Comparative Study of the efficacy of *Vamana* with *Jimutaka Yoga* (*Luffaechinataroxb*) and *IkshvakuYoga* (*Lagenariasiceraria*) in the management of *TamakaShwasa* (Bronchial Asthma)- A study protocol

Devika Topale[1], Shweta Parwe*[2], Milind Nisargandha[3], Punam Sawarkar[4]

[1]PG Scholar Department of Panchakarma, Mahatma Gandhi Ayurved College Hospital and Research Centre, Wardha. Datta Meghe Institute of Medical Sciences, Nagpur.

[2*] Professor and HOD, Department of Panchakarma, Mahatma Gandhi Ayurved College Hospital and Research Centre, Wardha. Datta Meghe Institute of Medical Sciences, Nagpur.

[3]Associate professor Saveetha Medical College and Hospital, Chennai – 602105 Saveetha Institute of Medical and Technical Sciences (D.U.) Chennai.

[4]Asso. Professor, Department of Panchakarma, Mahatma Gandhi Ayurved College Hospital and Research Centre, Wardha. Datta Meghe Institute of Medical Sciences, Nagpur.

Corresponding Author-

Dr Shweta Parwe

Professor and HOD, Department of Panchakarma, Mahatma Gandhi Ayurved College Hospital and Research Centre, Wardha.Datta Meghe Institute of Medical Sciences, Nagpur.

Abstract-

Bronchial Asthma is a disease in which breathing gets hampered, and the person suffering from Bronchial Asthma always leads a compromised life. This miserable condition can be compared with *TamakaShwasa* in *Ayurveda*.To treat this disease, different *Vamanaushadhis* are described in various Samhitas of Ayurveda; out of them, *Ikshvaku* is *Tikta Rasa, KatuVipaka* and *Sheet Veerya* and indicated for *Vamana* in *ShwasVyadhi*.Aim of this study is to have Comparison and Evaluation of the efficacy of *Vamana*with *Jimutaka*and*Ishwakuchurna yoga* in the management of *Tamaka Shwasa*. (Bronchial Asthma) our objectives are evaluates the effectiveness of *JimutakaVamana*

On PFT and CBC with AEC in the management of *Tamakahwasa*.(Bronchial Asthma), to evaluate the efficacy of *Ishwakuchurna yoga Vamana* On PFT and CBC with AEC in the management of *TamakaShwasa.* (Bronchial Asthma), and to compare the effects of *Jimutakayogavamana* and *Ishwakuchurnayoga Vamana*on Objective parameters in the management of *TamakaShwasa.*(Bronchial Asthma). This study was a randomized clinical trial on 40 participants. The participants will be divided into two groups: Group A and Group B. The patient in Group A will be given JimutakVaman, and Group B will be given IkvashuVaman. Vaman will be carried out in both these groups. The results will be compared based on Pulmonary Function Test**,** CBC with AEC (Absolute Eosinophil Count). conclusion will be drawn on the basis of outcome.

Keywords-*TamakShwas*. Bronchial Asthma, Vaman, Jimutak, Ikvashu, PFT, and CBC and AEC.

1. INTRODUCTION:

Bronchial Asthma is a chronic obstructive pulmonary disease that can affect persons of all ages. "Asthma is characterised as a Chronic Inflammatory Disorder of the Airways that is associated with airway Hyper-responsiveness (AHR)," according to the Global Initiative for Asthma (GINA). Wheezing, Breathlessness, Chest Tightness, and Coughing are common symptoms, especially at night or early in the morning[1].Bronchial Asthma is a disease in which breathing gets hampered, and the person with Bronchial Asthma always leads a compromised life. This miserable condition can be compared with *TamakaShwasa* in *Ayurveda*.

The act of Respiration is the Physiological function of *Pranavayu*. When *Kapha* obstructs this *Pranavayu*, it gets *Pratilomagati* and moves upwards, impairing respiration action, resulting in the*TamakaShwasa* (Bronchial Asthma)[2].

