<sup>[12]</sup>

In this study, subjects were asked about the frequency of inhaler used before and after treatment. A percentage relief of 23.36% was observed for *Abhaya Nagara Churna*, which was found to be significant in case of both the drugs. This suggests that the drug has similar action to inhaled bronchodilators and corticosteroids, thus reducing the dependence of the subject on them.

For *Abhaya Nagara Churna*, both *Haritaki* and *Shunthi* have inhibitory action on COX and LOX pathway, along with the antagonistic effect on both mast cell and histamines. It prevents bronchoconstriction and platelet aggregation.<sup>[13]</sup> Furthermore, it prevents the aggregation of inflammatory cells by inhibiting lipoxygenase pathway. It reduces vascular permeability, preventing plasma exudation. These both processes are the major precursor for AHR, bronchospasm, raised vascular permeability, and mucus plugging.<sup>[13,14]</sup> Thus, these both drugs have similar action to the inhaler used for anti-inflammatory and broncho-dilatory action without the usual gastro-toxic effect these drugs have.

#### 5.2. Daytime Symptom Frequency

Major symptoms present in asthma are breathlessness, nasal congestion, cough, sleep disturbance, and wheezing. In this trial, 26 subjects, that is, 86.67%, reported nasal congestion along with 24 (80%) of the study population reported wheezing. For majority of subjects, these symptoms were more prominent in early morning. These were associated with mild dyspnea and cough. There was significant relief in these symptoms as *Abhaya Nagara Churna* reported a relief of 22.84% in daytime symptom frequency. As previously discussed, both the drugs present in *Abhaya-Nagara Churna* possess anti-inflammatory effect along with decreasing the vascular permeability thus reducing mucus plugging, plasma exudation, wheeze, and cough. Along with this, they stabilize mast cell thus preventing inflammatory markers to be released and reducing AHR responsible for frequent nasal congestion and sneezing.

According to ayurveda, *Dosha* dominance changes according to *Vaya*, *Avastha*, and *Kala*. *Dosha Avastha* according to *kala* can be divided into seasonal variation of *Doshas* and Diurnal variation of *Doshas*. Seasonal variation of *Doshas* explains the increased exacerbation in asthma symptoms around the time of spring season and rainy seasons, as during the spring season, there is dominance of *Kapha Dosha*.<sup>[15]</sup> In rainy season, there is dominance of *Vata Dosha*.<sup>[15]</sup> Since the pathology of *Tamaka Swasa* involves aggravation of both *Kapha* and *Vata Dosha*, the disease gains its strength (increased *Vyadhi Bala*) during the *Kapha-Vata Prakopa Kala*.<sup>[16]</sup> Similarly, Diurnal variation in the status of natural *Doshas* may also exaggerate the already present symptoms. The early morning time period is defined as *Kapha* dominant phase, thus symptoms related to *Kapha Dosha* like *Pinasa* (Cold or Nasal congestion), *Ghurghurakama* (Wheeze), and *Kasa* (Cough) are more prominent during this period.<sup>[17]</sup>

*Abhaya Nagara Churna* reported significant results in reducing the daytime symptom frequency. Both the drugs present in *Abhaya Nagara Churna* have component which relieve the *Srotorodha* due to their action on *Grathita Kapha*. *Haritaki*, and *Shunthi* have mucolytic action and anti-histaminic reaction.<sup>[18]</sup> They act against the granulation product of mast cell which causes the constriction of airways and nasal passage along with reduced ciliary function against mucus clearance.<sup>[19]</sup>



### 5.3. Nocturnal Symptoms

Among the symptoms reported in asthma, nocturnal exacerbation of disease symptoms especially orthopnea is very commonly reported. In the present trial, 50% of patient reported sleep disturbance due to exaggerated symptoms during night along with orthopnea. Orthopnea could be correlated to *Asino Labhate Saukhyama* in *Tamaka Swasa* symptomatology. In this study, *Abhaya Nagara Churna* reported significant relief in complain of sleep disturbance or orthopnea where a percentage relief of 93.75% was reported in disease symptom.

