

# International Journal of Statistics and Applied Mathematics

ISSN: 2456-1452  
Maths 2021; 6(1): 252-258  
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<https://www.mathsjournal.com>  
Received: 29-11-2020  
Accepted: 31-12-2020

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## Graphical representation of prevalence of tamaka shwasa viz-a-viz bronchial asthma

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**DOI:** <https://doi.org/10.22271/math.2021.v6.i1c.924>

### Abstract

Tamaka Shwasa is one the Chronic disorders of pranavaha srotas that disturbs the daily activities by producing kasa and shwasa krucchrata. Bronchial asthma is characterized by paroxysms of dyspnoea, accompanied by wheezing resulting from narrowing of the bronchial airways by muscle spasm, mucosal swelling or viscid secretion tenacious mucus. There are many fatal diseases but none of the diseases take away the life as quickly as shwasa roga, it is sheeghra pranahari. In the present era respiratory illness is increasing day to day due to genetic susceptibility, pollution, seasonal changes, environmental factors, drugs, recurrent respiratory infection, smoking, change in diet and life style. In the present study, the objective is to observe the incidence occurrence of Tamaka Shwasa viz-a-viz Bronchial Ashtma in different parameters such as Age, Sex, Occupation, Socio-economic Status, Marital Status Ahara, Locality, Family History, Onset, Habits, Treatment History, Chronicity And to observe the effect of Kantakari Ghrita, Ghrita bhrishta Haridra and Simhyadi Kashaya in the management of Tamakashwasa. The results were statistically analysed using Descriptive statistics, Chi-square test/ cross tabulation and repeated measure ANOVA measure.

**Key words:** Tamaka shwasa, bronchial asthma, respiratory disease, chronic disorder

### Introduction

Bronchial Asthma is a major Non communicable disease. Throughout the world Asthmatic's fall between the ranges of 100 to 150 million people. Worldwide deaths from this condition have reached over 180000 annually. The percentage of people having Bronchial Asthma is increased markedly all over India from 1950. As per World Health Organization, India has 15-20 million asthmatics, about 2.5% of adults have a clinical diagnosis of asthma [1]. In the present era respiratory illness is increasing day to day due to genetic susceptibility, pollution, seasonal changes, environmental factors, drugs, recurrent respiratory infection, smoking, change in diet and life style Among all the respiratory illness, bronchial asthma is responsible for the major burden for morbidity and mortality [2].

Bronchial Asthma is disease of airways that is characterized by increased responsiveness of the tracheo bronchial tree to a variety of stimuli resulting in wide spread spasmodic narrowing of the air passages which may be relieved spontaneously or by therapy [3]. Tamaka Shwasa is one of the Chronic disorders of pranavaha srotas that disturbs the daily activities by producing kasa and shwasa krucchrata. Bronchial Asthma to which Tamaka shwasa is compared [4].

When we critically analyze the causative factors of Tamaka Shwasa air pollution takes the prime role. Urbanization, overcrowding, industrialization, stressful life, unusual food stuffs and abnormal food style, that all exposes the humans to suffer with tamaka shwasa [5]. There are many fatal diseases but none of the diseases take away the life as quickly as shwasa roga, it is sheeghra pranahari [6].

The management involves alleviation of an attack and prevention of new attacks and to improve the lung functions. As this is a chronic condition it requires frequent treatment and attention to avoid complications. The line of treatment involves consumption of medications frequently with kaphavatahara drugs.

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In this study from the heap of innumerable yogas mentioned in ayurveda, Kantakari Ghritha [7], Ghritha bhrishta Haridra [8] and Simhyadi Kashaya [9] were selected.

**Methodology**

It was an observational clinical study comprising of 100 patients in a single group. The materials utilized for the study were;

- Kantakari gritha.
- Ghrithabhrasta Haridra.
- Simhyadi kashaya

**Methods**

**Objectives**

To evaluate and observe the effect of Kantakari Ghritha, Ghritha bhrishta Haridra and Simhyadi Kashaya in the management of Tamaka Shwasa (Bronchial Asthma).

**Research Design**

It was an observational clinical trial with pre, mid and posttest design. The patients were assigned into a single group.

**Sampling**

Total 100 patients, diagnosed to have Tamaka Shwasa were selected incidentally from the OPD and special camp conducted in GAMC & H, Mysore. Drop outs at any stage were excluded from the study.

