



Research Article

A CLINICAL EFFECT OF TRIVRT-ASHTAKA CHURNA AS A VIRECHAKA YOGA IN THE MANAGEMENT OF TAMAKA SHWASA (BRONCHIAL ASTHMA)

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ABSTRACT

Virechana Karma is one of the prime modality of the treatment in *Panchakarma*. Different types and forms of *Virechana Yoga's* are mentioned with specific indications in classics. The trail drug *Trivrt Ashtaka Churna* is one of the such *Virechana Yoga* told in our classic. Clinical validation of this drug is further requires, scientific explanation and justification for its global acceptance as a *Virechaka Yoga*. *Tamaka Shwasa* occurs mainly due to vitiation *Kapha Vata Dosha's* in *Pitta Sthana*. It shows close resemblance with Bronchial Asthma on the basis of clinical manifestations. Managing Bronchial asthma on *Ayurvedic* line of treatment is totally different from that of conventional management. *Virechana Karma* is the best modality in management of *Tamaka Shwasa*. Hence the present study has been taken up to see the efficacy of trail drug *Trivrt Ashtaka Churna* on 30 cases of *Tamaka Shwasa* (Bronchial Asthma). **Results:** The study observations showed that the 100% good palatability for *Virechana Yoga*, 64.3% patients got their first *Vega* on an average time 30 minutes, in 57.1% patients 16 - 18 *Vegas* were noted, *Samyak Shuddi Lakshana* with *Pittanta* was observed in 57.1% of patients. There was a highly significant improvement in symptoms like *Swasa krichrata*, *Kasa*, *Ghurghuraka*, *Kaphanishitivana* and in signs like Ronchi, Wheeze and Respiration rate got highly significant results (at $p < 0.001$). **Conclusion:** After going through the clinical changes observed during and after the treatment, it may be opined that, *Trivrt Ashtaka Churna* acts as a *Virechaka Yoga* significantly in the management of signs and symptoms of *Tamaka Shwasa*.

KEYWORDS: *Tamaka Shwasa*, *Bronchial Asthma*, *Trivrt Ashtaka Churna*, *Virechana Karma*.

INTRODUCTION

Tamaka Shwasa is a *Pranavaha Srotovikara*¹. Being *Kapha-Vata* dominant disease, it takes its origin from *Pittastana*². Any illness in a person enforces him to be restricted to bed is the usual consequence but in this disease patient gets up instead of lying on the bed which is the most comfortable position for *Shwasa-Rogi*. *Tamaka Shwasa* is mentioned as one of the variety among five types of *Shwasa*. It is a '*Swantartra*' *Vyadhi* and having its own aetiology, pathology and management. It is mentioned as *Yapya Vyadhi* i.e. chronic in nature.

Bronchial Asthma closely resembles with *Tamaka Shwasasymptoms*³. Asthma is a serious condition which can directly hamper the one's ability to breathe and suddenly deprive the most important nutrient of life i.e. Oxygen. People who are having an Asthma attack have real trouble in taking a breath. Many people with stuffy filled noses due to hay fever or colds say, "I can't breathe" but they retain the option of breathing through the mouth. However, in Asthmatics they know what "I can't breathe" actually means, as in here, instead of their nasal passages, it is the bronchial tubes in their lungs that become swollen and clogged. Breathing can become frighteningly difficult⁴. Asthma involves two conditions:

- (1) Contraction of the small muscles surrounding the bronchial tubes and
- (2) Inflammation of the lining of those tubes.

The global prevalence of asthma is anticipated to be approximately 4.5 percent^{5,6}. There are about 334

million patients with asthma affecting all age groups, across the world⁷ and its present mortality rate is yearly 5000 deaths in 10million of people. A recent analysis using three different estimate models (INSEARCH, GINA and WHO survey) suggests that the prevalence of asthma in India varies between 2.05 to 3.5 per cent (17-30 million patients)⁸.

The estimated cost of asthma treatment per year for the year 2015 has been calculated to be approximately `139.45 billion⁹ in India. An estimated 15 million disability adjusted life years (DALYs) are lost due to asthma^{5,10}.

In present scenario *Panchakarma* (Detoxification) therapy is the best way to effectively & safely manage these conditions without any drug dependency. Here the medicated *Gritha* is used which gives nutrition & increases the elasticity of lung tissue & develops natural immunity of the body.

Shodhana procedure has given a due importance in this disease by almost all *Acharyas*. So keeping this point in mind, only *Shodhana* therapy is considered as therapeutic regime in this study. This study has been designed to assess the efficacy of trial drug "*Trivrt Ashtaka Churna*"¹¹ as a *Virechaka Yoga* in the management of *Tamaka-Shwasa*.

In the management of *Tamaka Shwasa*, *Samshodhana* has a got vital role were in excessively vitiated *Doshas* are eliminated from their abode. *Acharya*

Charaka mentioned "Vata Shleshma Haraihi Yuktam Tamaketu Virechanam"¹², Virechana Karma in the Management of Tamaka Shwasa as it acts not only on Pitta Dosha but also on Vata and Kapha Dosha¹³. So here in the present study Snehapana with Kantakari gritha¹⁴, Swedana and Virechana with trail drug Trivrt Ashtaka Churna is considered.

AIMS AND OBJECTIVES

1. To evaluate the effect of Trivrt Ashtaka Churna as Virechaka Yoga in management of Tamaka Shwasa (Bronchial Asthma).
2. To evaluate the effect of Virechana Karma on signs and symptoms of Tamaka Shwasa (Bronchial Asthma).

MATERIALS & METHODS

Selection of the patients: 30 patients diagnosed with Tamaka Shwasa (Bronchial Asthma) were taken for study from IPD of S.D.M college of Ayurveda and Hospital, Hassan, Karnataka.

Source of Drugs: The required raw drug for the treatment was purchased in SDM Ayurvedic pharmacy, Hassan.

Method of collection of data: The patients were selected randomly irrespective of caste, religion and locality. A special proforma was prepared with all points of history taking, symptom as quoted in Ayurvedic literatures. The selected patients were subjected to detail clinical history and complete physical examination before undergoing the clinical study.