The nocturnal period has a predominance of *Vata Dosha*, thus symptoms caused due to aggravated *Vata* may exaggerate.<sup>[17]</sup> *Vata Dosha* is responsible for airway constriction leading to symptoms like *Swasakrucchrata*, *Asino Labhate Saukhyama*, thus, drugs that pacify *Vata Dosha* and clear the obstruction of *srotas* will effectively improve the nocturnal symptom frequency. *Haritaki* functions as an *Anulomaka* drug and has *Vatahara* properties, which helps in pacifying the vitiated *Vata Dosha* as well as establishing the natural flow of the *Vata*, since *Pratiloma gati* of *Vata* in *Pranavaha Srotasis* major cause for bronchoconstriction.<sup>[20]</sup> Furthermore, *Shunthi* also relieves the bronchospasm along with dissolving the mucus plugging, hereby, clearing the respiratory tract off the obstruction.<sup>[14]</sup>

### 5.4. Swasa Vega (Frequency/Duration/Intensity)

*Swasa Vega* refers to the frequency of asthmatic attack or exacerbation of asthma along with increased severity of disease symptoms both in intensity and duration. *Abhaya Nagara Churna* was given to determine the effect of both drugs in reducing the disease exacerbation or frequency of asthmatic attack along with reduction in symptom severity. The drug reported a percentage relief of 10.64%. Similarly, a significant improvement in disease intensity and duration was noted with a percentage relief of 50% and 32.05% in disease duration and intensity, respectively.

This effect of both the drugs in the *Abhaya Nagara Churna* may be attributed to immunomodulatory effect of both the drugs along with free radical scavenging properties.<sup>[21]</sup> *Haritaki* and *Shunthi* exhibit anti-oxidant properties by their action against free radicals.<sup>[22,23]</sup> Free radicals are responsible for endothelial cell damage causing increased vascular permeability. It also activates various proteases such as elastases in the case of asthma along with causing inactivation of antiproteases resulting in tissue damage, reduced expiratory flow, and ultimately lung collapse. Thus, use of these drugs reduces the lipid peroxidation process which results in healing of cell matrix and prevents untimely apoptosis of cell.<sup>[24]</sup> This has protective effect on hepatocytes, myocytes, and bronchial tree, thus, explaining cardioprotective, and hepatoprotective action of these drugs. Free radical also result in improper healing causing basement membrane thickening due to collagen deposit. Furthermore, these drugs also have anti-bacterial, anti-microbial action.

*Terminalia chebula* was found to exhibit anti-lipid peroxidation and free radical scavenging activities.<sup>[22]</sup> Aqueous extract of *T. chebula* prevented reactive oxygen species (ROS) to act against anti-oxidant enzymes.<sup>[24]</sup> Ethanolic extract was found to possess anti-oxidant action by reducing lipid peroxidase.<sup>[25]</sup> Triethylchebulate was to possess strong anti-oxidant action and free radical scavenging properties as it demonstrated strong DPPH free-radical scavenging ability.<sup>[25]</sup> *Haritaki* inhibits nitric oxide which is a free radical species. Thus, it inhibits oxidative stress-related cell injury and airway tissue damage.<sup>[25]</sup> These factors reduce the frequent exacerbation of disease symptoms and also the intensity and duration of asthmatic attack.

### 5.5. Swasakrucchrata (Dyspnea)

*Swasakrucchrata* refers to dyspnea or difficulty in breathing. The trial drug was tested for the dyspnea grading, where it reported a percentage relief of 10.34%. The reported effect of the trial drug was not significant in reducing the dyspnea grading, since majority of the patient reported only Grade 1 symptoms of *Swasakrucchrata*, that is, mild intercostal retraction, nasal alae flaring, and speaking complete sentences during dyspnea. Thus, while the trial drug has significant action in reducing the *Swasa vega* frequency, intensity, and duration, it has insignificant effect on the symptoms of *Swasakrucchrata*.

### 5.6. Asino Labhate Saukhyama (Orthopnea)

*Abhaya Nagara Churna* reported a relief of 93.75% in orthopnea. Orthopnea is caused due to redistribution of blood due to change in position and gravity. Due to supine position blood flows from legs back to heart and lungs. This increases the pressure in blood vessels inside the lungs resulting in fluid leakage in the airways. This results in mucus plugging inside the airways leading to difficulty in breathing. Furthermore, the mucus clearance becomes difficult in supine position.<sup>[26]</sup> Thus, any drug which relieves this mucus plugging and enhances the mucus clearance function will relieve the orthopnea.