Vamana Karma is the best line of treatment for *Kaphaj* disorders[3,4]. To treat this disease, different *Vamanaushadhis* are described in various Samhitas of Ayurveda; out of them, *Ikshvaku* is *Tikta Rasa, Katu, Vipaka* and *Sheet Veerya* and indicated for *Vamana* in *ShwasVyadhi*[5].When *Vatadosha*, linked mainly with *Kaphadosha*, obstructs the circulation channel and circulates all over the body, this intensified *Vayu* creates *Shwasa* by becoming obstructed (in this circulatory path). When *Vayu* moves backwards through the channels (of vital breath), it afflicts the neck and head, encourages phlegm to induce rhinitis, and produces the signs and symptoms of *TamakaShwasa* [6], which is, *Ghurghuraka* (wheezing and murmuring sound),Dyspnoea is a breathing disorder that

affects people of all ages (of exceedingly deep velocity which is immensely damaging to life), The patient develops tremors, coughs, and becomes motionless as a result of acute spasms. He passes out repeatedly while coughing, and because the phlegm refuses to come out, he grows increasingly agitated. The release of the phlegm temporarily calms him, but his throat is constricted and prevents him from sputtering. Dyspnea paroxysms occur frequently for him. When he is exposed to water (humidity), when it is chilly, or when an easterly wind blows, the attack becomes worse. It also gets worse when he engages in kapha-aggravating diet and exercise routines. Tamaka Shwasa is a commonly visible disease. However, the early stages can be treated.[7] This clinical condition is similar to Bronchial Asthma.

Incidences of bronchial Asthma have been raised in recent decades due to increased pollution and industrialization. Modern synthetic drugs like Bronchodilators (Inhaled corticosteroids, Theophyllines, Immunoglobulin E)[8] will provide instant relief in these cases. Still, long-term use of modern medication will lead to several adverse drug reactions.

So knowing this, Ayurveda is an ancient science thattreats symptoms superficially and acts on the actual root cause of the disease. And *Panchkarma* is the best treatment known for purification of the human body; removing all toxins out of the human body is called *Shodhanchikitsa* in Ayurveda.

In *TamakaShwasa* (Bronchial Asthma), *kaphadosha* is mainly involved.After takingthe *kaphaprakopaka* diet,*Pranavayu* gets obstructed due to vitiated *Kaphadosha* and spreads all over the body. So, *Vata* gets vitiated and vitiates *Pranavaha*, *Udakavaha* and *Annavahastrotasas*. Then it enters the Heart and causes*Shwasaroga*.Impairing the act of respiration which results in the disease called *TamakaShwasa* (Bronchial Asthma)[9], and *VamanaKarma* is the best line of treatment for *kaphaj*disorders[10]. To treat this disease, different *vamanaushadhis* are described in various *Samhitas* of *Ayurveda*; out of them,*Ishwaku* is *tiktarasa*, *katuvipaka* and *sheetveerya* and indicated for *Vamana* in *shwasvyadhi*[11].

INCIDENCE AND PREVALENCE:

Between and within nations, there are large regional disparities in asthma prevalence. Environmental and genetic variables may both play a role in the variation. The prevalence of asthma is higher in developed than in developing nations, in children than in adults, and in urban than in rural areas. The prevalence of it is between 8% and 10% worldwide. According to most surveys, the

prevalence of asthma in India ranges from 2 to 7 percent.[12]

In 2019, 461000 people died as a result of the estimated 262 million people who had asthma. In 2019, Asthma caused 216.6 million (95 percent UI 171–270) DALYs, accounting for 20.8% (175.9–247) of all DALYs caused by chronic respiratory disease. Asthma death rates were highest in low- and middle-income nations, while prevalence was highest in high-income countries[13].