Criteria for diagnosis

1. As per classical signs & symptoms of the disease.
2. By detailed case taking using the proforma.

Before administration of therapy, a detailed proforma containing complete history, Signs & symptoms, Dasha vidha Pariksha, Nidana Panchaka etc. from classics are compiled & filled for each patient.

Apart from these Respiratory system examinations with regards to Inspection, palpation, Percussion & auscultation were done; certain vital data's B.P, pulse, Respiratory rate, Temperature were also monitored.

Along with this Spirometry test, Hb%, TC, DC, ESR were done for all the patients in before treatment & after follow up Spirometry test was done to see the change.

RBS, urine analysis, ECG, X-ray & other relevant investigations were also carried out before starting the treatment. All these were carried out in the laboratory of S.D.M. Ayurveda Hospital, Hassan.

Some of these investigations were carried out in 2 sittings, during pre and post therapeutic measures, to know the efficacy of the treatment on these parameters. Finally, the obtained results will be represented with the aid of analytical Statistical techniques.

Inclusion Criteria

1. Mild intermittent, mild persistent, moderate persistent asthma according to Global Initiative for Asthma (GINA) guideline.¹⁵
2. Patients in the age group of 17 to 65 years either of sex.

3. Patients who are in fit for Virechana Karma.

Exclusion Criteria

1. Severe persistent asthma according to Global Initiative for Asthma (GINA) guideline¹⁶.
2. Patient who are unfit for Virechana Karma.
3. Patient of Tamaka Shwasa with any complication and systemic disorders.
4. Patient of Tamaka Shwasa with Chronic Bronchitis, Pulmonary Tuberculosis.

Drug, Dose & Durations of therapy

Initially Koshta Pariksha was done using Triphala Churna 1tsp with warm water or 1 cup of Sugarcane juice or 1 cup of warm Milk, etc. at bed time. According to Mala Pravriti which was observed next day Koshta was decided. As the all patients had Madyama Koshta, so the dose of Virechana yoga (Trivrt Ashtaka Churna) was fixed to Madhyama Churna Yoga Matra i.e. 2 Karsha (as a whole 30 grams)¹⁷.

Design of group and management

Study is divided into 3 main parts i.e.

1. Purvakarma
2. Pradhanakarma
3. Paschatkarma

Purvakarma

Deepana-Pachana: Panchakola Phanta 30ml thrice a day before food was given till the attainment of Nirama Lakshanas was given.

Snehapana: Kantakari Ghrita was given in Arohana karma depending on the Agni until the Samyak Snigdha Lakshanas were achieved.

Vishrama Kala: Sarvanga Abhyanga with Murchita Taila for 35 minutes followed by Mrudu Bhashpa Sweda Dashamula Kwatha was given and advice to take Ushna Jala Snana consequently for 3 days.

Pradhana Karma

On the day of Virechana Sarvanga Abhyanga with Murchita Taila for 35 minutes followed by Mrudu Bhashpa Sweda with Dashamula kwatha was given. Trivrit Ashtaka Churna as Virechaka Yoga was administered in the dose of 30 gm between 8:50am to 9:15am with Madhu as Anupana.

Paschatkarma

Patient was kept on Samsarjana Krama according to Shuddhi attained.

Abhyantara Snehapana

Snehapana was done in Arohana Karma with the initial dose fixed at 30ml which was later increased day by day by 30-70ml looking in to time taken to digest Sneha on day to day basis till Samyak Snigdha Lakshanas were observed. Kantakari Gritha was administered early in the morning with Ushna Jala as a Anupana. Finally, the appearances of Samyak Snigdha Lakshanas were considered as the final criteria to stop Snehapana. Diet during Snehapana was considered according to the rule of Snehapana. i.e. Drava, Ushna, Anabhishtandhi, Pramanathah (in proper quantity), Naatisnigdha, Asankirna-Ahara was given.

Virechana Karma

After *Samyak Snigdha Lakshana* appeared, 3 days of gap was given were in *Abyanga* with *Murchita Taila* followed by *Bashpa Sweda* with *Dashamoola Kashaya* were performed. On the day of *Virechana* after evacuation of natural urges & bath, in empty stomach again *Bahya Abyanga* followed by *Bashpa Sweda* is to be administered. After passing of *Kapha Kala* i.e. at about 8:50am to 9:15am. Patient was administered with *Trivrit Ashtaka Churna* as a *Virechaka Yoga* was administered in the dose of 30gm with *Madhu* as *Anupana*. All the vitals like Blood pressure, Pulse and Respiration rate are noted. These vitals are also recorded during the complete process of *Virechana Karma*. Care full observation is done for assessing the *Virechana Vegas* and the patient is advised to observe the color of stool, smell, type of excreted materials, its constitutions, *Snigdhatata*, any burning sensation, pain, till the *Kaphanta Virechana* conditions arises. At last, the patient is assessed for type of *Shudhi, Hina, Madhyama, and Uttama*.

Samsarjana Krama

Depending on the *Shuddhi Lakshanas Samsarjana Krama* was started with *Peya, Vilepi, Akrita & Krita Yusha, Akrita & Krita Mamsa Rasa* for 3, 2 & 1 Anna Kala respectively in *Pravara, Madhyama & Avara shuddhis*.

Criteria to assess the Signs & Symptoms

The chief criteria was the relief in clinical signs & symptoms. These were assessed by giving specific scores which were helpful in Statistical analysis. These scores are presented as follows.

1. After Snehapana: for *Samyak Snigdha Lakshanas*

2. After Virechana Karma

- Drug palatability
- Time taken for the onset of *Virechana*
- Number of *Virechana Vega*
- Duration of *Virechana*
- Anthiki Shuddhi*
- Laingiki Shuddhi*
- Vegiki Shuddhi*
- Virechana Vyapad* (if any)
- Discomfort to the patient
- Respiration, Pulse rate and Blood pressure before, during and after *Virechana Karma*.

