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Efficacy of *Kantakari Ghrita* and *Vasa Gritha* for *Snehapana* followed by *Virechana* in the Management of *Tamaka Shwasa* w.s.r. to Bronchial Asthma: A Randomized Comparative Clinical Study

Vivekaradhya M[1], Prakash Paltye[2]

[1]PG Scholar, Department of Panchakarma, Ashwini Ayurvedic Medical College, Hospital and Research Center, Tumakuru, Karnataka.
[2]Associate Professor, Department of Panchakarma, Ashwini Ayurvedic Medical College, Hospital and Research Center, Tumakuru, Karnataka.

Corresponding Author: Vivekaradhya M

ABSTRACT

Tamaka Shwasa is one among the five varieties of *Shwasa* which is elaborately explained in the classics of *Ayurveda*. The cardinal symptom of *Tamaka Shwasa* is *Shwasa Krichrata* (difficulty in breathing). Due to its severity and high morbidity rate it is described as *Sheegrapranaharini*. The disease is characterized by obstruction of *Prana Vata* by *Kapha Dosha* leading to further vitiation of *Vata* resulting in upward movement or *Vimargagamana* of *Vata* resulting in difficulty in breathing.
Bronchial Asthma is characterized by the inflammation of airway, difficulty in breathing, cough, wheezing etc. the disease can affect all categories of people irrespective of age, and gender etc; and it seems to cause serious impairment in the patient's quality of life. India has an estimated 15-20 million asthmatics and rough estimation indicates a prevalence of 10-15% in 5-11 year old children.
The conventional management of the disease is not satisfactory and economically burden. Hence here an effort is made to compare the efficacy of *Kantakari Gritha* and *Vasa Gritha* when administered as *Shodananga Snehapana* followed by *Virechana* with *Trivrith Lehya* in the management of *Tamaka Shwasa*. 40 samples of either sex diagnosed as *Tamaka Shwasa* were randomly divided into two groups each comprising of 20 samples. One group was administered with Kantakari Gritha as Snehapana and the other group with Vasa gritha. There was significant improvement in both the groups after treatment. The group with *Kantakari Gritha* was found to be more significant in terms of improvements in signs and symptoms of *Tamaka Shwasa.*

Keywords: *Tamaka Shwasa; Kantakari Gritha; Vasa Gritha; Snehapana; Virechana;* Bronchial Asthma

INTRODUCTION

Tamaka Shwasa is one among the five varieties of *Shwasa* which is elaborately explained in the classics of *Ayurveda*. Since many years *Tamaka Shwasa* remained to be a challenging and unremitting disease. The cardinal symptom of *Tamaka Shwasa* is *Shwasa Krichrata* (difficulty in breathing). It may occur in any age group and sex. Due to its severity and high morbidity rate it is described as *Sheegrapranaharini*[1]. The disease is *pitta samudbhava vyadhi*, characterized by obstruction of *PranaVata* by *Kapha Dosha* leading to further vitiation of *Vata* resulting in upward movement or *Vimargagamana* of *Vata*[2] resulting in difficulty in breathing and associated symptoms like cough, sputum expectoration, fever etc. *Tamaka Shwasa* is considered as *Yapya*[3].

The clinical presentation of *Tamaka Shwasa* is very similar to Bronchial asthma;

it is a common chronic inflammatory condition of the airways whose mechanism is not completely understood yet[4]. Bronchial Asthma is characterized by the inflammation of airway, difficulty in breathing, cough, wheezing etc. the disease can affect all categories of people irrespective of age, and gender etc; and it seems to cause serious impairment in the patient's quality of life[5]. The airflow obstruction causes mismatching of alveolar ventilation and perfusion and increases the work of breathing. Being more marked during expiration it also causes air to be trapped in the lungs. The narrowed bronchi can no longer effectively clear mucus by the act of coughing and in patients with severe acute asthma many of the smaller bronchi become obstructed by thick mucus (mucoid impaction) and often very tenacious mucus. The nature of attacks of asthma and the pattern of recurrence varies considerably from person to person and this has an importance in treatment. It is a heterogeneous disease with interplay between genetic and environmental factors.

According to WHO, between 100 to 150 million of people around the globe suffer from asthma and this number is rising. Worldwide deaths from this condition have reached over 180,000 annually[6]. India has an estimated 15-20 million asthmatics and rough estimation indicates a prevalence of 10-15% in 5-11 year old children. *Tamaka Shwasa* is a very common disease in India. The prevalence of disease is increasing day to day due to genetic susceptibility, pollution, seasonal changes, environmental factors, drugs, infection, smoking, change in diet and life style and various stimuli like dust, cold air, smoke, pollens, house dust mite, viral respiratory tract infections. When we critically analyze the causative factors of *Tamaka Shwasa* air pollution takes the prime role. Urbanization, overcrowding, industrialization, stressful life, and abnormal food habits that all exposes the humans to suffer with *Tamaka Shwasa*.

In modern science a new branch, Pulmonology, has evolved to deal with respiratory diseases and as a result enormous progress has been made in the management of Bronchial asthma through oral and parental administration of medicines like Bronchodilator's and corticosteroids with long acting beta agonist which are having adverse effects on long term use such as, skin rashes, throat irritation, tremors, irregular heart beat insomnia and so on. Research studies shows that early and prolonged use of corticosteroids reduces the lung function and may increase the frequency of attacks and may lead to other complications[7]. Also high cost of these medicines makes it unaffordable for the poor class people. So it's the time to revalidate the efficacy of the *Ayurvedic* medicines against modern parameters and thereby upgrading our knowledge for better management of *Tamaka Shwasa*. Hence there is need to find out an effective management of Tamaka Shwasa with *Ayurvedic Panchakarma* procedures and formulations that covers preventive, therapeutic, cost effective management of the disease with minimal side effect.

The management involves alleviation of an attack and prevention of new attacks and to improve the lung functions. As this is a chronic condition and Yapya in nature it requires frequent treatment and attention to avoid complications. In the context of treatment of *Tamaka Shwasa* both *Shodhana* and *Shamana* is explained. *Acharya Charaka* explained *Virechana* as the main line of treatment in *Tamaka Shwasa*[8]. Generally it is seen in practice that only Virechana may not cure the disease. *Virechana* followed by *Shamana Yogas* has to be administered for the better management. Acharya Charaka explains that drug which has the properties of *Kapha-Vatahara, Vatanulomana* and *Ushna Veerya* has to be used for the treatment of *Tamaka Shwasa*[9].

To full fill these needs we have selected *KantakariGritha* and *Vasa Grita*

which are *Kapha-Vatahara* and indicated in the treatment context of *Shwasa* by *Acharya Chakara*. Both the formulations contain minimum number of ingredients which are easily available and cost effective. Hence we have selected these two *grithas* to compare their efficacy when administered it as *Shodananga Snehapana*. In this study 40 patients of *Tamaka Shwasa* were selected from Out-patient and In-patient department of *Panchakarma*, and divided in two groups and each group is administered with *Shodhananga Snehapana* with *Kantakari Gritha* and *Vasa Gritha* respectively followed by *Virechana* with *Trivrith Lehya*..

MATERIALS AND METHODS

Sample source: 40 Patients of either sex attending the OPD & IPD of Panchakarma department were selected after being diagnosed as *Tamaka Shwasa*.