According to estimates, 300 million people worldwide, of all ages and ethnic backgrounds, sufferfrom asthma, and the cost to governments, healthcare systems, families, and patients is escalating. One of the most common chronic diseases in the world is asthma.Asthma affects around 300 million people globally. With less conservative criteria for clinical *asthma* diagnosis, significantly larger values can be obtained. In the last few decades, *Asthma* has become more prevalent in children and adults worldwide. *Asthma* prevalence has risen with atopic sensitization, and the two have been linked. Other allergic illnesses, such as eczema and rhinitis, have increased. As populations adopt western habits and become more urbanized, the prevalence of asthma rises. As the world's population of cities is expected to rise from 45 percent to 59 percent by 2025, the number of asthmatics is expected to increase dramatically over the next two decades. By 2025, it is anticipated that an additional 100 million people will have Asthma. Asthma is responsible for roughly 1 in every 250 fatalities worldwide. Many deaths could have been avoided if not for poor long-term medical treatment and a delay in getting help during the final onslaught[14,15].

1.1 Need of the study:

Diagnosing and treating all respiratory diseases as early as possible in the current scenario is an imperative. Bronchial Asthma is commonly treated by modern medicine by bronchodilators and other therapies like inhaled corticosteroids, but this only suppresses the symptoms and gives relief temporarily. It is helpful in emergencies, but long-term use of these medications will lead to other side effects that may be severe and fatal.

According to Ayurveda, *TamakaShwasa* is a *Yapya* disease. This means it can never be cured but only controlled by medications. And this disease mainly hampers primary important activity, i.e. respiration, which must be regulated for a healthy lifestyle, and the person suffering from this disease always leads a compromised life.

Specific drugs are mentioned for *Vamana* in Ayurvedic texts (Table -2) with their particular indications, but no research has been carried out.

Our classical texts elaborate on the disease-specific action of *Ishwaku* and *Jimutaka* drugs for the *Vamana*, but no clinical pieces of evidence have been generated to date.

Only *Madanphala* has been taken for *Vamana*; through this study, if we can find a better standard drug in the management of *TamakaShwasa*, it will be a significant milestone in clinical practice used as an alternative for *Madanaphala*. Previous studies were conducted on *Madanapala Yoga* in *Tamaka Shhwasa* and *Comparative* study between *Vamana* and *Virechnahas* also been done (Table-1)

Ayurveda is known for all its purificatory treatments, which will act not only on symptoms but on the root cause of the disease and destroys it by its root so that chances of recurrence are almost negligible. Hence, it is necessary to do more research on *Vamaka Dravyas* in the management of *Tamaka Shwasa.*

1.2 Research question:

Whether *IshwakuChurna yoga* is more efficacious than *Jimutaka yoga* for *Vamana* in the management of *TamakaShwasa*(Bronchial Asthma)?

1.3 Research Hypothesis:

NULL HYPOTHESIS [H_0]

Ishwakuchurna yoga is not more efficacious than *Jimutakachurna yoga* for *Vamana* in the management of *TamakaShwasa* (Bronchial Asthma).

ALTERNATE HYPOTHESIS[H_1] – *Ishwakuchurna yoga* is as effective as or more effective than *Jimutaka yoga* in the management of *Tamakashwasa*(BronchialAsthma).

2.2 Research gap analysis: -

Many studies have been conducted on *TamakaShwasa,* but in many of them *Madanphala* is used as a main *VamakaDravya. Still,* other *Vamaka Dravyas* are explained in ayurvedic text with their specific indications.

Though a clinical study on the efficacy of *Vamana* with *IshvakuKsheer yoga* was conducted, its effectiveness was not compared with the standard drug *Madanphala*. Hence the present research leads to the efficacy of a more palatable form of *Ishwakuchurna* yoga.