3. Severity of Tamaka Shwasa**1. Mild intermittent**

- Symptoms-symptoms <2 times a week.
- Asymptomatic and normal PEF between exacerbations, brief exacerbation (few hours too few days), and intensity may vary.
- Night time symptoms < 2 times a month.
- Lung function – FEV, or PEF 60% to 80% predicted, PEF variability>20%

2. Mild persistent

- Symptoms- symptoms > 2 times a week but < 1 time a day, exacerbation may affect activity.
- Night time symptoms > 2 times a month
- Lung function - FEV, or PEF 80% predicted PEF variability 20% to 30%.

3. Moderate persistent

- Symptoms - Daily symptoms, daily use of inhaled short acting beta2 agonist, exacerbations affect activity, exacerbations>2 times a week, may last for few days.
- Lung Functions - FEV or PEF 60% to 80% predicted, PEF variability > 30%.

4. Severe Persistent

- Continual symptoms, limited.
- Physical activity affected with frequent exacerbation.
- Night time symptoms – frequent.
- Lung function - PEV or PEF < 60% of predicted, PEF variability > 30%

4. Vyadhi Pradhana Lakshana with Avadhi**1. Shvasakrichatha (Difficulty in breathing)**

- Mild - Breathlessness with activity
- Moderate - With talking.
- Severe - At rest.
- Impending respiratory failure Breathlessness at rest.

2. Shvasakrichatha with Duration

- No attack
- once in a month
- once in two week
- once a week
- twice a week
- everyday

3. Kasa (coughing) severity

- no cough
- occ. Cough
- cough at night
- throughout day time
- throughout day & night

4. Ghurghurukam (audible wheez)

- no Ghurghurukam (wheezing)
- Ghurghurukam (wheezing) only during attack
- very often Ghurghuruk (wheezing) sound
- Ghurghurukam (wheezing) at night
- Ghurghurukam (wheezing) all the time

5. Parshvashula (pain in intercostals space, thoracic region)

- no pain
- pain on exertion
- pain on cough
- pain relieved by expectoration
- pain during attack of breathlessness

6. Asino Labhatesaukhyam (get relief with sitting posture)

- can sleep easily
- can sleep with Head end Elevation
- cantsleep,spontaneous sitting upright

7. Kapha Nishthivan (sputum)

- 0- No Kaphanishthivana
- 1- occ. Sputum
- 2- only in morning
- 3- only in night
- 4- through out day

5. Spirometry tests

Computerized electronic kit micro spirometer was used in this study for assessing pulmonary ventilation capacity. The technical features of this spirometer included-

- Flow meter Bi-directional digital turbine.
- Range for flow measurement 0.03 - 20 l/s
- Range for volume measurement 10l
- Accuracy of measurement 3% or 50 ml
- Dynamic Resistance @ 12 l/s < 0.7 cmH₂O/l/s

The interpretation of the predicted values for Spirometric Lung volumes was calculated following the ERS 93 criteria (Official Statement of the European Respiratory Society, The European Respiratory Journal Volume 6, Supplement 16, and March 1993.) following is the list of Spirometric tests, included in the present study on *Tamaka Shwasa*.

SymbolUM	Parameter
FVC l (btps)	Forced Expiratory Vital Capacity
FEV1 l (btps)	Forced Expiratory Volume in 1 second
PEF l/sec	Peak Expiratory Flow
FEV1/FVC%	FEV1 as a percentage of FVC

STATISTICAL ANALYSIS

Statistical package for social science (SPSS) version 20 was used for the data analysis.

- Friedman's test.
- Post Hoc analysis with Wilcoxin signed rank test with Bonferroni correction applied.
- Paired 't' test.
- Cochran's Q test.

OBSERVATIONS**Observations on Patient**

In this study among 30 patients 28 completed the whole treatment course, as 2 patients left the treatment due to their personal problems. So among 28 patients, maximum i.e. 35.7% were in age group of 21 to 30 years, there were 42.9% of male and 57.1% of female patients,

RESULTS**Table 1: Subjective Parameters of Tamaka Shwasa**

Serial No.	Parameter	Chi-Square	P value	Remark
1	<i>Shwasakrichrata</i>	61.024	< 0.001	S
2	Duration of <i>Shwasakrichrata</i>	67.452	< 0.001	S
3	Severity of <i>Kasa</i>	42.339	< 0.001	S
4	<i>Ghurghuraka</i>	51.691	< 0.001	S
5	<i>Parshvashula</i>	48.724	< 0.001	S
6	<i>Aasinolabhatesaukhyam</i>	32.609	< 0.001	S
7	<i>Kaphanishthivana</i>	46.701	< 0.001	S

maximum numbers of patients (96.4%) were Hindus, 64.3% patients are from Urban habitat, maximum 46.4% (each) patients were students, majority of 57.1% of patient were belonging to middle class, maximum number of patients 53.6% have studied up to Pre University level, maximum numbers of patients i.e. 53.6% were bachelors, 78.6% of patients were having Moderate *Shwasakrichrata*, 42.9% of patients were having *Shwasakrichrata* once in two weeks, 35.7% patients were having *Kasa* at night, 39.6% of patients were complaining of Wheezing during attack, 50% of patients were complaining of Pain on Cough, 75% were able to sleep with Head end elevation, 46.4% were having *Kaphanishthivana* only in morning time, 60.7% of lies were having Moderate Persistent Asthma, 71.4% patients had Gradual onset of disease, 85.7% of patients the course of disease was relapsing, aggravating season for the maximum number of patients i.e. 46.4% was in winter season, 50% of patients got relief after exposure to hot environment, 50% of patients got relief after exposure to hot environment, 50% had disease onset between 2.1-5 years, 46.4% of patients had no family history of *Tamaka Shwasa*, 46.4% of patients took Expectorants, 78.6% are consuming Non-vegetarian foods, 60.7% had *Vishamasana*, 42.9% were studying, 60.7% patients reported disturbed sleep, 60.7% were having normal consistency of Bowel, 78.6% were addicted to Coffee/Tea as a daily habit, 50% were having *Kapha Prakruti*, 70% of patient were having *Pravara Satva*, 60% of patients were of *Madhyama Satmya*, 43.30% were having *Madhyama Vyayamashakti*.