Method of collection of data:

- It is a comparative clinical study, where 40 patients of either sex diagnosed as *Tamaka Shwasa* are randomly divided into two groups each comprising of 20 patients. (Consort Diagram is shown in Figure No 1)
- A special performa was prepared with all points of history taking, signs and symptoms and lab investigations.
- Appropriate statistical methods will be employed for the data collected- descriptive statistics, contingency table analysis using SPSS for Windows.

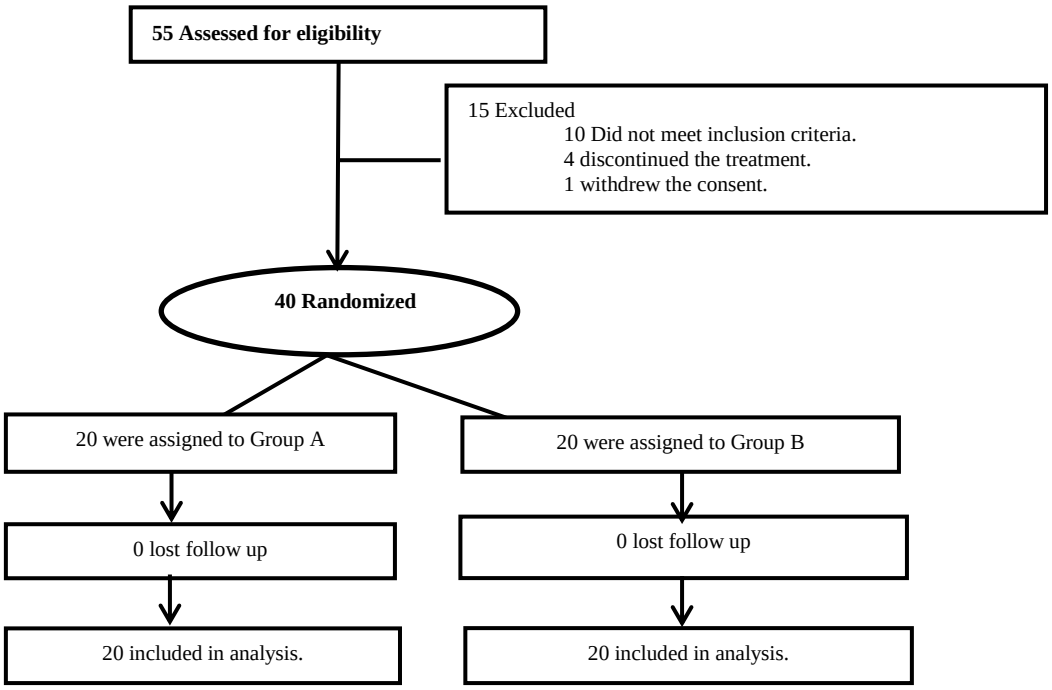


Figure No 1: CONSORT FLOW CHART

Materials:

- *Kantakari gritha* for *Shodananga snehapana* in *aarohanamatra*.
- *Vasa gritha* for *Shodananga snehapana* in *aarohanamatra*.

Method of Preparation of Kantakari Gritha: (Figure 2)

The preparation is told in *Charaka Chikitsasthana* 18th chapter[10]. The raw drugs required for the preparation i.e., *Kantakari* and *Guduchi* was purchased from Kazrekar Pharmacy, Belgaum. KMF Nandini Ghee was purchased from the local market.

Kantakari and *Guduchi* each 7.5kgs (156 Phala) was taken and it was washed and sun dried. Then it was pulverized and made into *kwathachurna*. For this two *kwathachurnas* 8 times of water was added i.e. 60 liters separately. And it was heated on low flame and reduced to 1/8th to prepare

kashaya. 7.5 liters of *Kantakari* and *Guduchi kashaya* was prepared and filtered separately.

Both the *kashayas* were mixed together. The *kashaya* was added with 5 litres of *Gritha* and was heated on low flame until the *gruthapakasiddhi lakshanas* were observed. Then it was allowed to cool and was filtered using a clean cotton cloth. Around 4,500ml of *Kantakari gritha* was obtained. This prepared *Kantakari gritha* was packed into 150 ml air tight containers and labelled.

Figure No 2: Preparation of Kantakari Gritha.

Method of Preparation of Vasa Gritha: (Figure No 3)

The preparation is told in *CharakaChikitsasthana* 5th chapter[11]. The raw drugs required for the preparation i.e. *Samoola Vasa* and *Vasa pushpa* was collected from Herbal Graden. KMF Nandini ghee was purchased from local market.

Fresh *Vasa* was collected and washed with water. Around 5kgs of *Vasa* was taken. It was added with 8 parts of water i.e. 40 liters. It was heated on low flame and reduced to 1/8th to prepare *Kwatha. Kwatha* was filtered. Fresh *Vasa pushpa* was grinded and made into *Kalka*. 625 grams of *kalka* was taken.

Kalka was added into *Kwata* and 5 liters of *Gritha* was added into the *kashaya*. And it was boiled in low flame until *Gritha siddhi lakshanas* were observed. Once *gritha* was ready, it was allowed to cool. Then it was filtered using a clean cotton cloth. Around 4,400 ml of *Vasa Gritha* was obtained. The *gritha* was packed in 150ml air tight plastic containers and labeled.

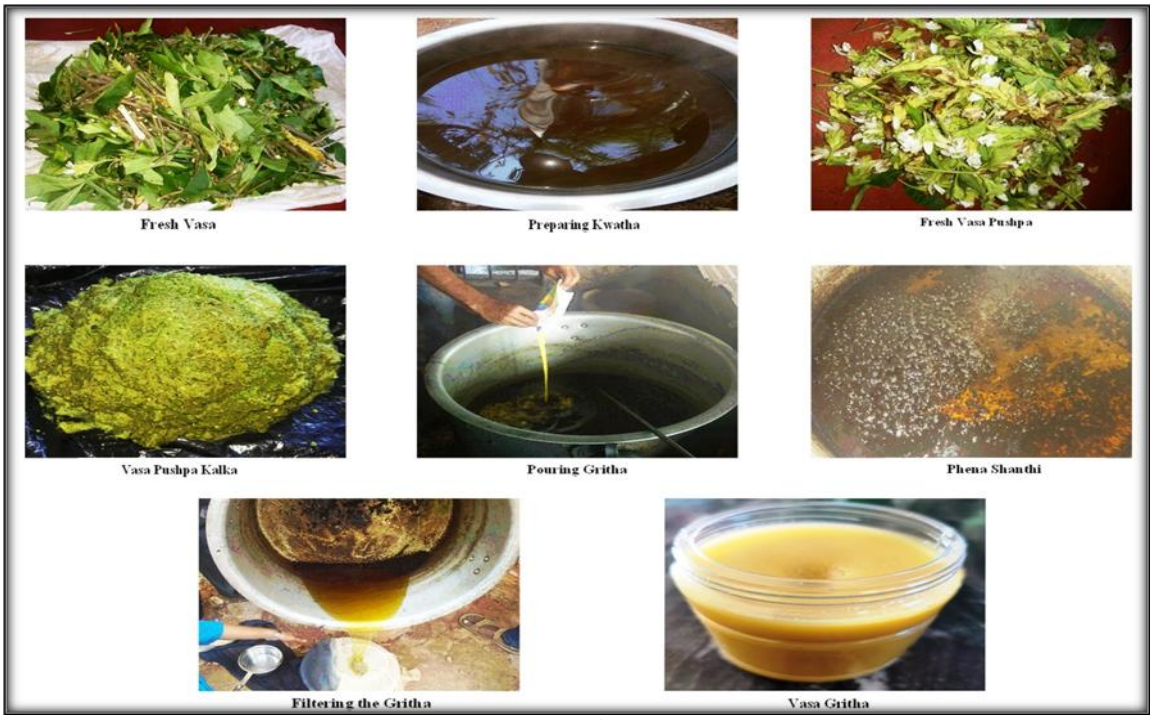


Figure No 3: Preparation of Vasa Gritha.