Ishwaku is *Tikta, Katu, rasatmak* and indicated in *KaphajVyadhi* and *TamakaShwas* is one of them. No clinical standard is generated for *Vamana* except

Madanphala the date; through this study, if we can find a better option for *Vamana* in the management of *TamakaShwasa*, it will be an outstanding achievement & better alternative option for clinical practice.

MATERIALS AND METHODS

Material:

Clinical:

4.1 Source Of Data: Patients will be recruited from the OPD and IPD of Panchakarma of

4.2 Mahatma Gandhi Ayurveda College, Hospital and Research Centre, Wardha, and peripheral speciality camps.

4.3 Type of Study: Interventional study.

4.4 Study design: Randomized open standard control clinical trial.

4.5 Drug Collection/ Authentication:

The raw drugs was procured from reliable sources and authenticated by the Department of DravyaGuna, Mahatma Gandhi Ayurveda College, Hospital & Research Centre, Salod (Hirapur), Wardha.

4.6 Detail of drug properties:

Sr. no	*Dravya*	*Rasa*	*Vipaka*	*Veerya*	*Guna*	*Doshghnata*
1	*Ishwaku*	*Tikta, Katu*	*Katu*	*Sheeta*	*Laghu, Ruksha, Tikshna*	*Khaphaghna, Pittaghna*
2	*Jimutaka*	*Tikta, Kashaya*	*Katu*	*Ushna*	*Laghu, Ruksha, Teekshna*	*Tridoshahara*
3.	*Shunthi*	*Katu*	*Madhura*	*Ushna*	*Laghu, Snigdha*	*Kaphaghna, Vataghna*
4.	*Saindhava*	*Lavana, Madhura*	*Madhura*	*Anushnasheeta*	*Laghu, , Teekshna, Snigdha, Sukshma*	*Tridoshahara*
5.	*TilaTaila*	*Madhura, Katu, Tikta, Kashaya*	*Madhura*	*Ushna*	*Guru, Snigdha*	*Vatashamaka*
6.	*Godugdha*	*Madhura*	*Madhura*	*Sheeta*	*Swadu, Sheeta, Mrudu, Snigdha, Bahala, Slakshna, Picchila, Guru, Manda, Prasanna*	*Vata-Pittahara*
7.	*Yashtimadhu*	*Madhura*	*Madhura*	*Sheeta*	*Guru, Snigdha*	*Vata-Pittahara*

8.	*Haridra*	*Tikta, Madhura*	*Katu*	*Ushna*	*Laghu, Ruksha*	*Kaphaghna, Pittashamaka*
9.	*Vacha*	*Katu, Tikta*	*Katu*	*Ushna*	*Laghu, Teekshna*	*Kaphaghna, Vataghna*

4.7 Sampling procedure: Simple Randomization computer-generated table.

4.8 Sample size (Including sample size calculation):40(20 in each group).

4.9 Grouping and posology:

Posology-

a) For *Deepana-Pachana*: *Shunthichurna* 1gm BD Before meal for three days

b) For *Snehapana*: 1st day-100 ml *Goghrita* + 10 gms*Saindhava*

c) For *SarvangaAbhyanga*:

On the previous day of *Vamana*- 50 ml,*Tilataila* followed by *Petisweda*

On the day of *Vamana*- 50 ml,*Tilataila* followed by *Petisweda*

d) For *Vamana*:

Kaphotkleshakaraahara, like Curd rice, Sweets and *Dahiwada,* were advised on the previous night of *Vamana*.

Akanthapana- 2 Ltrs. of Milk

Vamanayoga for Group A –*Jimutakachurna* 3.5 gms + *Saindhava* 1.75 gms + Madhu15 ml

Vamanayoga for Group B – *Ishwakuchurna*3.5 gms + *Saindhava* 1.75 gms + Madhu15 ml

[The quantity of *Ishwaku*and *Jimutakachurna* for *Vamana*will be taken as per Ayurvedictexts, which is *Antarnakhamushthiparamana*. To calculate this *pramana*, a study was undertaken in which 50 random people were considered, and their Gender, Age, Height, Weight, BMI, and *Antarnakhamushthipramana* were noted. The average was calculated, and it was found to be 3.5 gms]

Vamanopagadravya : 4.5 Ltrs.