Observations on Treatment

During treatment, among 28 patients, 46.4% of patients took 2 days for *Deepana* and *Pachana*, 60.7% patients took *Snehapana* for 4 days, all patients had showed that *Virechana* Yoga is 100% palatable, 64.3% patients had 1st *Virechana Vega* less than half an hour, 46.4% patients had completed *Virechana* in 7.30 to 9.00 hours, 57.1% patients got 15 to 19 Vegas, 89.3% got *Madhyama Vegiki Shuddhi Lakshanas*, 57.1% got *Pittanta*.

Among *Virechana Samyak Yoga Lakshana's*, *Agnivridhi* (100%), *Kshudha Pravrutti* (90%), *Trishna Pravrutti* (96.4%), *Srotovishuddhi* (96.4%) & *Indriya Prasada* (92.8%), *Laghuta* (100%), *Vatanulomana* (100%), *Daurbalyata* (76%), *Vit-Pitta-Kapha-Vata Kramena Prapti* (79.2%), and *Manah Prasada* (47%) were observed. 92.9% patients had completed *Madhyama Shuddhi Samsarjana Krama*.

To know the effect *Virechana* on Subjective Parameters of *Tamaka Shwasa* like *Shwasakrichrata*, duration of *Shwasakrichrata*, *Kasa*, *Ghurghuraka*, *Parshvashula*, *Aasinolabhatesaukhyam* and *Kaphanishtivana*, first Friedman test was applied and here in all parameters it shows that there were statistically significant differences are found with respective to X^2 and $p < 0.001$ values. Post hoc analysis with Wilcoxon signed rank tests was conducted with a Bonferroni correction applied, resulting in a significant level set at 0.0125 (Table.1)

Table 2: Results on Objective Parameters

Serial No.	Parameter	Chi-Square	P value	Remark
1	Breath sounds	58.395	< 0.001	S
2	Adventitious sounds	42.284	< 0.001	S
3	Ronchi sounds	8.214	< 0.001	S
4	Crepitation sounds	5.00	0.172	NS

To know the effect *Virechana* on Objective Parameters like Breath sounds, Adventitious sounds, Ronchi sounds and Crepitation sounds, first Friedman test was applied and here in all parameters except Crepitation sounds, shows that there were statistically significant differences are found with respective to X^2 and $p < 0.001$ values. Post hoc analysis with Wilcoxon signed rank tests was conducted with a Bonferroni correction applied, resulting in a significant level set at 0.0125 (Table.2).

Table 3: The results of Student 't' test on Spirometry Analysis

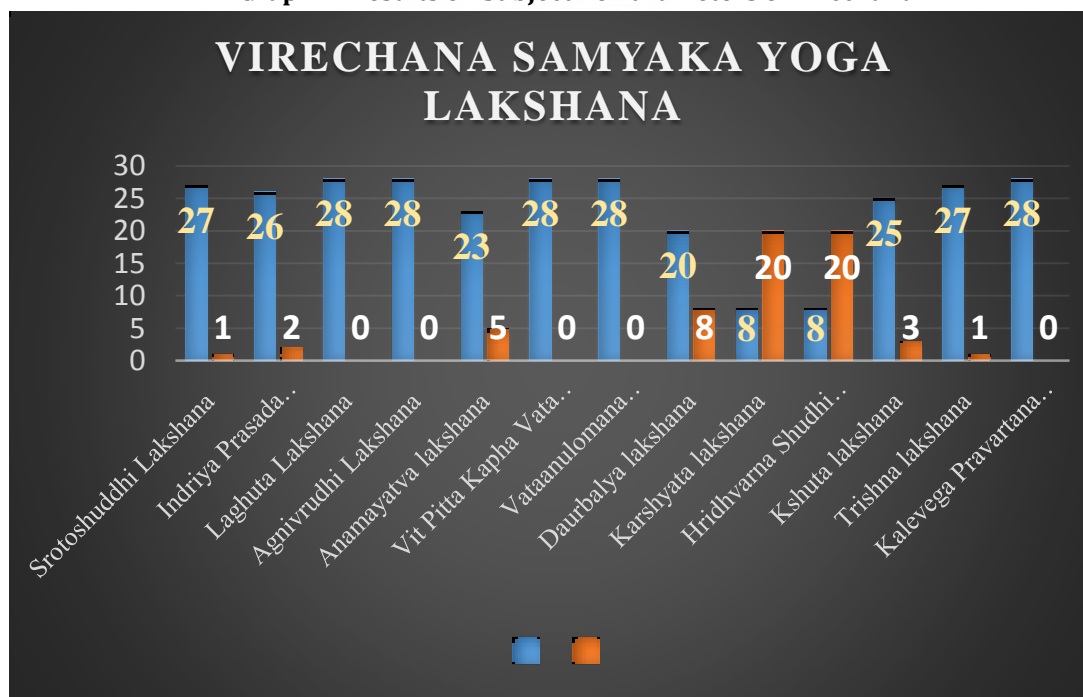
Parameters of Spirometry (analysed Before Treatment - After <i>Samsarjana Krama</i>)	Mean	SD	SE	t Value	p Value Sig. (2-tailed)	Interpretation
FVC Forced Vital Capacity	-25.714	33.92	6.411	-4.011	< 0.001	S
FEV1 Forced Expiration Volume in 1 sec	-17.429	31.97	6.042	-2.885	0.008	S
FEV1/FVC% FEV1 as % of FVC	1.321	15.149	2.863	0.462	0.648	NS
Respiratory Rate	2.786	1.572	0.297	9.378	< 0.001	S

To know the effect of treatment on parameters of Spirometry, paired t-test was applied. It is evident from the above table that there was significant change FVC and FEV1 at all the levels of the treatment with $p < 0.001$, but non-significant in FEV1/FVC at the all levels of the treatment with $p = 0.648$ (Table.3)