Inclusion criteria:

- Patients presenting with classical features of *Tamaka Shwasa*.
- Patients aged between 17-60 years with irrespective of gender, occupation and religion.
- Patients with history of *Tamaka Shwasa* less than 5 years.
- Peak flow meter Rate more than 80 Lit/min & less than 300 Lit/min.

Exclusion criteria:

- Patient aged less than 17 year and more than 60 years.
- Patients with history of *Tamaka Shwasa* more than 5 years.
- Asthma in pregnancy.
- Acute condition of the patient, who requires oxygen inhalation.
- Patients of *Tamaka shwasa* associated with COPD, Pulmonary tuberculosis, pulmonary effusion etc.

Diagnostic Criteria:

Diagnosis will be made based on symptoms of *Tamaka Shwasa* with special reference to Bronchial Asthma such as – Episodes of previous attacks, *Shwasakrucchrata, Ghurghuraka, Kasa, Peenasa* etc.

Intervention:

- 40 Patients fulfilling the inclusion criteria of *Tamaka Shwasa* were be selected and randomly divided into 2 groups: Group A and Group B
- Group A: *Snehapana* with *Kantakari Gritha* in *Aarohanamatra* (3-7days) till *Samyaksnigdhalakshanas* are achieved followed by *Shodhana*.
- Group B:*Snehapana* with *Vasa Gritha* in *Aarohanamatra* (3-7days) till *Samyaksnigdhalakshanas* are achieved followed by *Shodhana*.
- Shodhana: *Virechana* with *TrivrithLehya* was administered.

Assessment criteria:

- Depending upon subjective (Table No 1 to 7) & objective parameters (Table no 8 to 11), assessment of response will be made based on Gradation Index mentioned below, before, after treatment & after followup and analyzed statistically with appropriate test.
- Overall assessment is shown in Table no 12

Table No 1: Shwasakricchrata	Grading
No sign of shwasakricchrata.	0
Mild breathing difficulty	1
Moderate breathing difficulty without intercostal retraction	2
Moderate breathing difficulty with intercostal retraction	3
Severe breathing difficulty with intercostal retraction	4
Severe breathing difficulty with intercostal retraction and use of accessary muscles.	5

Table No 2 : Kasa	Grading
No cough.	0
Dry cough without pain.	1
Cough with mild pain & slight expectoration.	2
Cough with severe pain, Restlessness & difficulty in expectoration.	3
Frequent coughing & Fainting	4

Table No 3: KaphaNistivanam	Grading
No kaphanistivana.	0
Kaphanistivana only in early morning	1
Kaphanistivanam 2-3 times /day.	2
Frequent kaphanistivanam.	3

Table No 4: AsinolabhateSoukhyam	Grading
Relief on lying position.	0
Temporarily feels better in sitting posture.	1
Sitting posture gives relief.	2
Spontaneous Sitting posture cannot sleep.	3

Table No 5: Ghurghurakam	Grading
No wheezing.	0
Wheezing only at early morning.	1
Wheezing at early morning & requires medicine.	2
Wheezing at early morning & occasionally during other times.	3
Wheezing throughout the day & requires medicine.	4
Wheezing throughout the day & do not respond to any medicines, requires hospitalization.	5

Table No 6: Peenasa	Grading
No peenasa.	0
Peenasa during attack & subsides after some times.	1
Peenasa during attack & persist.	2
Peenasa very often without attack.	3
Peenasa always persisting.	4

Table No 7: Urashoola / parshwa shola	Grading
No urashoola.	0
Urashoola along with attack.	1
Urashoola without attack also.	2

Table No 8: Peak Flow Meter Rate in Lit/m	Grading
Peak expiratory flow meter rate more than 300 Lit/m	0
Peak expiratory flow meter rate 200 –300 Lit/m	1
Peak expiratory flow meter rate 80—200 Lit/m	2
Peak expiratory flow meter rate less than 80 Lit/m	3

Table No 9: Rhonchi/Crepitation	Grading
Absent on normal breathing.	0
A few scattered bilateral ronchi on normal deep breathing.	1
Innumerable high pitched bilateral rhonchi/crepitation on breathing.	2

Table No 10: Respiratory Rate (c/m)	Grading
Respiratory rate 14-20/m	0
Respiratory rate 21-25/m	1
Respiratory rate 26-30/m	2
Respiratory rate 31-35/m	3
Respiratory rate >35/m	4

Table No 11: AEC Count (Cells/cumm)	Grading
AEC < 450 cells/cumm	0
AEC 451 -550 cells/cumm	1
AEC 551 -650 cells/cumm	2
AEC 651 -750 cells/cumm	3
AEC > 751 cells/cumm	4

Table No 12: Overall Assessment	
Excellent Improvement	76% to 100% relief from signs and symptoms.
Good Improvement	51% to 75% relief from signs and symptoms.
Fair Improvement	26% to 50% relief from signs and symptoms.
Poor Improvement	< 25% relief from signs and symptoms.

Details of Procedure of Snehapana:

DipanaPachana: Chitrakadivati was given 1 tid 2 days before snehapana.

Poorva Karma: The general examination like blood pressure, pulse, temperature, weight was examined before Snehapana. Required amount of Gritha was melted on hot water bath and then taken in a clean glass.

Procedure of Shodananga Snehapana: Snehapana was given around 7.30 AM after ascertaining that previous night food was digested. Kantakari Gritha or Vasa Gritha with Ushnajala as Anupana was given. On the first day Hrusiyasimatra was given and the next day dose was calculated by using the formula:

$$\textbf{Next Day Dose} = \frac{\text{P.D.D} \times 9}{\text{T.T}}$$

T.T=Time taken in hours for the digestion of Sneha of previous day in hours

P.D.D. = previous day dose.

Paschat Karma: After administering the Ghrita, instructions were given to the patient not to take any food until patient feels hungry & Samyak Snehajirna Lakshanas are observed, and was advised to take sips of hot water.

During the days of Snehapana patients were given light diet (Ganji). The patients were instructed to not to perform Divasvapna, Ratrijagarana etc. The patients were instructed to observe the Lakshans like Khsudprvarutthi, UdgaraSuddhhi.

The Jeeryamana and Jeerna Lakshanas of Sneha were carefully observed. The Samyak Snigdha Lakshanas and Vyadhi Lakshanas were observed daily. After the appearance of Samyak Snigdha Lakshana, Snehapana was stopped.

Shodana: Then during 3 days of Vishramakala, SarvangaAbhyanga with Brihatsainda vaditaile and bashpasweda was administered followed by Virechana with 80 grams of TrivrithLehya. Based on the number of vegas, samsarjana karma was advised.

RESULTS

The collected data was entered in excel sheet and then it was entered in SPSS Version 23.0.0 for statistical analysis.

For the assessment of results during the treatment period, Subjective (Shwasakrichrata, kasa, kapha-nistivana, asinolabatesaukyam, ghurghuraka, peenasa, urashoola) and Objective (Peak Flow Meter, Rhonchi, Respiratory Rate, AEC Count) parameters were considered.