YashtimadhuPhanta

1050 Ltrs.

Saindhavajala

e) Dhumapana-

Dhumapana will be given by *Dhoomavarti* made by using *Haridra, Vacha* and *Shunthichurna*. A patient will be instructed to inhale the fumes through each nostril and exhale through the mouth every time. Then inhale and exhale through the mouth three times.

SamsarjanaKrama[16]

Table:3 *Samsarjanakarma* will be advised for five days for each patient.

Day	Time	*Annakala*
1	Morning- Evening-	*Abhakt* *Peya*
2	Morning- Evening-	*Peya* *Vilepi*
3	Morning- Evening-	*Vilepi* *Akritayusha*
4.	Morning- Evening-	*Kritayusha* *Akritamansarasa*
5.	Morning- Evening-	*Kritamansarasa* *Samanyaaahar*

Table: 4 Intervention

	Group A	Group B
Sample size	20	20
Intervention	Jimutaka *C*hurna *Y*oga *V*amana	Ikshwaku Churna Yoga Vamana
a) Preparation (Purvakarma) ***DeepanaPachana:*** *Shunthichurna* 1gm BD Before meal for three days ,**For *Snehapana*:** 1st day-100 ml *Goghrita* + 10 gms *Saindhava*	Deepana *P*achana : 3days Snehapana : 1day	Deepana Pachana : 3days Snehapana : 1day
Main treatment (Pradhankarma) Sarvang Abhyana & *S*wedan Vamana Karma	1 Day	1 Day
Follow up (Paschat Karma) period Sansarjana Krama	5 Days	5 Days
Total duration	11 Days	11 Days

Study duration- 11 days (excluding follow-up)

1) **Follow up** on the 12th day.
2) **Assessment of results-**

   Results will be assess from the subjective and objective parameters of the baseline data before, follow-up, and after and will be discussed in the result section.

4.8. Data collection tools and process:

The study will taken 40 patients with a minimum of 20 in each group irrespective of gender, caste, religion, marital status, and economic status.

4.8.1 Inclusion criteria:

Patients between the ages group 18 to 50 yrs, irrespective of their gender, religion, economic status and marital status, are included in the study

Patients had *Asthma* for upto 5 yrs.

Patients who are fit for *Vamana* according to Ayurvedic classics are included in the study.

Patients only on inhalation therapy are included in the study.

Patients who are willing to participate in the study.

4.8.2 Exclusion criteria-

Patients on steroids.

Patients have any other pulmonary disorders & Cardiac disorders.

Patients with Hernia.

Patient having Asthma chronicity above 5 yrs.

Discontinuation Criteria:

1. Any adverse effect of the therapy if seen.
2. Any acute or severe illness.
3. Patient is not willing to continue the treatment.

4.8.3 Assessment criteria: The diagnosis is based on the signs and symptoms of *TamakaShwasa* given in Ayurvedic books and objective studies mentioned in current texts**.**

Objective parameters:

1. PFT (pulmonary function test)

Spirometry:

FEV1 (forced expiratory volume in one second): the amount of air you can forcibly exhale in one second. The abbreviation FEV1 refers to the forced expiratory volume in one second.

FVC: Forced Vital Capacity (FVC) is the most significant amount of air you can forcefully exhale. The abbreviation FVC stands for forced vital capacity.

FEV1/FVC: The proportion of your entire air capacity that you can exhale powerfully in one second.