To know the effect of treatment on Respiratory rate, paired t-test was applied. It is evident from the above table that there was significant change in Respiratory rate at all the levels of the treatment with $p < 0.001$ (Table.3)

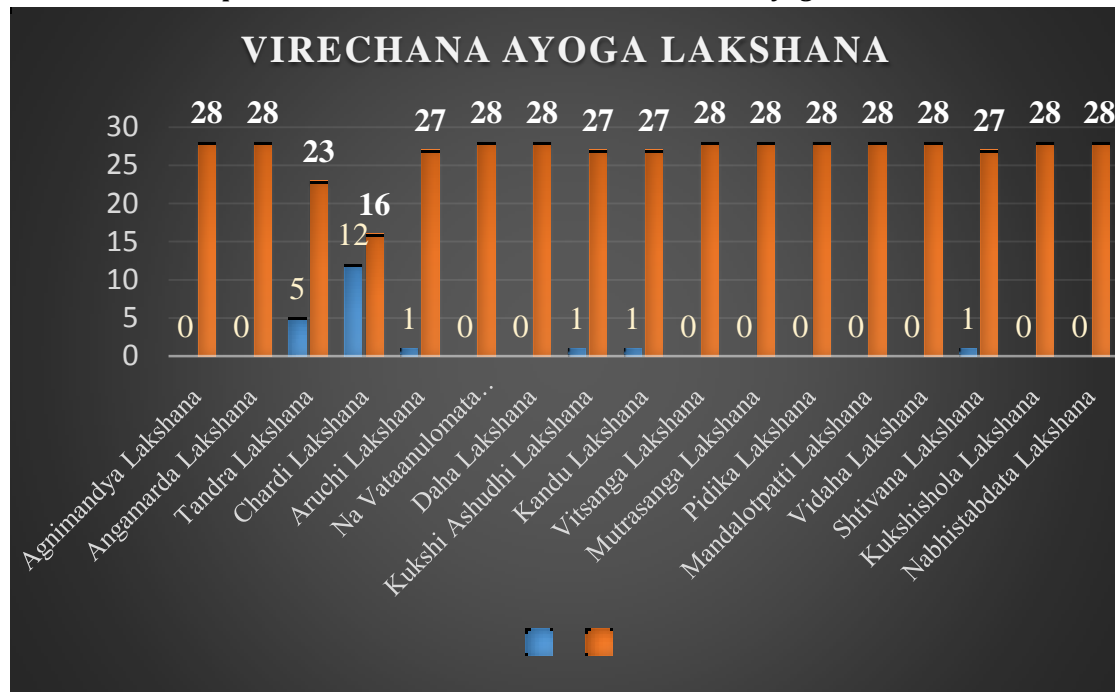
Results of Cochran's test on *Virechana Samyaka Yoga Lakshana*

Graph.1: Results on Subjective Parameters of *Virechana*



Cochran's Q test analysis where $Q=159.84$ and $p < 0.001$ found significant results in *Samyak Virikta Lakshanas*, this shows that 30 gms of *Trivrt Ashtaka Churna* can produce *Samyaka Yoga Lakshana* in *Mrudhu Koshta* individuals. (Graph.1)

Graph 2: Results of Cochran's test on Virechana Ayoga Lakshana



Among Virechana Ayoga Lakshanas Chardi in 16 patients and Tandra in 5 patients were observed and further these symptoms were subsided by itself (Graph.2)

DISCUSSION

The Disease

Tamaka Shwasais explained in all Samhita which shows the existence of the disease from ancient time. Almost all the classics related to the Ayurveda have explained about Pancha Shwasa, and Acharya Charaka has explained separate Samprapti for Tamaka Shwasa apart from general Samprapti of Shwasa and the treatment explained in Shwasa Chikitsa Adhikara is primarily for Tamaka Shwasa only.

This disease is having very close resemblance with Bronchial Asthma. Hypersensitivity of the tracheo-bronchial tree to a number of allergens is said to be the basic pathology of Bronchial asthma in modern parlance. This hypersensitivity reaction results in inflammation of the air passages. The inflammation is characterized by wide spread congestion of the tracheo-bronchial tree, spasm of the smooth muscle and secretion of tenacious sputum. These pathological changes contribute to the narrowing of the air passages. Thus the patient develops the difficulty in breathing. Personal or family history of respiratory or skin allergy, positive wheal and flare skin reaction test and increased level of the IgE immunoglobulin are all suggestive of Allergic asthma. Absence of these phenomena is indicative of idiosyncratic type of Bronchial-Asthma. Moderate eosinophilia and abnormal lung volumes which is assessed by the Spirometer are the other manifestations of the illness. The present medicines like Broncho dilators, Cortico steroids, antihistamine etc. are only symptomatic remedies till there is no complete curable treatment for Bronchial Asthma.

The global prevalence of asthma is anticipated to be approximately 4.5 percent. In India, the prevalence of asthma in adults was 2.05 per cent, with an estimated burden of 17.23 million.

Physicians across India depend primarily on the International guidelines like the GINA guidelines to manage patients with asthma. Although the international guidelines are evidence-based, it is important to realize that these may not be applicable to our population.

The main aetiopathogenesis of Tamaka Shwasa is based on provocation of Vata Dosha and obstruction to Pranavaha Srotas due to vitiated Kapha. The vitiation of Pittastana effects the normal function of Pitta and give rise to Ama formation. Thus improper digestion will lead to faulty production of Annarasa and Malarupa Kapha. Hence Ama Rasa formed in Amashaya may further vitiate the Pranavaha Srotas. In the above mode of vitiation Prana, Anna, Udakavaha Srotas will vitiate. The vitiation of Kapha will produce localized edema, excessive recurrent mucoid sputum, hypertrophy of bronchial musculature, loss of appetite, anorexia etc. Whereas vitiation of Vata leads to spasm of diaphragm, inspiratory muscles, smooth muscles of bronchial wall etc., which in turn lead to difficulty in breathing.