**Inclusion Criteria**

- Age 12-70yrs
- Either sex
- History of episodes of previous attacks
- Mild to moderate type of patients of Tamaka Shwasa with special reference to Bronchial Asthma with signs & symptoms like Peenasa Rhinitis Shwasa Kruccrata Breathlessness Ghurghuraka Wheezing Kasa Cough

**Exclusion Criteria**

- Age <12 and >70 yrs
- Severe life threatening type of Tamaka Shwasa associated with complications
- Secondary infections of respiratory system.
- Any other systemic disorders, interfering with course of treatment.

**Diagnostic Criteria**

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

**Investigations**

1. Peekflowmetry
2. Blood for Hb%, TC, DC, ESR, AEC

**Interventions**

Medicines were given orally for 1 mandala (48 days)

1. Kantakari Ghritha as shamana sneha 30ml with ushnodaka once in the morning
2. Ghritha bhrishta Haridra – 3-6gms given twice daily with ushnodaka
3. Simhyadi kashaya – 15ml with luke warm water muhurmuha prayoga

**Methods of Assessment of Treatment**

The results were assessed on the basis of severity of the symptomatology such as Shwasakrucchrata, Ghurghuraka, Kasa and through the values of P.E.F.V. Symptoms Score. i.e. 0 to 4 grading were given.

The data were collected from the patients on 0<sup>th</sup> day, on 16<sup>th</sup> day, 32<sup>nd</sup> day, and on 48<sup>th</sup> day. The results were compared and analyzed statistically applying following Statistical methods [10].

- Descriptive statistics
- Chi-square test/ cross tabulation
- Repeated measure ANOVA.

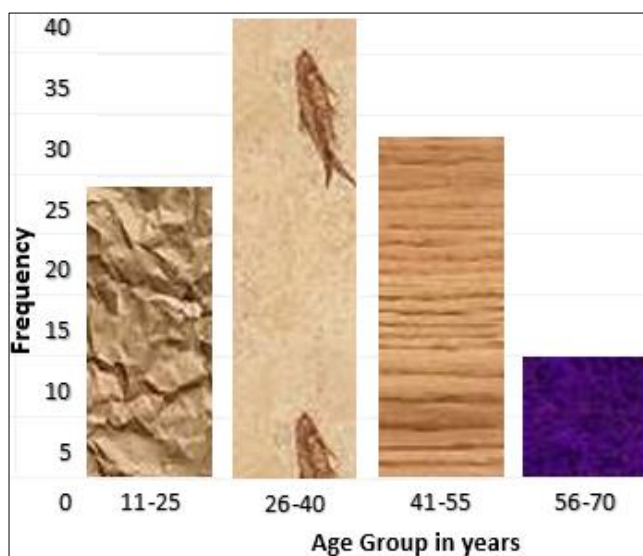
**Observation and Discussion**

In the present study total 102 patients were registered, out of which 2 patients discontinued the treatment during various stages of the clinical study and with 100 patients the clinical study was completed.

**Age**

**Table 1:** Age wise incidence

| Age in yrs | Frequency | Percent |
|------------|-----------|---------|
| 11-25      | 24        | 24.0%   |
| 26-40      | 38        | 38.0%   |
| 41-55      | 28        | 28.0%   |
| 55-70      | 10        | 10.0%   |
| Total      | 100       | 100.0%  |



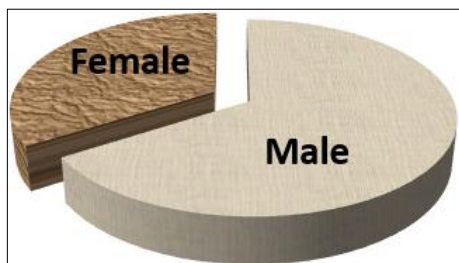
**Fig 1:** Age wise incidence

The observation shows distribution of cases in all the age groups. Hence it can be said, that Tamaka shwasa can develop at any age. Maximum numbers of patients were from age group of 26-40 years. As observations are noticed it is clearly evident that, the active age group people are more prevalent because of the increased airway infiltration with dust and smoke.