2. CBC with AEC (Absolute Eosinophilic Count)

5. ANALYSIS PLAN:

Statistical analysis:

Statistical analysis:

A 95% confidence interval will continue to be used for the evaluation of all research parameters from the baseline through the follow-up visits. To determine statistical significance, the unpaired T-test, paired T-test, and ANOVA with posthoc T-tests will be utilised. Unpaired T-tests will be used to compare categorical variables between groups; paired T-tests and ANOVA with posthoc T-tests will be used to determine the statistical significance. 6**. OBSERVATION AND RESULTS**: Will be drawn after analysis.

6.1 Safety assessment: For the safety of the patients who are taking part in the trial, PFT, CBC, and Absolute Eosinophil Count will be performed before and after treatment. The patient is told to notify the investigators by phone, visit, or by coming right away to the hospital if there is any negative reaction. If the patient experiences any unwelcome or severe adverse events, these will be carefully evaluated and reported to the closest specialty hospital for additional management. Participants who experience such a negative reaction will be removed from the study trial by *Vamana*.

6.2 Sample size: A minimum of 20 participants in each group, for a total of 40 patients, will be enrolled, accounting for a 10% dropout rate.

6.3 Sample size Estimation: The sample size for the study is calculated to be a total of 40 patients, with a minimum of 20 patients in each group, i.e., Group A: 20 patients, and Group B: 20 patients. With regard to age, gender, caste, and economic status

6.4 Allocation and Recruitment of the subjects: The specific sequential allocation number, which will be assigned to each patient in ascending order, starting with the lowest number, will serve as their unique identifier. Patients who stop using that number won't get a new one. After achieving the inclusion and exclusion requirements, the assigned patients will be randomised into two groups in accordance with the computer-generated randomization table. There can be no more than one randomization number provided to a particular subject.6.5 Data Collection Methods Assessment

subjective Parameters: Symptoms of dyspnea include coughing, expectorating, wheezing, coryza, dysphonoea, hoarseness of voice, headache and stiffness, chest pain, and discomfort when lying down.

Assessment Objective Parameters: 1.PFT 2. CBC 3. Absolute Eosinophilic count.

Data management: The principal investigator will manage the data.

6.6 Time Schedule of Enrolment, intervention:

Ethics and Dissemination: research ethics approval: Institutional ethical approval has prevailed for the research trial. No-Ref.No.MGACHRC/IEC/July-2021/342

7.DISCUSSION:

The treatment in the present study is with *Jimutakavamana* (group A), and *Ishwakuvamana* (group B)is planned for *tamakashwasa*[17]. *Jimutaka*[4] is taken as a standard drug for *Vamana*[14], and*Ikshwaku*[18] is *tikta, katurasatmakdravya* and have *sheetaveerya*. It has *laghu*, *ruksha*, and *teekshna* property and has*pittaghna* & *kaphaghnaprabhava*. By its *rasa* it will invade into *strotas* and eliminate the stagnated *Kapha dosha*. Once vitiated, *Kapha dosha* is eliminated from the body automatically, obstruction gets dissolved, and the patient will get relief. This treatment will benefit patients because it is practical and feasible for ordinary people. In Ayurvedic classics there are six vamak drugs[19] are explained, each of it has a unique property but *Madanphala*[20] is the only vamak drug is being used in day to day practices and previous studies[21] were also conducted on *Madanphala* and *Jimutaka.* According to Charaka acharya, *Ikshwaku* is indicated in Tamaka Shwasa for vamana, so there are multiple options of drugs for vamana , but we are conducting the study to check the efficicay of *Ikshwaku* for vamana specifically in Tamaka Shwasa. It is stated that "Rogah sarve apimandagnow"[22] means Mandagni is the cause of all diseases. The srotas are obstructed by the Kapha and vayu, according to Acharya Charaka this obstructed vayu moves in all directions while attempting to overcome the blockage, resulting in Shwasa[23]. Chakrapani defines the term "Kapha purvaka" in this context as Kapha pradhana, or Kapha predominance. It is necessary to keep in mind that determining the Dosha is important for disease treatment.[24] Therefore, by knowing the fact that Tamaka Shwasa is *Kapha* predominance disease we have chosen *Vamana* as a line of treatment in this study. As stated that "Rogah sarve api managanow". Agnimandya and ama are essential for the production of Tamaka Shwasa, Hence in order to normalize the Agni and to remove ama, deepana and pachana should be given first followed by samshodhana chikitsa that is*Vamana*.[25]

CONCLUSIONS: Will be based on observation and results obtained.