The Virechana Karma

Pachana: Before the administration of Snehapana, the body should have Nirama state which is achieved by Pachana and Agni Vriddhi achieved by Deepana state. The reason behind it is that the qualities of Snehana Dravya need a platform for its action. These drugs which are digestive and carminatives stimulate enzymes, HCL, pancreatic and bile secretions thereby proper assimilation of Snehana occurs.

Snehana: Snehapana plays a vital role in any Shodhana Karma. Doshas which are lodged in Shakha are made to move towards Koshta by means of oleation and fomentation. Sneha is able to increase the quantity of Dosha (Utklesha) at the site of disease due to Kledana

property. It loosens and softens the *Dosha*, increases the liquidity, directs the *Dosha* towards *Koshta*, it can enter into minute channels and remove *Dosha*. Thus it helps in Bringing the *Dosha* from periphery (*Shakha*) to *Koshta*. If *Snehapana* is not done and *Virechana* is carried out, then it destroys the tissues of the body.

Swedana: It provides kinetic energy by *Ushna Guna* to those *Doshas* which are ready to leave from their site of adhesion to the nearest site of elimination. Hence combined action of *Snehana* and *Swedana* makes the detachment from the *Shakha* and helps to move towards *Koshta* for easy evacuation. Due to production of heat the toxic metabolites are carried by the blood and are brought to the *Koshta*.

Vishrama Kala: After completion of *Snehapana* 3 day's gap is kept for *Abhyanga* and *Swedana*, this three days gap is kept to bring *Manda Kapha* stage, which is necessary for *Samyak Virechana*.

Virechana Karma: Although, the *Virechana* is considered the prime treatment modality for *Pitta Dosha*, it is used in the conditions involving the disorders in which the *Pitta* is associated with *Kapha* or *Vata*. It has direct four criteria are mentioned for the assessment of *Samyak Virechana*. *Vegiki*, *Maniki*, *Laingiki* and *Antiki*. Among these *Laingiki* criteria must be considered mainly for deciding the *Samsarjana Krama*. *Antiki* criteria are indicated to stop the process of *Virechana*. The *Virechana* drug should be administered after the *Shleshma Kala* has been passed.

Samsarjana Krama: After evacuation, the status of the *Agni* will get reduced so one should take *Peya*, *Vilepi*, *Akruta* and *Kruta Yusha Rasa*, in three, two or one meal time according to the evacuation. As little fire kindled gradually with grasses, cow dung etc. Becomes great, stable and all-digesting.

The Drug

Trivrt is best among all *Virechaka dravyas* & is known as the *Sukha Virechaka* & *Kapha-Vatahara* in nature. Similarly, *Sarkar* is *Vata-Pittahara* and other drugs like *Mustha*, *Vidanga*, *Trikatu*, *Trijataka* are *Vata-Kapha hara Vataanulomaka*. *Amalaki* acts as *Rasayana*, *Tridoshagna* and *Haritaki* acts as *Tridoshagna*, *Vataanulomaka*. So the combination of all these drugs behaves as *Tridoshaghana*. In *Tamaka Shwasa Kapha* & *Vata* are the predominant *Doshas* & *Pitta* is the origin site of the disease. So this *Trivrt Ashtaka Churna* is an ideal combination which acts *Virechaka Yoga* by specifying all these *Dosha* through *Virechana Karma*.

The clinical study

This study was carried out on 30 subjects having *Tamaka Shwasa*, among them 28 subjects completed the course of treatment other two left the treatment because of personal problems. For these 28 patients *Virechana* was administered in classical method.

At first *Pachana* was given with *Panchakola Phanta* to enhance the digestive power and also to facilitate the early digestion of *Sneha*. *Snehapana* was given with *Kantakari Ghrita*, which was administered in *Arohana Matra* depending upon the response of the patient till the appearance of *Samyak Snigdha Lakshana*. After this 3 days' gap was given and on 3rd day *Virechana* was

administered with *Trivrit Ashtaka Churna* 30 gms, with the *Madhu* as *Anupana*.

The result of each therapy were statistically analysed and finally inferences were drawn on the basis of the data & some of them are put forward hereby.

Deepana and Pachana: Among 28 patients of *Madhyama koshta*, 46.4 % patients got *Niramam Lakshana* on 2nd day and 25 % got *Nirama Lakshana* on 3rd day. This may be due to drug *Panchakola Phanta* of 30 ml thrice a day is sufficient to produce *Nirama Lakshanas* in *Madhyama Koshta person*.

Samyak Snigdha Lakshana: It can be divided into two viz. *Koshta* related *Lakshana*, and *Tvacha* related *Lakshana*. The symptoms related to *Koshta* such as *Vatanulomana*, *Deepta Agni*, *Varcha Snigdhatata*, *Asamhata Varcha* appeared on 3-4 days in 89.3 % patients. The symptoms related to skin such as *Mriduta* and *Snigdhatata* of *Tvacha* appeared on 4-5 days in 71.4 % patients.

Overall *Samyak Snigdha Lakshanas* appeared more earlier in females than in males i.e. it appeared on 3rd day itself in females whereas it was noticed in males on 4th and 5th day.

Palatability of Virechana Yoga: 100% palatability was found in all 28 patients as the *Yoga* contains *Trijataka*, *Sarkara* also the *Yoga* is administered with Honey as *Anupana* this makes *Yoga* more palatable to the patients.

Onset of 1st Virechana Vega (Latency Period): 64% of patients got 1st *Vega* within 30 minutes, as the *Vega* starts during *Pachyamana Avastha* of *Aushada*, as the state of *Agni* was good after *Snehapana* so that maximum number patients got 1st *Vega* in 30 minutes.

Also the *Trivrt Ashtaka Churna* is having approximately of 85% *Laghu Ruksha Gunas*, 90% of *Katu Tikta Rasas*, 70% of *Ushna Virya*, 50% of *Katu Vipaka*, from these properties of *Trivrt Ashtaka Churna* onset of 1st *Vega* occurred within 30 minutes.