**Sex**

**Table 2:** Sex wise incidence

| Sex    | Frequency | Percent |
|--------|-----------|---------|
| Male   | 66        | 66.0%   |
| Female | 34        | 34.0%   |
| Total  | 100       | 100.0%  |



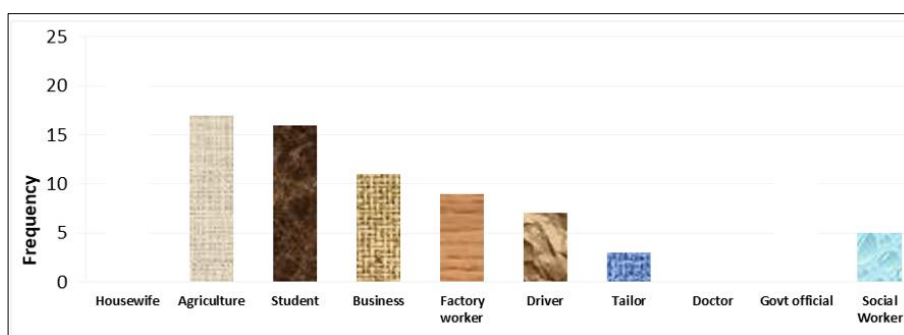
**Fig 2:** Sex wise incidence

Among 100 patients, maximum number of patients i.e., 66 (66.0%) patients were male and 34 (34.0%) patients were female. As Tamaka shwasa has no sex bias, both the genders were selected for the study. There were more incidences of Tamaka shwasa in males 66 (66.00%) in the study.

**Occupation**

**Table 3:** Occupation wise incidence

| Occupation     | Frequency | Total |
|----------------|-----------|-------|
| Housewife      | 20        | 20.0% |
| Agriculturist  | 17        | 17.0% |
| Student        | 16        | 16.0% |
| Business       | 11        | 11.0% |
| Factory worker | 9         | 9.0%  |
| Driver         | 7         | 7.0%  |
| Tailor         | 3         | 3.0%  |
| Doctor         | 1         | 1.0%  |
| Govt. Official | 11        | 11.0% |
| Social worker  | 5         | 5.0%  |
| Total          | 100       | 100%  |



**Fig 3:** Occupation wise incidence

Cases having different occupations were assigned into the study, The higher incidence in housewives probably may be because of their constant exposure to allergens like house dust constituents etc. It can be said that, irrespective of the occupation, one can develop Tamaka shwasa as long as they are exposed to dust, smoke, excess humidity, cold in their work place.

There were more cases from middle class 31 (31.0%) lower middle class 27 (27.0%), as they are under constant exposure of CO<sub>2</sub>, SO<sub>2</sub> released from the fuels used for routine activity.

**Socio-Economic Status**

**Table 4:** Socio Economic status wise incidence

| Socio Eco Status | Frequency | Total |
|------------------|-----------|-------|
| Poor             | 9         | 9.0%  |
| Lower Middle     | 27        | 27.0% |
| Middle           | 31        | 31.0% |
| Upper Middle     | 22        | 22.0% |
| Rich             | 11        | 11.0% |
| Total            | 100       | 100%  |



**Fig 4:** Socio Economic status wise incidence

**Marital Status**

**Table 5:** Marital status wise incidence

| Marital Status | Frequency | Total |
|----------------|-----------|-------|
| Married        | 76        | 76.0% |
| Unmarried      | 24        | 24.0% |
| Total          | 100       | 100%  |



**Fig 5:** Marital status wise incidence

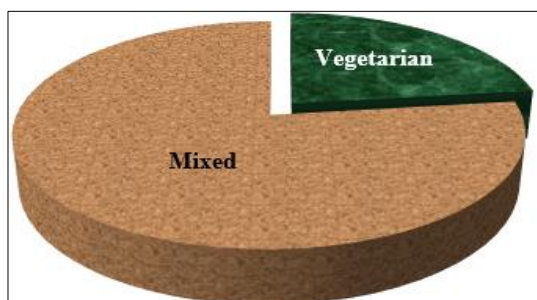
About, 76 (76.0%) cases were married. The higher percentage of patients from the married group might be due to the anxiety, panic, anger, sexual excitement in the married person. Reckmann F.M. (1958) has reported that anxiety panic, anger, jealousy, sexual excitement may trigger bronchial asthma. But, marital status has no role in Tamaka shwasa except a misunderstanding leading to emotional disturbance and acting as predisposing factor.