Normalcy Test: For the recorded observations, initially Shapiro wilk test was run to check the normalcy of the data. All the variable data were found to be not normally distributed, hence to compare within the group Wilcoxon Signed rank test was used and to compare between the groups Mann-Whitney test was used.

Descriptive Statistics: Descriptive Statistics of collected data of Group A, before and after treatment of subjective criteria is shown in Table No 13 and Table no 14 respectively and of Objective Criteria is shown in Table No 15 and 16 respectively. The effect of treatment on mean changes before and after in Group A is depicted in Figure no 4 and 5.

Table No 13: Group A- Before Treatment

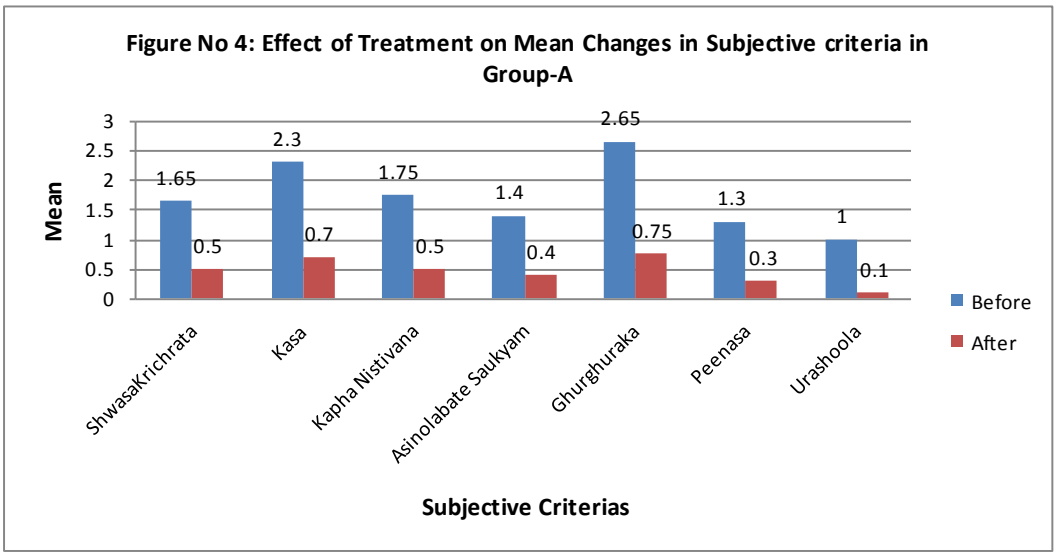
Subjective Criteria	Mean	Median	Standard Deviation	Standard Error
ShwasaKrichrata	1.65	2.00	± 0.671	± 0.150
Kasa	2.30	2.00	± 0.470	± 0.105
KaphaNistivana	1.75	2.0	± 0.550	± 0.123
Asinolabatesukyam	1.40	1.00	± 0.598	± 0.134
Ghurghuraka	2.65	3.00	± 1.137	± 0.254
Peenasa	1.30	1.00	± 0.571	± 0.128
Urashoola	1.00	1.00	± 0.459	± 0.103

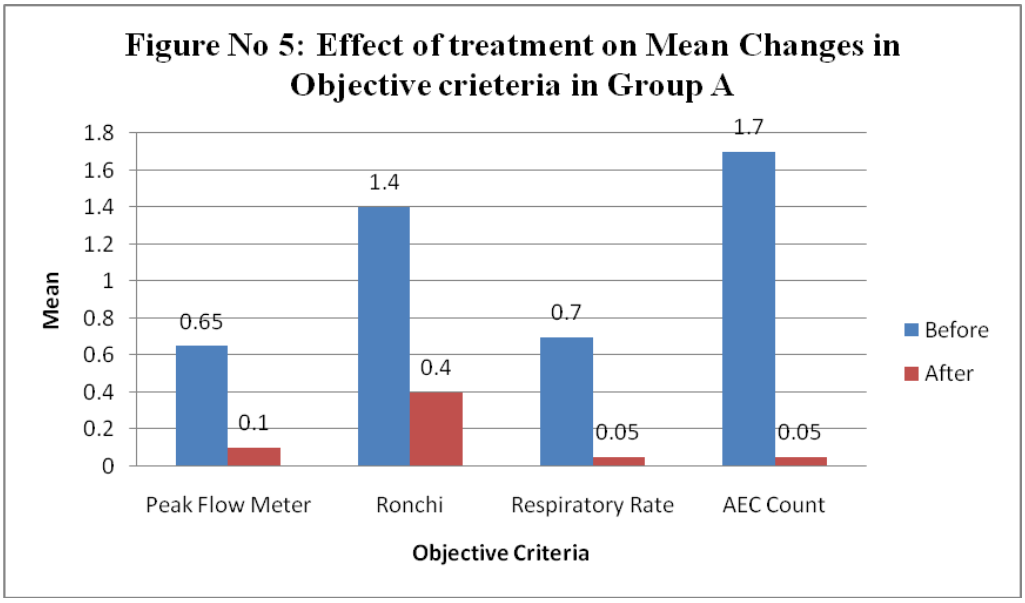
Table No 14: Group A- After Treatment

Subjective Criteria	Mean	Median	Standard Deviation	Standard Error	Mean Difference	% Mean Change
ShwasaKrichrata	0.50	0.50	± 0.513	± 0.115	1.15	69.70%
Kasa	0.70	1.00	± 0.470	± 0.105	1.6	69.57%
KaphaNistivana	0.50	0.50	± 0.513	± 0.115	1.25	71.43%
Asinolabatesukyam	0.40	0.00	± 0.503	± 0.112	1.0	71.43%
Ghurghuraka	0.75	1.00	± 0.444	± 0.99	1.9	71.70%
Peenasa	0.30	0.00	± 0.470	± 0.105	1.0	76.92%
Urashoola	0.10	0.00	± 0.308	± 0.069	0.9	90.00%

Objective Criteria	**Table No 15: Group A- Before Treatment**			
	Mean	Median	Standard Deviation	Standard Error
Peak Flow Meter	0.65	1.00	± 0.489	± 0.109
Rhonchi	1.40	1.00	± 0.503	± 0.112
Respiratory Rate	0.70	1.00	± 0.571	± 0.128
AECCount	1.70	2.00	± 0.657	± 0.147

Objective Criteria	**Table No 16: Group A- After Treatment**					
	Mean	Median	Standard Deviation	Standard Error	Mean Difference	% Mean Change
Peak Flow Meter	0.10	0.00	± 0.308	± 0.069	0.55	84.62%
Rhonchi	0.40	0.00	± 0.503	± 0.112	1.0	71.43%
Respiratory Rate	0.05	0.00	± 0.224	± 0.050	0.65	92.86%
AEC Count	0.05	0.00	± 0.223	± 0.050	1.65	97.05%