Total duration of Virechana Karma: Maximum number of the patients i.e. 46.4 % patients got completed in 7 hours 30 minutes to 9 hours, 39.3 % patients got completed within 5 hours to 7 hours 30 minutes, 14.3 % patients got completed in 9 - 12 hours.

Total number of *Virechana Vega*'s: Maximum of 57.1 % patients got 15 - 19 *Vegas*, 7.4% patients got more than 23 *Vegas* and 35.7 % patients got 10-14 *Vegas*.

Vegiki Shuddhi: Maximum of 89.3 % patients got *Madhyama Vegiki Shuddhi* (10-20 *Vegas*) and minimum of 3.6 % patient had *Avara Vegiki Shuddhi* (Upto 10 *Vegas*), remaining 7.1 % got *Pravara Vegiki Shuddhi* (21-30 *Vegas*).

Antaki Shuddhi: Maximum of 57.1 % patients got *Pittanta* that means in *Madhyama Matra* of *Trivrt Ashtaka Churna* i.e. 30 gms with *Madhu* as a *Anupana*, can able produce *Pittanta* in *Mrudu Koshta* individuals.

Laingiki Shuddhi: Only *Karshyata*, *Hridhvarna Shuddhi* were absent in 76 % patients and *Dourbalyata* was absent in 28.8 % patients. Remaining all *Lakshana* were present in maximum percentage of patients (approx. >75%).

Samsarjana Krama: 92.9 % of patients followed *Madhyama Shuddhi Krama* of *Samsarjana Krama* with 3 *Anna Kala* per day for 5 days

The effect of therapy

On Subjective Parameters of Tamaka Shwasa

All subjective parameters found statistically significant improvement at the level of $P < 0.001$ (by Friedman test and post hoc Wilcoxon test analysis). This shows the effect Virechana by Trivrt Ashtaka Churna in Tamaka Shwasa.

Shwasakruchrata and its duration: The *Dusta Kapha* obstructs the *Prakupita Vayu* in *Pranavaha Srotas* & this obstruction is relieved better by Virechana Karma as it does the *Vatanulomana*, *Kapha Dosh* is pacified by *Ushna*, *Tikshana Guna* & *Katu*, *Tikta Rasa* of *Haritaki*, *Trikatu* and *Trivrt*. The *Pitta Sthana Shudhi* is done by Virechana & pacified by *Snigdha*, *Shita Guna* of *Sharkara* (6parts).

Kasa: Due to *Tridosha-hara*, *Ushnavirya*, *Kasashwasahara* properties of *Trivrt Trikatu*, *Trijataka*, *Vidanga* etc drugs & *Sroto-rodha* of the *Pranavaha Srotas* is cleared, *Kasa* was reduced statistically.

Ghurghurakam: It is produced due to obstruction of *Prana Vayu* & this is relieved better by Virechana Karma due to its effect on *Sroto-rodha*, & *Vatanulomaka* & also *Kapha Pitta Shodhaka*.

Asinobhatesaukhyam: Due to *Pitta Sthana Dushti*, there is *Ama Rasautpatti* & this causes excess secretion of *Dusta Kapha* in *Pranavaha Srotas*. When *Vayu* gets obstructed by *Dusta Kapha*, on lying the *Vayu* get entrapped and unable to escape, and secondly at this stage there is decrease the space for the movement of *Prana Vayu*. The Virechana Karma by its effect does the *Shuddhi* of *Pitta Sthana*, *Vatanulomaka* & also does *Kapha Pitta Shodhana*.

Kaphanisteevana: *Shodhan Chikitsa* has better results as *Snehapana* (with *Kantakari Ghrita*) helps in easy removal of sticky & thick sputum. *Sroto-rodhana* by Virechana helps in removal of *Dusta Kapha* & facilitates the movement of *Pranavayu*. By this patient feels relaxed after spitting out the sputum in every time.

Objective Parameters of Tamaka Shwasa

Majority of objective parameters found statistically significant improvement at the level of $P < 0.001$ (by Friedman test and post hoc Wilcoxon test analysis also by paired T test), except in parameters like Crepitation and FEV1%.

Auscultation: It was done throughout the process of treatment and found statistically significant results in Breath-sounds, Wheeze and Ronchi, as because these abnormal sounds got treated efficiently by *Snehana-Swedana*, followed by Virechana. But non-significant in Crepitation sounds as it was found only in 14.3 % patients so it's not possible more on it.

Spirometry Analysis: There was significant increase in FVC and FEV, suggests that there is significant increase in forced vital capacity and lung capacity also significant increase in forced expiratory capacity (Friedman and post hoc Wilcoxon Tests).

Respiratory rate: Before treatment and after *Samsarjana karma* rate of Respiration found statistically increased (paired T test).

Suggests significant reduction in airway obstruction due to broncho constriction, airway edema,

sticky lodged mucous plug and inflammation, by the Virechana Karma with Trivrt Ashtaka Churna.

Subjective Parameters of Virechana

Samyaka Yoga Lakshana: 89% of patients got *Samyak Virikta Lakshanas*. Among them *Karshyata*, *Hridhvarna Shuddhi* was absent in 20 patients and *Daurbalyata* was absent in 8 patients. However, on Cochran's Q test analysis where $Q=159.84$ and $p < 0.001$ found significant results in *Samyak Virikta Lakshanas*, this shows that 30 gms of Trivrt Ashtaka Churna can produce *Samyaka Yoga Lakshana* in *Mrudhu Koshta* individuals.

Ayoga Lakshana: Among Virechana *Ayoga Lakshanas Chardi* in 16 patients and *Tandra* in 5 patients were observed and further these symptoms were subsided by itself.

Atiyoga Lakshana: In this study no one complained of adverse effects or any type of complications during the Virechana Karma, this suggests that 30 gms of Trivrt Ashtaka Churna as a Virechaka Yoga will not lead *Atiyoga*

Probable mode of action of drugs used for Virechana:

It is worth mentioning that Virechana Karma, unlike the modern purgatives, is not merely an act of evacuation of the bowel, but is a complete therapeutic measure that has systemic as well as local effects.