**Ahara**

**Table 6:** Diet Pattern wise incidence

| Diet pattern | Frequency | Total |
|--------------|-----------|-------|
| Vegetarian   | 23        | 23.0% |
| Mixed        | 77        | 77.0% |
| Total        | 100       | 100%  |



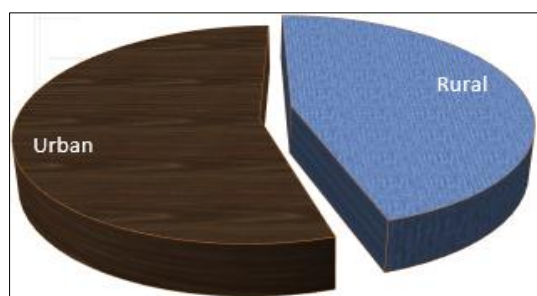
**Fig 6:** Diet Pattern wise incidence

In the study most of the patients i.e. 77 (77.0%) were habituated to mixed food. It was observed that, in most of the patient’s consumption of fish and oily foods worsened the symptoms. So by this we can say that, patients habituated to mixed type of food were more prone to. Also Consumption of more spicy food may cause further vitiation of dosha which cause shwasa. Consuming oily, spicy food, fish etc. are more prone to act as allergens Which proves the statement of modern literature. But, it cannot be generalized that, vegetarians are on safer side from the disease.

**Region**

**Table 7:** Habitat wise incidence

| Habitat | Frequency | Total  |
|---------|-----------|--------|
| Urban   | 55        | 55.0%  |
| Rural   | 45        | 45.0%  |
| Total   | 100       | 100.0% |



**Fig 7:** Habitat wise incidence

It was observed that a majority of patients were from urban areas. Probably due to increased free particles and gases in air as a result of industrialization and vehicles. Exposure to smoke and allergens might be the possible reason for higher number of patients from the urban area.

**Family History**

**Table 8:** Incidence family history

| Family History | Frequency | Total |
|----------------|-----------|-------|
| Present        | 41        | 41.0% |
| Absent         | 59        | 59.0% |
| Total          | 100       | 100%  |



**Fig 8:** Incidence family history

Among 100 patients, 59 patients (59.0%) presented with negative family history and 41patients (41.0%) had positive family history. The present study doesn't supports the earlier view of asthma running in families.

It can be said that, irrespective of the family history, one can develop Tamaka shwasa as long as they are exposed to dust, smoke, excess humidity, cold in their work place.

**Chronicity**

**Table 9:** Chronicity wise incidence

| Chronicity (in yrs) | Frequency | Total |
|---------------------|-----------|-------|
| Since birth         | 5         | 5.0%  |
| <1                  | 22        | 22.0% |
| 1-5                 | 44        | 44.0% |
| 6-10                | 16        | 16.0% |
| 11-20               | 10        | 10.0% |
| Above 20            | 3         | 3.0%  |
| Total               | 100       | 100%  |



**Fig 9:** Chronicity wise incidence

Maximum numbers of patients were having the chronicity ranging between 1-5 years. This shows that shwasa is a disorder having the nature of chronicity.

**Results**

Efficacy of the treatment can be appreciated when the results are statistically analyzed using the parameters taken for the study. Data was collected before, during and after treatment. These were analyzed by using- Contingency coefficient table analysis. Repeated measure ANOVA, descriptive statistics using SPSS for windows (version 16).

**Shwasakrichrata**

**Table 10:** Showing results of shwasakrucchrata

| Duration             | Shwasakrichrata |           |               |             |                  | Total |
|----------------------|-----------------|-----------|---------------|-------------|------------------|-------|
|                      | NIL (S0)        | Mild (S1) | Moderate (S2) | Severe (S3) | Very severe (S4) |       |
| 0 <sup>th</sup> Day  | 1               | 9         | 41            | 12          | 37               | 100   |
| 16 <sup>th</sup> Day | 52              | 3         | 9             | 36          | 0                | 100   |
| 32 <sup>nd</sup> Day | 59              | 3         | 38            | 0           | 0                | 100   |
| 48 <sup>th</sup> Day | 61              | 32        | 7             | 0           | 0                | 100   |
| Cc value             | .672            |           |               |             |                  |       |
| P value              | 0.000           |           |               |             |                  |       |