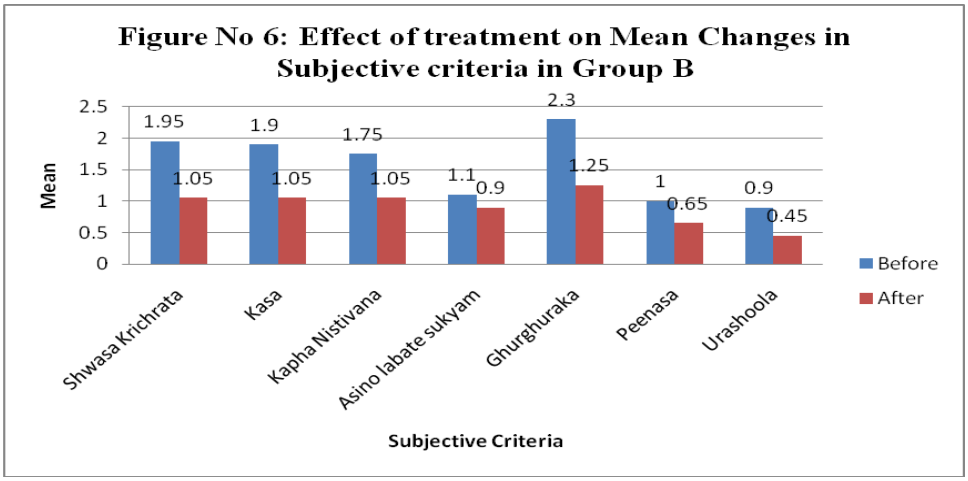
Descriptive Statistics of Group B, before and after treatment of subjective criteria are shown in Table No 17 and Table no 18 respectively and of Objective Criteria is shown in Table No 19 and 20 respectively. The effect of treatment on mean changes before and after in Group A is depicted in Figure no 6 and 7.

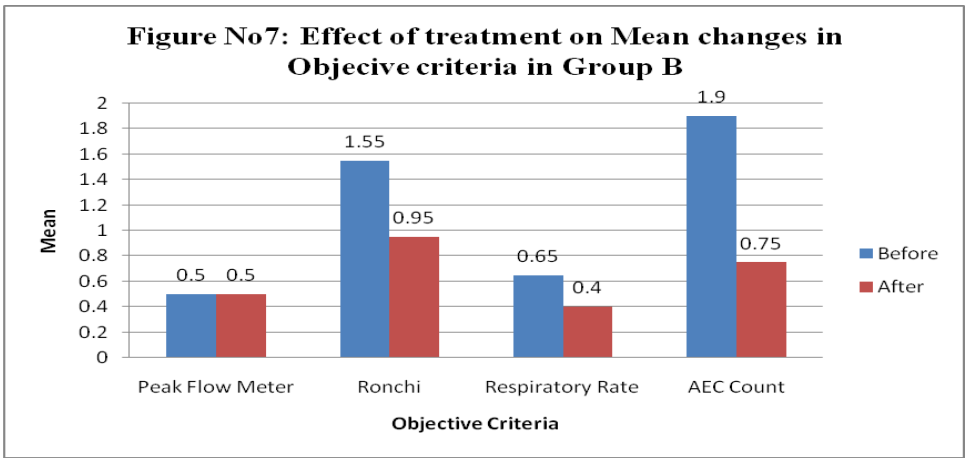
Subjective Criteria	**Table No 17 : Group B- Before Treatment**			
	Mean	Median	Standard Deviation	Standard Error
ShwasaKrichrata	1.95	2.00	± 0.510	± 0.114
Kasa	1.90	2.00	± 0.718	± 0.161
KaphaNistivana	1.75	2.00	± 0.639	± 0.143
Asinolabatesukyam	1.10	1.00	± 0.447	± 0.100
Ghurghuraka	2.30	2.00	± 0.733	± 0.164
Peenasa	1.00	1.00	± 0.324	± 0.073
Urashoola	0.90	1.00	± 0.641	± 0.143

Table No 18: Group B- After Treatment						
Subjective Criteria	Mean	Median	Standard Deviation	Standard Error	Mean Difference	% Mean Change
ShwasaKrichrata	1.05	1.00	± 0.224	± 0.050	0.90	46.15%
Kasa	1.05	1.00	± 0.510	± 0.114	0.85	44.74%
KaphaNistivana	1.05	1.00	± 0.510	± 0.114	0.70	40.00%
Asinolabatesukyam	0.90	1.00	± 0.447	± 0.100	0.2	18.18%
Ghurghuraka	1.25	1.00	± 0.444	± 0.099	1.05	45.65%
Peenasa	0.65	1.00	± 0.489	± 0.109	0.35	35.00%
Urashoola	0.45	0.00	± 0.510	± 0.114	0.45	50.00%

Objective Criteria	**Table No 19: Group B- Before Treatment**			
	Mean	Median	Standard Deviation	Standard Error
Peak Flow Meter	0.50	0.50	± 0.513	± 0.115
Rhonchi	1.55	2.00	± 0.510	± 0.114
Respiratory Rate	0.65	1.00	± 0.671	± 0.150
AEC Count	1.90	2.00	± 0.641	± 0.143

Objective Criteria	**Table No 20: Group B- After Treatment**					
	Mean	Median	Standard Deviation	Standard Error	Mean Difference	% Mean Change
Peak Flow Meter	0.50	0.50	± 0.513	± 0.115	0	0.00%
Rhonchi	0.95	1.00	± 0.224	± 0.050	0.6	38.71%
Respiratory Rate	0.40	0.00	± 0.503	± 0.112	0.25	38.46%
AEC Count	0.75	0.00	± 0.550	± 0.123	1.15	60.52%





Results were interpreted after statistically analysing the grading given for signs and symptoms as mentioned in assessment criteria before, and after treatment in all 40 patients. Those features are discussed here in detail.

Comparison of Variables within the Group:

Subjective Parameters: Wilcoxon Signed Rank test was used to compare variables within the Group. (Table no 21 and 23)

- **Shwasakrichrata:** In Group A there was statistically significant difference before and after treatment. There was 69.70% improvement in the Mean change after treatment with a P value < 0.05 (P0.00). In Group B also there was statistically significant difference before and after treatment. There was 46.15% improvement in the Mean change after treatment with a P value < 0.05 (P0.00).
- **Kasa:** In Group A there was statistically significant difference before and after treatment. There was 69.57% improvement in the Mean change after treatment with a P value < 0.05 (P0.00). In Group B also there was statistically significant difference before and after treatment. There was 44.74% improvement in the Mean change after treatment with a P value < 0.05 (P0.00).
- **KaphaNistivana:** In Group A there was statistically significant difference before and after treatment. There was 71.43% improvement in the Mean change after treatment with a P value < 0.05 (P0.00). In Group B also there was statistically significant difference before and after treatment. There was 40.00% improvement in the Mean change after treatment with a P value < 0.05 (P0.00).
- **AsinolabateSaukyam:** In Group A there was statistically significant difference before and after treatment. There was 71.43% improvement in the Mean change after treatment with a P value < 0.05 (P0.00). In Group B there was no statistically significant difference before and after treatment. There was 18.18% improvement in the Mean change after treatment with a P value > 0.05 (P0.46).
- **Ghurghuraka:** In Group A there was statistically significant difference before and after treatment. There was 71.70% improvement in the Mean change after treatment with a P value < 0.05 (P0.00). In Group B also there was statistically significant difference before and after treatment. There was 45.65% improvement in the Mean change after treatment with a P value < 0.05 (P0.00).
- **Peenasa:** In Group A there was statistically significant difference before and after treatment. There was 76.92% improvement in the Mean change after treatment with a P value < 0.05 (P0.00). In Group B there was no statistically significant difference before and after treatment. There was 35.00% improvement in the Mean change after treatment with a P value > 0.05 (P0.20).
- **Urashoola:** In Group A there was statistically significant difference before and after treatment. There was 90.00% improvement in the Mean change after treatment with a P value < 0.05 (P0.00). In Group B also there was statistically significant difference before and after treatment. There was 50.00% improvement in the Mean change after treatment with a P value < 0.05 (P0.003).