The drugs (*Trivrt Ashtaka Churna*) that are having properties like *Ushna*, *Tikshna*, *Sukshma*, *Vyavayi*, *Vikasi* and *Adhobhagahara Prabhava*, these drugs reach the *Hridaya* through their *Swaveerya* (*Swaprabhava - Chakrapani*) and circulates through large and small blood vessels of the body leading to the action of Virechana.

Action of Ushna guna: *Ushna Guna* has *Agneya* property and hence *Vishyandana* occurs i.e. '*Vilininan Kurvanti*' (*Chakrapani*). Hence it facilitates movement of morbid *Doshas* towards *Koshta*.

Tikshna guna: "*Tikshnyat Vicchindanti*" *Vicchindanti Chinnam Kuruvanti* (*Chakrapani*), i.e. they break up the *Doshas* from larger to smaller molecules. *Sheegrakarithwam Taikshnyam*, *Dalhana* says that this helps in quick excretion.

Sukshma: *Sukshma Guna* due to its *Anupravanabhava*, i.e. "*Anuvathvam Pravanabhavacha, Anuvathvam-Anumargam Sancharithvam, Pravanthvamiha Koshta Gamanon-mukatvam*". It will open micro channels and makes the *Doshas* to move towards *Koshta*.

Vyavayi: Due to this, drugs spread quickly throughout the body and starts their action before its digestion.

Vikasi: *Vikasi* drugs loosens and helps in breaking the binding of *Dosha* and *Dushya* (*Dosha Dushya Samurchana Vighatanameva Chikitsa*). From all these properties *Doshas* are driven to *Koshta*. The presence of *Pritvi* and *Ap Mahabhutha Pradhanyata* in Virechaka drug with the *Adhobhaga Prabhava*, eliminates the *Doshas* out through *Guda Marga*.

It can be summarized as the drug which is administered even before it passes through the second phase of digestion due to *Vyavayi* quality, circulates all over the body through minute channels with the help of *Anuthwa* of *Sukshma Guna*. Thus traveled medicinal properties breaks the binding of *Dosha* and *Dushya* in the

site of *Vyadhi* manifestation with the help of *Vikasi Guna*. By *Ushna Tikshna* property they get liquefied and moves towards *Koshta* by *Pravana Bhava* of *Sukshma Guna*. This is possible when *Vata* is under control by means of *Snehana* and *Swedana* in the *Poorvakarma*. Later the *Dosha* which is reached to the *Koshta* is eliminated by the *Prabhava (Adhobagahara Prabhava)* of *Virechana Dravyas*.

Systemic action: *Doshas* are brought to *Koshta* from *Snehana* and *Swedana*, from there they are eliminated by *Virechana* which suggests action throughout the body.

Oleation (*Snehana*) and Sudation (*Swedana*) prior to *Virechana* helps in dissolving the intracellular toxins and expel them into exterior of cell from where they are thrown outside the body. Scientific explanation for this whole procedure can be summarized as:

1. Passive diffusion is the most important mechanism for majority of drug transport. Lipid soluble drugs diffuse by dissolving in the lipoidal matrix of the membrane, the rate of transport being proportional to lipid: water partition coefficient of the drug. A more lipid soluble drug attains higher concentration in the membrane and diffuses quickly.
2. As temperatures increases, (externally by sudation) both the cell membrane and the proteins can be affected. The fatty acid tails of the phospholipid bilayer can "melt" at high temperatures meaning that they become more fluid and allow more movement. This affects the permeability of the cell which increases.
3. Heat is expected to enhance the body fluid circulation, blood vessel wall permeability, rate-limiting membrane permeability, and drug solubility. Heating the skin after the topical application of a drug will increase drug absorption into the vascular network, enhancing the systemic delivery but decreasing the local delivery as the drug molecules are carried away from the local delivery site studies indicate that temperature changes of approximately 5°C are necessary to cause measurable changes in cell membrane permeability.
4. External heating induces changes in hemodynamic, body fluid volume, and blood flow distribution, which in turn may affect the pharmacokinetics or bioavailability of administered drug. The body's initial response to heat is peripheral vasodilation followed by perspiration, which results in a large fraction of the total blood volume being circulated through the skin vessels for cooling.

Local action: Locally mild inflammation occurs which is transient due to *UshnaTikshna* property and drugs which irritates the intestinal mucosa. Hence Hyperemia results due to arteriolar and capillary dilatation and also exudation of protein substances which helps in dilution of toxins.

These *Dosha* which is reached to the *Koshta* is eliminated by the *Prabhava (Adhobagahara Prabhava)* of *Virechana Dravyas*.

CONCLUSION

Virechana Karma is mentioned in *Tamaka Shwasa* as *Ubhaya Pratyanka Chikitsa* as it acts on both *Moola Sthana* of *Dosha* i.e. *Pitta* and other associated *Doshas* i.e.

Kapha and *Vata*. All the general *Nidana's* mentioned for *Shwasa Roga* even holds good for *Tamaka Shwasa* also.

Maximum patients ended up with *Madhyama Shuddhi* 89% and *Pittanta Virechana* 57.1%. Clinical signs & symptoms of *Tamaka Shwasa* improved after treatment. In that also *Shwasakrichrata*, Cough, *Ghurghuraka*, Breath sounds Wheeze and Respiratory rate shown statistically highly significant results *Samsarjana Krama*. Spirometry analysis also shown significant results in FVC and FEV1 at $P>0.001$.

Thus *Virechana Karma* is effective on signs and symptoms of *Tamaka Shwasa*. Hence it can be concluded that the trail drug *Trivrt Ashtaka Churna* acts a *Virechaka Yoga* in the Management of *Tamaka Shwasa* effectively.

The Observations

The assessment of each patient is done on various parameters like clinical signs and symptoms at B.T. (Before treatment) A.Sn. (After *Snehapana*), A.V. (After *Virechana*) & A.Sm. (After *Samsarjana*), Laboratory investigations assisted radiologically, and other parameter like Spirometric Analysis was carried out B.T and A.Sm.

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