*Haritaki* acts against inflammatory markers which are responsible for goblet cell hyperplasia and hypertrophy, thus, decreasing the mucus hypersecretion.<sup>[18,19]</sup> According to Charaka, *Haritaki* relieves *Hridya-Urha Uplepa* along with *Srotorodha*, thus, research analysis of *Haritaki* supports the action of *Haritaki* mentioned in traditional transcript. *Shunthi* also has mucolytic action along with relieving bronchospasm and obstruction of the airways.<sup>[27]</sup>

### 5.7. Ghurghurakama (Wheeze)

Wheeze is manifested in airways as a result of air traveling through narrowed and constricted airway producing a whistle like sound which may vary in intensity and pitch depending on the degree of narrowing.

The trial drug reported a percentage relief of 73.33% in reducing the symptoms of *Swasa Ghurghurakama* or wheezing. Any drug, which has broncho-dilatory effect along with decreasing the vascular permeability, reduces the symptoms of wheezing.

*Haritaki* and *Shunthi* both have Anti-inflammatory and Anti-anaphylactic action. It reduces airway constriction caused due to bronchospasm and edema of airway wall. It acts on eosinophils, which is the main component responsible for epithelial shedding leading to AHR and a sensitive inflamed airway. It also acts against histamines, which are mainly responsible for bronchoconstriction action. *T. chebula* acts against tumor necrosis factor-alpha produced due to influence of IgE in rat peritoneal mast cells, indicating its strong anti-anaphylactic action.<sup>[18]</sup> Mast cells are the responsible for first phase of any inflammatory reaction due to release of histamines. Histamines have strong bronchoconstriction action on airway smooth muscle along with inducing increased cell permeability. Increased vascular permeability along with hyperplasia and hypertrophy of goblet cells results in mucus plugging. Tumor necrosis factor-alpha effects the endothelial cells resulting in the proliferation of fibroblasts, acute phase reactants, increased adherence of leucocytes, thrombogenicity, elaboration of other cytokines. By acting against mast cells and histamines *Haritaki* counters the anaphylactic reaction of body preventing bronchospasm, mucus plugging, irreversible tissue damage, and acute phase reaction of inflammation.

### 5.8. Kasa (Cough)

The average change and relief for the trial drug was reported to be 96%. The drug shows significant improvement in relieving cough.

*Haritaki* acts against the inflammatory markers like tumor necrosis factors, histamines. This prevents the hypertrophy and hyperplasia of goblet cells which are the main factor responsible for increased mucus secretion and mucus plugging in airways. They also reduce the mucus clearance and ciliary activity in airways, further aggravating the cough. Thus, *Haritaki*, which is described as *Anulomaka* and *Hridayauro uplepa hara*, breaks the plugged mucus which obstruct the airways, it may also induce the natural ciliary activity and enhance mucus clearance due to its *anulomaka* properties. Similarly, the active chemical compounds in ginger such as Gingerol, Shagol, and other structurally related compounds are proven to inhibit the synthesis of pro-inflammatory cytokines, prostaglandins, and leukotriene; thus reduce the inflammation.<sup>[28]</sup> They are also said to have antitussive, bronchodilator effect thus it has a cumulative effect on the action of *Haritaki* in breaking the *Kapha sangha*.<sup>[19]</sup>

### 6. CONCLUSION

The observation on the various parameters established a statistically significant improvement in all parameters with *P*-value and percentage relief for *Swasa Vega* (Frequency) as 0.00057 and 10.64%, respectively, for *Swasa Vega* (Duration) 0.000023 and 50%, for *Swasa Vega* (Intensity) 0.000083 and 32.05%, for *Swasakrucchrata* 0.0832 and 10.34% and for *Ghurghurakama* 0.0000273 and 73.33%, for *Asino Labhate Saukhayama* 0.00010 and 93.75%, for *Kasa* 0.0000096 and 96%, for Inhaler Use 0.000059 and 23.36%, for nocturnal symptoms 0.000013 and 38.10%, for daytime symptoms 0.000028 and 22.83%. The *p*-value is < 0.5 for all assessment criteria except for *Swasakrucchrata*, signifying significant effect of drugs on all diagnostic parameters. Thus, it is concluded that *Abhaya-Nagara Churna* effectively counters the symptomatic component of *Tamaka Swasa* along with improving overall quality of life in patients.