Objective Parameters: (Table No 22 and 24)

- **Peak Flow Meter:** In Group A there was statistically significant difference before and after treatment. There was 84.62% improvement in the Mean change after treatment with a P value < 0.05 (P0.01). In Group B there was no statistically significant difference before and after treatment. There was 0% improvement in the Mean change after treatment with a P value > 0.05 (P1.00).
- **Ronchi:** In Group A there was statistically significant difference before and after treatment. There was 71.43% improvement in the Mean change after treatment with a P value < 0.05 (P0.00). In Group B also there was statistically significant difference before and after treatment. There was 38.71% improvement in the Mean change after treatment with a P value < 0.05 (P0.01).

- **Respiratory Rate:** In Group A there was statistically significant difference before and after treatment. There was 38.46% improvement in the Mean change after treatment with a P value < 0.05 (P0.01). In Group B also there was statistically significant difference before and after treatment. There was 38.46% improvement in the Mean change after treatment with a P value < 0.05 (P0.025).
- **AEC Count:** In Group A there was statistically significant difference before and after treatment. There was 97.05% improvement in the Mean change after treatment with a P value < 0.05 (P0.000). In Group B also there was statistically significant difference before and after treatment. There was 60.52% improvement in the Mean change after treatment with a P value < 0.05 (P0.000).

Table No 21: Comparison of Subjective Variables within the Group A Before and After Treatment.		
Subjective Criteria	z value	sig. (2 tailed)
ShwasaKrichrata	-4.234	0.00 (P<0.05)
Kasa	-4.053	0.00 (P<0.05)
KaphaNistivana	-4.134	0.00 (P<0.05)
Asinolabatesukyam	-4.066	0.00 (P<0.05)
Ghurghuraka	-3.976	0.00 (P<0.05)
Peenasa	-4.264	0.00 (P<0.05)
Urashoola	-4.243	0.00 (P<0.05)

Table No 22: Comparison of Objective variables within in Group A Before and After Treatment.		
Objective Criteria	z value	sig. (2 tailed)
Peak Flow Meter	-3.317	0.01 (P<0.05)
Rhonci	-4.472	0.00 (P<0.05)
Respiratory Rate	-3.357	0.01 (P<0.05)
AEC Count	-4.008	0.000 (P<0.05)

Table No 23: Comparison of Subjective Variables within the Group B Before and After Treatment.		
Subjective Criteria	z value	sig. (2 tailed)
ShwasaKrichrata	-4.025	0.00 (P<0.05)
Kasa	-3.900	0.00 (P<0.05)
KaphaNistivana	-3.742	0.00 (P<0.05)
Asinolabatesukyam	-2.000	0.46 (P>0.05)
Ghurghuraka	-4.001	0.00 (P<0.05)
Peenasa	-2.333	0.20 (P>0.05)
Urashoola	-3.000	0.003 (P<0.05)

Table No 24: Comparison of Objective variables within in Group B Before and After Treatment.		
Objective Criteria	z value	sig. (2 tailed)
Peak Flow Meter	0.00	1.00 (P>0.05)
Rhonci	-3.464	0.01 (P<0.05)
Respiratory Rate	-2.236	0.025 (P<0.05)
AEC Count	-4.554	0.000 (P<0.05)

Overall within the group in Group-A there was significant difference between before and after treatment in all the Subjective and Objective variables as per the results of Wilcoxon Signed Rank Test results as described above.

In Group-B there was significant difference observed between before and after treatment in variables like Shawsakrichrata, kasa, kaphanistivana, ghurghuraka, urashoola, ronchi respiratory rate and AEC Count. There was no statistically significant difference in variables like asinolabatesaukyam, peenasa and Peak Flow Meter.

Comparision of Variables between the Groups:

Mann Whitney test was used to compare the effect of treatment on variables in between two groups:

Subjective Parameters (Table No 25):

- **Shwasakricharata:** There was statistically significant difference between two groups with a p value < 0.05 (p 0.01). The Mean difference of

Group A was > Group B (1.15>0.90). Hence Group A was more statistically significant.

- **Kasa:** There was statistically significant difference between two groups with a p value < 0.05 (p 0.035). The Mean difference of Group A was > Group B (1.6>0.85). Hence Group A was more statistically significant.
- **KaphaNistivana:** There was statistically significant difference between two groups with a p value < 0.05 (p 0.003). The Mean difference of Group A was > Group B (1.25>0.70). Hence Group A was more statistically significant.
- **Asinolabatesaukyam:** There was statistically significant difference between two groups with a p value < 0.05 (p 0.003). The Mean difference of Group A was > Group B (1.0>0.20). Hence Group A was more statistically significant.
- **Ghurghuraka:** There was statistically significant difference between two groups with a p value < 0.05 (p 0.02). The Mean difference of Group A was > Group B (1.9>1.05). Hence Group A was more statistically significant.
- **Peenasa:** There was statistically significant difference between two groups with a p value < 0.05 (p 0.029). The Mean difference of Group A was > Group B (1.0>0.35). Hence Group A was more statistically significant.
- **Urashoola:** There was statistically significant difference between two groups with a p value < 0.05 (p 0.014). The Mean difference of Group A was > Group B (0.9>0.45). Hence Group A was more statistically significant.

Objective Parameters (Table No 26):

- **Peak Flow Meter:** There was statistically significant difference between two groups with a p value < 0.05 (p 0.006). The Mean difference of Group A was > Group B (0.55>0.0). Hence Group A was more statistically significant.
- **Ronchi:** There was statistically significant difference between two groups with a p value < 0.05 (p 0.00). The Mean difference of Group A was > Group B (1.0>0.60). Hence Group A was more statistically significant.
- **Respiratory Rate:** There was statistically significant difference between two groups with a p value < 0.05 (p 0.09). The Mean difference of Group A was > Group B (0.9>0.45). Hence Group A was more statistically significant.
- **AEC Count:** There was statistically significant difference between two groups with a P value < 0.05 (P 0.00). The Mean difference of Group A was > Group B (1.65 > 1.15). Hence Group A was more statistically significant.

Table No 25: Comparing the Subjective Variables After Treatment Between Group A and Group B.