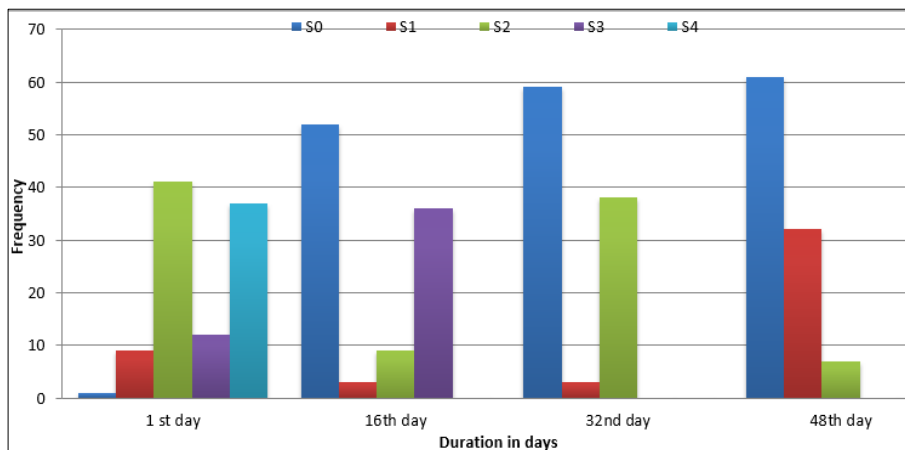


Fig 10: Showing results of shwasakrucchra

Among total 100 patients of Tamaka Shwasa, who were taken for the present clinical study, 37 patient had very severe, 12 had severe, 41 had moderate, 9 had mild and 1 patient did not had Shwasakrichrata.

After the treatment, no patients had very severe and severe Shwasakrichrata, 7 patients showed moderate Shwasakrichrata, 32 patients had mild Shwasakrichrata, and 61 patients persisted to have no Shwasakrichrata. Statistically it showed highly significant association with  $P= 0.000$ . Contingency Coefficient= $0.672$ .

The result obtained regarding the parameter Shwasakrucratha showed highly significance as the 'P' value is less than  $0.000$ . As 37% of the patients had very severe shwasakrichrata 12% had severe, 41% had moderate, 9% had mild Shwasakrucratha. After completion of the treatment, 61% of patients had no shwasakrichrata, 32% patients shifted to mild Shwasakrichrata and 7% patients showed moderate Shwasakrichrata. None of the patients had severe and very severe Shwasakrichrata. Totally 61.0% of the patients had complete relief from the symptom shwasakrichrata.

This may be due to the combined effect of the trial drugs. It is because of kaphashoshana, srotoshodhak, shothahara, vata anulomana and shwasahara properties of the drugs. The drugs also have showed anti-microbial, anti-inflammatory and mast cell stabilizing action and thus relieving the broncho constriction, minimizes the exacerbations or frequency of attacks.

**KASA**

Table 11: Showing results of Kasa

| Duration             | Kasa    |           |               |             |                 | Total |
|----------------------|---------|-----------|---------------|-------------|-----------------|-------|
|                      | NIL(S0) | Mild (S1) | Moderate (S2) | Severe (S3) | Very severe(S4) |       |
| 0 <sup>th</sup> Day  | 0       | 7         | 48            | 42          | 3               | 100   |
| 16 <sup>th</sup> Day | 48      | 10        | 39            | 3           | 0               | 100   |
| 32 <sup>nd</sup> Day | 56      | 36        | 8             | 0           | 0               | 100   |
| 48 <sup>th</sup> Day | 63      | 34        | 3             | 0           | 0               | 100   |
| Cc value             | .637    |           |               |             |                 |       |
| P value              | 0.000   |           |               |             |                 |       |

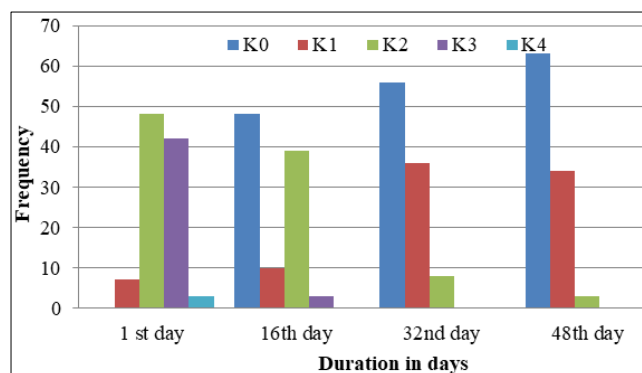


Fig 11: Showing results of Kasa

Among total 100 patients of Tamaka Shwasa, who were taken for the present clinical study, 3 patient had very severe, 42 had severe, 48 moderate and 7 had mild Kasa.