### 7. ACKNOWLEDGMENTS

Nil.

### 8. AUTHORS' CONTRIBUTIONS

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

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Nil.

### 10. ETHICAL APPROVALS

This study was approved by The Institutional Ethical Committee (IEC) of Ch. Brahm Prakash Ayurved Charak Sansthan, Khera Dabar, New Delhi, vide letter no. F2(605)/19-20/CBPACS/Princ/IEC/10803; dated 29.01.2022 with IEC Code no: CBP-IEC/2020/KC-01/MD/01 and also registered in Clinical Trial Registry of India (CTRI; www.ctri.nic.in) vide Registration No: CTRI/2022/04/042167, dated April 26, 2022.

### 11. CONFLICTS OF INTEREST

Nil.

### 12. DATA AVAILABILITY

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

### 13. PUBLISHERS NOTE

This journal remains neutral with regard to jurisdictional claims in published institutional affiliation.

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**Table 1:** Composition of *Abhaya Nagar Churna*

Ingredients	Botanical Name	Rasa	Guna	Virya	Vipak	Doshaghnata
1. ABHAYA <sup>(9)</sup>	<i>Terminalia chebula</i>	<i>Kashaya pradhana pancharasa</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Tridosahara vishesh vatashamaka</i>
2. NAGARA <sup>(11)</sup>	<i>Zingiber officinale</i>	<i>katu</i>	<i>Laghu, snigdha,</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Kapha-vata shamaka</i>

**Table 2:** Demographic data and risk and symptomatology of asthma

Profile	Number	%
Gender		
Male	15	50.00
Female	15	50.00
Exposure to Risk Factors		
Family history	17	56.67
Tobacco smoking	0	0.00
Dust	27	90.00
Smoke	29	96.67
Strong smell	17	56.67
Cold	29	96.67
Age Group		
18–30 Years	12	40.00
30–60 Years	18	60.00
Chronicity		
1–3 Years	12	40.00
3–10 Years	11	36.67
>10 Years	7	23.33
Occupation		
Business	2	6.67
Service	11	36.67
Student	8	26.67
Labor	0	0.00
Housewives	9	30.00

**Table 3:** Comparison of parameters within the group before and after treatment

Parameters	Mean	Median	SD	SE	Wilcoxon	P-value	% Relief
<i>Swasa Vega (Frequency)</i>							
BT	4.70	5.00	0.47	0.09	-3.441	0.00057906	10.64
AT	4.20	4.00	0.55	0.10			
<i>Swasa Vega (Duration)</i>							
BT	2.13	2.00	0.63	0.11	-4.725	0.00000230	50.00
AT	1.07	1.00	0.52	0.10			
<i>Swasa Vega (Intensity)</i>							
BT	2.60	3.00	0.72	0.13	-4.456	0.00000833	32.05
AT	1.77	2.00	0.68	0.12			
<i>Swasakrucchrata</i>							
BT	0.97	1.00	0.18	0.03	-1.732	0.08326452	10.34
AT	0.87	1.00	0.35	0.06			
<i>Asino Labhate Saukhayama</i>							
BT	0.53	1.00	0.51	0.09	-3.873	0.00010751	93.75
AT	0.03	0.00	0.18	0.03			
<i>Ghurghurakama</i>							
BT	1.00	1.00	0.79	0.14	-4.690	0.00000273	73.33
AT	0.27	0.00	0.64	0.12			
<i>Kasa</i>							
BT	0.83	1.00	0.38	0.07	-4.899	0.00000096	96.00
AT	0.03	0.00	0.18	0.03			
<i>Inhaler Use</i>							
BT	3.57	3.50	1.07	0.20	-4.017	0.00005901	23.36
AT	4.40	5.00	0.86	0.16			
<i>Daytime Symptom</i>							
BT	3.07	3.00	0.83	0.15	-4.185	0.00002856	22.83
AT	3.77	4.00	0.63	0.11			
<i>Nocturnal Symptom</i>							
BT	2.80	3.00	1.13	0.21	-4.355	0.00001329	38.10
AT	3.87	4.00	0.94	0.17			