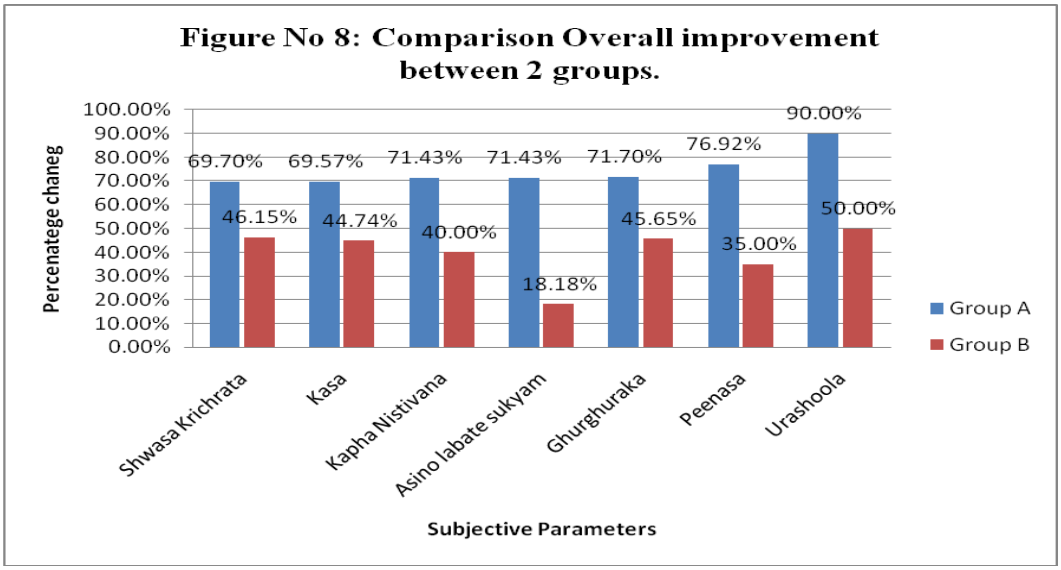
Subjective Criteria	z Value	Mann Whitney U	Sig. (2 tailed)	Mean Difference	
				Group A	Group B
ShwasaKrichrata	-3.656	95.00	0.00	1.15	0.90
Kasa	-2.111	139.00	0.035	1.6	0.85
KaphaNistivana	-3.010	105.00	0.003	1.25	0.70
Asinolabatesukyam	-2.973	106.00	0.003	1.0	0.2
Ghurghuraka	-3.122	112.50	0.002	1.9	1.05
Peenasa	-2.188	130.00	0.029	1.0	0.35
Urashoola	-2.448	130.00	0.014	0.9	0.45

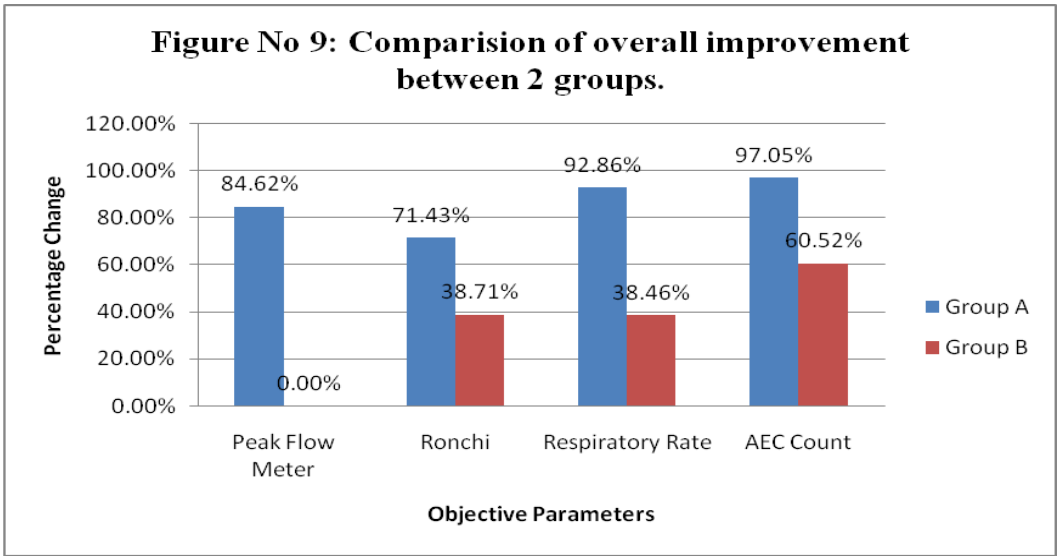
Table No 26: Comparing the Objective Variables After Treatment Between Group A and Group B.

Objective Criteria	z Value	Mann Whitney U	Sig. (2 tailed)	Mean Difference	
				Group A	Group B
Peak Flow Meter	-2.726	120.00	0.006	0.55	0
Rhonchi	-3.667	90.00	0.000	1.0	0.6
Respiratory Rate	-2.617	130.00	0.009	0.65	0.25
AEC Count	-4.554	60.00	0.000	1.65	1.15

RESULT

When two groups after treatment values are compared using Mann Whitney Test all the variables shown statistically significant difference between two groups ($p<0.05$) and since the mean difference of group A was more than group B. Group A was more statistically significant. Thus we can say that Group A has the more significant result when compared with Group B. Overall there is 76.79 % improvement in Group A and 37.94% improvement in Group B. Overall assessment is shown in Table No 27 and 28 & Figure 8 and 9.





On the basis of discussion done and result of this study *KantakariGritha* can be recommended for *ShodanangaSnehana* as *Poorvakarma* specially when performed for the management of *Tamaka Shwasa*.

DISCUSSION

The first detailed description of *Shwasa* is available in *Charaka Samhita*. *Charaka* has narrated the *Nidana Purvarupa*, *Rupa*, *Upshaya*, *Anupashaya Samprapti* and *Chikitsa* of *ShwasaRoga*. Detailed explanation of *Shwasaroga* is available in all *Brihatrayis* and *Laghutrayis*.

Asthma is a "chronic inflammatory disorder of the airways in which many cells and cellular elements play a role. The chronic inflammation causes an associated increase in airway Hyper-responsiveness that leads to recurrent episodes of wheezing,

breathlessness, chest tightness, and coughing, particularly at night or in the early morning. These episodes are usually associated with widespread but variable airflow obstruction that is often reversible either spontaneously or with treatment."

*Charaka*said *shwasaroga* as "*Sheegrapranaharinam*" i.e. the diseases takes away the life as quickly as possible. They can cause emergency condition at any time *(Ashukarinam).* Hence they should be attended very quickly with intensive care *(ShkipramBhishagupachareth),* if delayed the patient will die within minutes like the dried tree reduces to ashes by fire within few minutes. It is because of this reason *Sushruta*has termed *shwasaroga*s as *Mahavyadi* and *Charaka*opines as *Ghoravyadi*.

If the patient is *Kaphadhikyata* and *balawanrogi - Doshas* has to be expelled by *vamana* and *virechana karma*. After this *pathyaahara, vihara* and later followed by *Shwasanashakadhuma, avaleha*etc has to be administered.

If the patient is *Vatadhikyata* and *durbala, Baala, vruddharogi- Vata* has to be alleviated by *Vatanashakadravyas, tarpana, Sneha; yusha, mamsarasa* etc are to be administered.

Virechana is important therapy in *shwasa,* particularly in *Tamaka Shwasa (Tamaketuvirechanam) Sushruta* recommends *mruduvirechana* in *shwasa* with the drugs that have *Vatahara* and *Kaphahara* properties. As the main seat of *shwasa* is *pitta sthana, mruduvirechana* is beneficial to eliminate the *doshas* from the body (KaphaVataatmakavetau pitta sthanasamudhbhavavau).

Charaka has explained that drug which has the properties of *kapha-vatahara, vatanulomana* and *ushnaveerya* has to be used for the treatment of *Tamakaswasa*. Since both *Kantakarigritha* and *Vasa grita* are *Vata-Kaphahara* and indicated in the treatment context of *swasa* by *chakara*. In this present study *Kantakarigritha* and *Vasa gritha* are selected for trial as *Shodananga Snehapana*. The effect of these *gritas* as *shodananga snehapana* and effect of *shodana karma* on *Tamaka Shwasa* is also studied.

All the 40 cases selected for clinical study approached for the treatment for breathing difficulty, cough and hence the study was mainly aimed at giving symptomatic relief. The signs and symptoms like *Shwasakrichrata, kasa, Kaphanistivana, Ghurguraka, Peenasa, Urashoola,*Peakflow meter, Ronchi, Respiratory Rate and AEC Count were observed before and after treatment.