After the treatment, 3 patients showed moderate kasa, 34 patients had mild kasa, 63 patients persisted to have no bouts of kasa. Statistically it showed highly significant association with  $P= 0.000$ . Contingency Coefficient= $0.637$ .

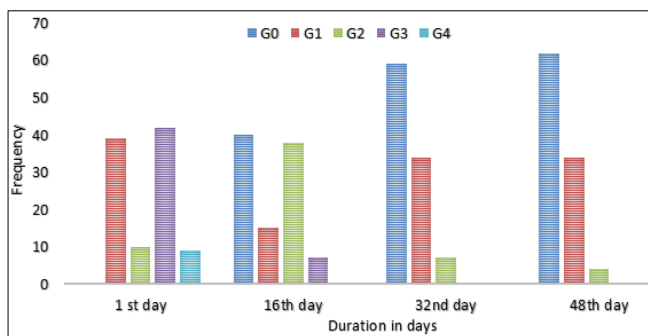
In the present study the drug effect w.r.to the parameter Kasa was highly significant as the 'P' value is less than  $0.000$ . As 3% patient had very severe, 42% had severe, 48% moderate and 7%had mild Kasa. After the treatment, 63% patients persisted to have no bouts of Kasa, 3% patients showed moderate Kasa, 34% patients had mild Kasa. None of the patients had severe and very severe Kasa. Totally 63.0% of the patients had complete relief from the symptom Kasa.

This may be due to the combined effect of the trial drugs. It is because of vata kaphahara, vatanulomana, shothahar, kasahara properties of the drugs. The drugs also have showed anti-microbial, anti-inflammatory, mucolytic and expectorant action and thus minimize the bouts of cough or frequency of attacks.

**Ghurghuraka**

**Table 12:** Showing results of Ghurghuraka

| Duration             | Gurghuraka |           |               |             |                  | Total |
|----------------------|------------|-----------|---------------|-------------|------------------|-------|
|                      | NIL (S0)   | Mild (S1) | Moderate (S2) | Severe (S3) | Very severe (S4) |       |
| 0 <sup>th</sup> Day  | 0          | 39        | 10            | 42          | 9                | 100   |
| 16 <sup>th</sup> Day | 40         | 15        | 38            | 7           | 0                | 100   |
| 32 <sup>nd</sup> Day | 59         | 34        | 7             | 0           | 0                | 100   |
| 48 <sup>th</sup> Day | 62         | 34        | 4             | 0           | 0                | 100   |
| Cc value             |            |           |               |             |                  | .619  |
| P value              |            |           |               |             |                  | 0.000 |



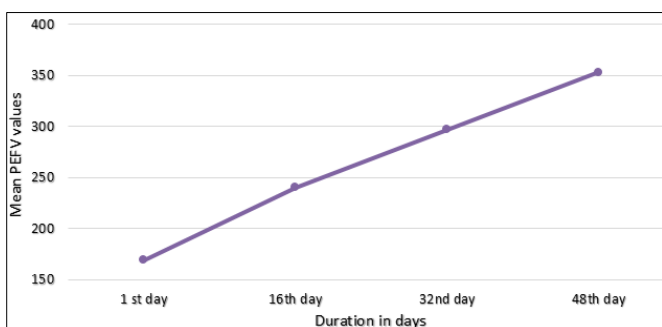
**Fig 12:** Showing results of Ghurghuraka

Among total 100 patients of Tamaka Shwasa, who were taken for the present clinical study, 9 patient had very severe, 42 had severe, 10 had moderate and 31 had mild Ghurghuraka. After the treatment, 4 patients showed moderate Ghurghuraka, 34 patients had mild Ghurghuraka, 62 patients persisted to have no bouts of Ghurghuraka. Statistically it showed highly significant association with P= 0.000. Contingency Coefficient= 0.619.