Source of Funding: Self

8.Ethical Consideration: Ethics approval from a research ethics committee has taken. Ref.No.MGACHRC/IEC/July-2021/342

Author Contribution statement:

This work was carried out in collaboration among all authors. Author DT wrote the first draft of the manuscript and will perform research Author SP designed the study reviewed and final drafting of the of the manuscript and author MN and PS analized the study and checked the manuscript. All authors read and approved the final manuscript.

9. References:

1. API Textbook of medicine, volume 2, edited byYash pal munjal, published by Jaypee brothers medical publishers (P)Ltd. new delhi, 10th edition-2015, part 23 Pulmonary Medicine, chapter 5,Bronchial Asthma,pg.no.2317
2. CharakaSamhita with Ayurved dipika commentary of Chakrapanidatta, Vol-4, edited by Dr.Ram karan Sharma, published by- Chukhambha Sanskrit series office, Varanasi-1, reprint edition 2014, Chikitsasthan Chapter 17/55-62.
3. Charakasamhita with Ayurveddipika commentary of chakrapanidatta, Vol-4, edited by Dr.Ram karan Sharma, published by- Chukhambha Sanskrit series office, Varanasi-1, reprint edition 2014,Siddhisthan Chapter 2/10.
4. Kadam SK, Parwe S, Patil M, Nisargandha M, Belsare A. Evaluation and Comparison of Madanaphala, Jeemutaka and Ikshwaku Vamana in Tamakshwasa-A Study Protocol. Int J Cur Res Rev| Vol. 2020 Nov;12(22):112.
5. Bhavaprakash-Purvakhanda-mishraprakaran10-shakavarga/49.
6. Charakasamhita with Ayurveddipika commentary of chakrapanidatta, Vol-4, edited by Dr.Ramkaran Sharma, published by- Chukhambha Sanskrit series office, Varanasi-1, reprint edition 2014, Chikitsasthan chapter 17/55.
7. Charakasamhita with Ayurveddipika commentary of chakrapanidatta, Vol-4, edited by Dr.Ramkaran Sharma, published by- Chukhambha Sanskrit series office, Varanasi-1, reprint edition 2014, Chikitsasthan chapter 17/56-62.
8. API Textbook of medicine,volume 2, edited by Yash pal munjal, published by jaypee brothers medical publishers (P)Ltd.newdelhi, 10 edition-2015, part 23 Pulmonary Medicine, chapter 5,bronchial Asthma,pg.no.2322-2325.
9. AshtangaHridaya, edited by Dr.BramhanandTripathi, published by Chaukhambha Sanskrit Pratishthan,delhi,reprint edition 2017,nidansthan chapter 4/3 pg:454.
10. Charakasamhita with Ayurveddipika commentary of chakrapanidatta, Vol-4, edited by Dr.Ramkaran Sharma, published by- Chukhambha Sanskrit series office, Varanasi-1, reprint edition 2014, siddhisthan chapter 2/10.
11. Bhavaprakash-Purvakhanda-mishraprakaran10-shakavarga/49.
12. API Textbook of medicine,volume 2, edited by Yash pal munjal, published by jaypee

brothers medical publishers (P)Ltd.newdelhi, 10 edition-2015, part 23 Pulmonary Medicine, chapter 5,bronchial Asthma,pg.no.2317.

13. Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019:a systematic analysis for the Global Burden of Disease Study 2019. *Lancet. 2020;396(10258):1204-22.*
14. Kadam S, Parwe S, Nisargandha M. Clinical Importance of Vamana Karma in Tamakshwasa: A Review. Indian Journal of Forensic Medicine & Toxicology. 2020 Oct 1;14(4):6685.
15. http://onlinelibrary.wiley.com/doi/10.1111/j.1398-9995.2004.00526.x/full
16. AshtangaHridaya, edited by Dr.BramhanandTripathi, published by Chaukhambha Sanskrit Pratishthan, delhi, reprint edition 2017,nidansthan chapter 4/6-10 pg:455.
17. Gupta A, Prajapati PK. A clinical review of different formulations of Vasa (Adhatoda vasica) on Tamaka Shwasa (asthma). Ayu. 2010 Oct;31(4):520.
18. PRIYA V, VENKATESWARAN D, BANDARU N, GORLA US, KRANTHI Y, KOTESWERRAO G, ANKARAO A, MISHRA R, MISHRA A, CHAKRAVARTHI S, KARIKALAN B. The impact of human resource and quality management in health care: A Review.
19. Charaka samhita, Vaidya Vijay Shankar Kale,Chukhambha Sanskrit Pratishthan-Delhi, reprint edition- 2016, Kalpasthan, Chapter 1, Shlok 6, page 790.
20. Charaka samhita, Vaidya Vijay Shankar Kale,Chukhambha Sanskrit Pratishthan-Delhi, reprint edition- 2016, Kalpasthan, Chapter 1, page 789.
21. .Parida A, Jena S. A Comparative Clinical Study of Vamana and Virechana in the management of Tamaka Swasa. Journal of Ayurveda and Integrated Medical Sciences. 2019 Feb 28;4(01):26-30.
22. Agnivesha (2000), Charakasamhita with English Translation by Bhagwandasha R.K. Sharma), Chikitsa sthana 17/63, Volume IV, II Edition, Chowkamba Sanskrit Series Office, Varanashi, pp. 117-125.
23. Agnivesha (2000), Charakasamhita with English Translation by Bhagwandasha R.K. Sharma), Chikitsa sthana 17/45, Volume IV, II Edition, Chowkamba Sanskrit Series Office, Varanashi, pp. 117-125.
24. @inproceedings{Kapila2021CRITICALRO, title{CRITICAL REVIEW OF TAMAKA SHAWASA (ASTHMA) CHIKITSA},author{Amit Kapila and Amnish Verma and Rajni Miglani Bhardwaj and Amandeep Sharma},year{2021}
25. Agnivesha (2000), Charakasamhita with English Translation by Bhagwandasha R.K. Sharma),Chikitsa sthana 17/64, Volume IV, II Edition, Chowkamba Sanskrit Series Office, Varanashi, pp. 117-125.

AUTHORS

First Author- PG Scholar Department of Panchakarma, Mahatma Gandhi Ayurved College Hospital and Research Centre, Wardha.Datta Meghe Institute of Medical Sciences, Nagpur.

Second Author- Professor and HOD, Department of Panchakarma, Mahatma Gandhi Ayurved College Hospital and Research Centre, Wardha. Datta Meghe Institute of Medical Sciences, Nagpur.

Third Author- Associate professor Saveetha Medical College and Hospital, Thandalam, Saveetha Institute of Medical and Technical Sciences (D.U.) Chennai - 602105,ORCID ID: https://orcid.org/0000-0001-6523-4797 Scopus ID-55627206200

Fourth Author- Associate Professor, Department of Panchakarma, Mahatma Gandhi Ayurved College

Hospital and Research Centre, Wardha. Datta Meghe Institute of Medical Sciences, Nagpur.

Correspondence Author-
Dr. Shweta Parwe MD, Mphil, PhD

Professor and HOD, Department of Panchakarma, Mahatma Gandhi Ayurved College Hospital and Research Centre, Wardha. Datta Meghe Institute of Medical Sciences, Nagpur.