Most of the samples were from the age group of 35 to 50 years (52.5%), 90% of samples were belonging to Hindu religion, 57% were from Middle socio-economic status, 67.5% had mixed diet, 47.5% had the history of Smoking, 40% were belonging to vata-kaphaprakrithi, and 52.50% had family history of bronchial asthma.

Overall within the group in Group-A there was significant difference between before and after treatment in all the variables ($P<0.05$) as per the results of Wilcoxon Signed Rank Test results as described above. In Group-B there was significant difference observed between before and after treatment in variables like Shawsakrichrata, kasa, kaphanistivana, ghurghuraka, urashoola, ronchi respiratory rate and AEC Count ($P<0.05$). There was no statistically significant difference in variables like asinolabatesaukyam, peenasa and Peak Flow Meter($p>0.05$).

When two groups after treatment values are compared using Mann Whitney Test all the variables shown statistically significant difference between two groups ($p<0.05$) and since the mean difference of group A was more than group B. Group A was more statistically significant. Thus we can say that Group A has the more significant result when compared with Group B. Overall there is 76.79 % improvement in Group A and 37.94% improvement in Group B. Overall assessment is shown in Table No 27 and 28 & Figure 8 and 9.

Table No 27: Overall assessment of Subjective criteria		
Subjective criteria	Mean % Change	
	Group A	Group B
ShwasaKrichrata	69.70%	46.15%
Kasa	69.57%	44.74%
KaphaNistivana	71.43%	40.00%
Asinolabatesukyam	71.43%	18.18%
Ghurghuraka	71.70%	45.65%
Peenasa	76.92%	35.00%
Urashoola	90.00%	50.00%

Table No 28: Overall assessment of Objective criteria		
Objective criteria	Mean % Change	
	Group A	Group B
Peak Flow Meter	84.62%	0.00%
Ronchi	71.43%	38.71%
Respiratory Rate	92.86%	38.46%
AEC Count	97.05%	60.52%

Probable Mode of Action:

Snehana is a procedure mentioned under *Shad Upakrama* which is being used independently for the promotion of health, cure of many diseases as well as a part of *Shodhana (Purvakarma). Snehana* is the important *Karma* that decides the whole outcome of *Shodhana*[12]. The *Shodhananga Snehana* effect can be achieved by following one of the available methods of administration of Sneha such as, *Matranusara Snehana, ArohanaSnehana, Sadyo Snehana* and *PravicharanaSnehana*. Among all those correct fixation of *Matra* and correct selection of *SnehaDravyas* plays the most important role. All *Acharyas* have mentioned about *VyadhiAnusara Sneha Matra.*

Tamaka Shwasa is a chronic relapsing disease. In the *samprapti Acharya Charaka* has explained vitiation of *Vata* and *Kaphadosha* and *Udbavasthana* is said to *Pittasthana*. *Acharyacharaka* has explained that drugs which have *Vata-Kaphahara* properties have to be used for the treatment of *Tamaka Shwasa*[13].

Action of SnehaDravya:

KantakariGritha is made up of *Kantakari* and *Guduchi*. *Kantakari* has *Vata-kaphahara, Ushnaveerya, Kasa-Shwasahara, kantya* and anti-inflamatory properties[14]. *Guduchi* is *Tridoshahara, ushnaveerya, rasayana* and has immune booster properties[15]. (Table No: 29)

Table No 29: Probable mode of action of KantakariGritha.

Tamaka Shwasa	Kantakarigritha
KaphaVataPradhanaVyadi	Katu - Tikta Rasa Laghu - RukshaGuna Ushnavirya Doshaghnata - VatakaphaShamaka
Agni Mandya	As Tikta and ushnaveerya is in favour to increase Agnibala, it helps to overcome Agnimandyata.
Amotpatti	TiktaKatu Rasa, UshnaVirya and LaghuRukshaGuna will inhibit the process of Amotpatti.
Pitta sthanasamudbhava	As Tikta is in favour to increase Agnibala and it keeps the vitiated pitta in normal state. Ghrita said to be shresta for pitta. In this manner kantakarighrita which is tiktapradhana keeps the pitta sthana intact.
Srotoavarodha	UshnaVirya acts as Srotoshodhana.
Vyadhinashakatva	Kaphavatanashaka, Pachana, Anulomana, Kasahara, Shwasahara, shothahara properties.
Prakritisthapana	Rasayana Properties of Gritha and Guduchi.

*Vasa*even though it is *Sheetavirya* it is very effective in *pranavahasrotovikaras* due to its *prabhava*. *Vasa* is *Kapha-pittahara*, it has the properties like Antitussive, expectorant, bronchodilator, antibacterial, antioxidant etc. Due to these properties it might have altered the samprapti of the disease[16].

Action of Sneha Karma as a Poorvakarma to Shodhana- *Sneha* acts as a solvent

Action as a Solvent: Ghee acts as good solvent for many metabolic waste products & it enters the cells easily because cell wall is made up of phospholipids. Compared to other non-oily substances, ghee etc. fat materials stays in the body for a stipulated period without causing any harm & also possesses better permeability property[17].

According to *Shusruta*, the disease occurs due to dislodgement of vitiated *Doshas* in the channels during their circulation in the body *Sneha* administered internally reaches to *Srotamsi* and acts as a solvent to remove the obstruction by dissolving *Doshas* in it, resulting in the removal of *Srotorodha*, which is one of the important steps in the *SamprapтiVighatana*.

After proper *Snehana* all the cells of body become completely saturated with fats.

Then the fat material comes out of the cell to extracellular fluid by osmosis process. So due to the aqueous properties of *Sneha* and liquefied *Malas* brought from the tissues, the levels of fatty acids etc. increases in the blood resulting in the high plasma volume. To keep up the equilibrium of the normal plasma level, the extra amount of liquid from it, reaches to the *Koshtha* for expulsion. This is called as *Anu Pravana Bhava*. Later when *Virechana* is administered, this increased amount of the body fluids are evacuated by which the vitiated *Dosha* expelled out resulting in the radical cure of *Tamaka Shwasa*.

CONCLUSION

Tamaka Shwasa is a *Vata-Kaphaja Vyadi* having *Pitta origin*. The *nidanas* mentioned in classics were found in the cases & the disease can be considered as multifactorial. Though family tendency of *Tamaka Shwasa* is present in most of the cases (52.5%), this disease can occur without family history also. Most of the patients had the history of exposure to allergens like dust, smoke etc and many had the habit of smoking. The symptoms mentioned like *shwasakrichrata*, *kasa*, *ghurghuraka* etc were practically observed.

Treatment includes *snehapana*, *vamana*, *virechana* etc procedures. Drugs having *vata-kapahara*, *ushnaveerya* properties are found to be useful.In the present study *Kantakari gritha* and *Vasa gritha* were taken for study and it was found effective when administered it as *Shodananga Snehapana* followed by *shodana*. Over all good improvement (76.79%) was seen in signs and symptoms of *Tamaka Shwasa*, when *Katakarigritha* was used for *Shodananga Snehapana* prior to *shodana* ($P<0.05$).

On the basis of all these discussion it can be concluded that *Katakari Gritha* provided better result in remission of signs and symptoms of *Tamaka Shwasa* like *Shwasakrichrata, kasa, kaphanisteevana, ghurghurka* etc when administered as *Shodananga Snehapana* followed by *Virechana* in the management of *Tamaka Shwasa*.

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