**Peak Expiratory Flow Volume**

**Table 13:** Showing Results of Peak Expiratory Flow Volume

| Peak expiratory flow volume |       |                    |     |
|-----------------------------|-------|--------------------|-----|
| Duration                    | Mean  | Standard deviation | N   |
| 0 <sup>th</sup> Day         | 168.8 | 72.21              | 100 |
| 16 <sup>th</sup> Day        | 240.2 | 72.78              | 100 |
| 32 <sup>nd</sup> Day        | 296.7 | 73.44              | 100 |
| 48 <sup>th</sup> Day        | 352.6 | 80.25              | 100 |



**Fig 13:** Showing Results of Peak Expiratory Flow Volume

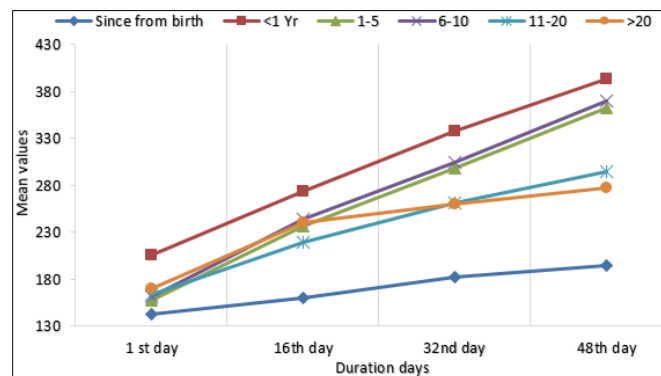
Before treatment in mean was 168.8 with SD of 72.21293, after treatment mean were 352.6 with SD of 80.25993. P values for overall changes from before, during and after test is 0.000 – HS

In present study the mean PEFV before the treatment were 168.8 with SD of 72.21293. The mean PEFV after the treatment was for group A was 352.6 with SD of 80.25993. P

value for overall changes from pre, mid and post-test is 0.000 is statistically highly significant.

The improvement in the PEFV can be attributed to broncho dilation, and improvement in long elastic recoil which helps in improvement of lung ventilations.

**Results showing with respect to chronicity**



**Fig 14:** Showing results with respect to chronicity

In the present clinical study chronicity is ranging from minimum of 2 months to maximum of 20 years chronic history patients were observed. Results with respect to chronicity in the study showed that the persons who have less chronicity had shown better and faster relief from the symptoms whereas patients having more chronicity has improved gradually.

Results with respect to chronicity in the study showed that the persons who have less chronicity had shown better and faster relief from the symptoms whereas patients having more chronicity has improved gradually. As the chronicity increases, mucosal thickening occurs, this in turn causes fibrosis in the thickened mucosal part of the tracheo bronchial tree. This causes narrowing of the airways. Fibrosis is the permanent change which occurs in the tracheo bronchial tree due to mucosal thickening in bronchial asthma.

**Conclusion**

Tamaka shwasa is vata-kaphaja vyadhi having pitta origin. Though family tendency of Tamaka shwasa is present in most of the cases, this disease can occur without family history also.

The symptom “tamasa vardhate athyrtam” was found in all the patients, hence can be considered as cardinal feature of tamaka shwasa.

Peak flowmetry analysis is helpful to know the prognosis of the disease or for the assessment of the lung capacity.

The results were compared and analyzed statistically applying following Statistical methods-i) Descriptive statistics, ii) Chi-square test/ cross tabulation and iii) Repeated measure ANOVA.

Ghrita preparations having shwasa-kasahara drugs like Kantakari ghrita is beneficial in Tamaka shwasa. Concept of muhurmuha prayoga of shwasahara kashaya’s like simhyadi Kashaya helps to control the attacks of Tamaka shwasa. Use of Anti allergic and Immuno modulator drugs like Ghrita bhrishtha Haridra is beneficial in Tamaka shwasa.

Over all the line of treatment of Tamaka shwasa may include avoiding the causative factors, usage of anti-allergic, mucolytic, expectorant, anti-inflammatory, broncho dilator and immunomodulator.

Patients having lesser chronicity have showed the better results.

Those who had the habit of smoking didn't respond to the treatment satisfactorily.

Concept of muhurmuha aushandha prayoga in case of shwasa as told in classics is proved beneficial.

Age group between 26-60 years showed better results in both subjective and objective criteria.

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