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# A CLINICAL STUDY TO EVALUATE THE EFFICACY OF SYRUP AND CAPSULE SHWASI IN THE MANAGEMENT OF BRONCHIAL ASTHMA W.S.R. TAMAK SHWASA

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## ABSTRACT

**Background:** *Tamak Shawas* is a type of *Shwasa Roga* associated with difficulty in breathing. Movement of air through the *Pranavaha Sarotas* is hampered in this disease resulting in the cry of the organ heading towards complete failure for want of air. *Tamak Shawas* is well known for its episodic and chronic course. It is analogous to Bronchial Asthma in contemporary medicine. The global prevalence of asthma is approximately 4.5 % and 334 million people in the world are suffering from asthma. About 250,000 to 345,000 deaths annually occur due to asthma world-wide.[1] There are many drugs available in contemporary medicine at present day but, none of the available treatments are found to be effective to provide a complete cure of this disease without having adverse effects. The need of some safe and potential ideal anti asthmatic drug is always felt by medical fraternity. So the present study has been planned to assess the anti-asthmatic effect of trial drugs. **Methods:** 30 patients fulfilling the inclusion criteria of Bronchial Asthma were randomly selected and divided into two groups, Group-I and Group-II comprising

of 15 patients each. Data was collected and recorded in detail in a clinical proforma. The obtained data was analyzed statistically. Overall percentage improvement in each patient was calculated. **Results:** Analysis revealed that Group-I patients treated with Cap. Shwasi showed promising results in bronchial asthma while, Group-II patients managed with Capsule Shwasi along with Syrup Shwasi showed marginally better improvement in various subjective as well as objective parameters. **Interpretation and Conclusion:** Thus, Capsule and Syrup Shwasi proved to be safe and effective remedy in managing Bronchial Asthma. The present study provided a lead for the further study.

**KEYWORDS:** *Tamak Shwasa*, Bronchial Asthma, *Ayurveda.*

## INTRODUCTION

Respiration or breathing in and out is the evidence feature of life. The prevalence of respiratory disorders is increasing due to increasing pollution, overcrowding and poor hygiene. Tamak Shawas is a variety of Shwasa Roga associated with difficulty in breathing. Movement of air through the Pranavaha Sarotas is hampered in this disease resulting in the cry of the organ heading towards complete failure for want of air. Tamak Shwasa well known for its episodic and chronic course which comes under the life threatening diseases. It is divided into two types, which are Santamak and Pratamak Shwasa.[2] It is analogous to Bronchial Asthma in Modern system of medicine due to similarity in symptoms, pathogenesis, onset, causes and precipitating factors.

The Global prevalence of asthma is approximately 4.5 % and 334 million people in the world are suffering from asthma. About 250,000 to 345,000 deaths annually occur due to asthma world-wide.[1] Taking unwholesome diet, concentrated drinks, smoking, cold drinks, allergens, chemical irritants, congested work places, respiratory infections, etc. are the major risk factors of the provocation of the diseases of respiratory tract and same for Bronchial asthma too.[3] There are many drugs in modern medicine, which do have potent bronchodialator and antispasmodic effect. But, none of them has got a curative potential and they are also required to be given for a very long duration of time. On the other hand prolonged use of these drugs are not good for overall health, as they have many adverse effects with systemic manifestations.[4] The need of some safe and potential ideal anti asthmatic drug is always felt by medical fraternity. So the present study has been planned to assess the anti-asthmatic effect of Syrup and Capsule *Shwasi.*

## AIMS AND OBJECTIVES

- **Primary objective:** To evaluate the efficacy of Capsule and Syrup Shwasi in the management of Bronchial Asthma.
- **Secondary objective**: To study the adverse effects of Capsule and Syrup Shwasi if any.

## MATERIALS AND METHODS

A total of 30 patients fulfilling the criteria of diagnosis were **s**elected and registered from the OPD/IPD of Kayachikitsa department, Rajiv Gandhi Government Post Graduate Ayurvedic College and Hospital Paprola, Kangra (H.P.) The proposed research work was presented in the form of synopsis to Institutional Ethical Committee and clearance was obtained before commencement of trial vide Letter No. **1052** dated **08-11-2017.** Patients were explained about various aspects of the clinical study including trial drug and their probable side effects and a written consent was taken before enrollment in the study. Detailed case record proforma was prepared including details of the patients, disease, and demographic profile, detailed history followed by general physical examination, systemic examination and laboratory investigations.

### Inclusion criteria

i. Patients willing for trial.
ii. Age between 20 -60 years of either sex.
iii. Patients presenting with clinical features of *Tamak Shwas* / Bronchial Asthma with impaired Pulmonary Function Tests.

### Exclusion criteria

i. Patients not willing for the trial or not ready to give informed consent.
ii. Patients of age < 20 and > 60 years.
iii. Patients with uncontrolled hypertension and diabetes mellitus with complications.
iv. Patients having malignancy, chronic cardiac illness, hepatic disorders, renal disorders, tuberculosis and other co-morbid diseases which require prolong treatment.

### Lab investigations

- Complete haemogram (Hb, TLC, DLC, and ESR.)
- Pulmonary function test (FEV1, PEFR)
- Fasting blood sugar
- Renal function test (B. Urea, S. Creatinine)

- X Ray chest PA view

**TRIAL DRUG DETAILS**

**Components used in formulation of Capsule and Syrup *Shwasi***

**Table 1: Capsule *Shwasi*- Composition of each unit of the capsule.**

| Sr. No | Name of the drug | Latin name | Descriptive role | Quantity/capsule |
|---|---|---|---|---|
| 1. | *Somlata Ghan* | *Ephedra girardiana* | Anti-microbial,anti- inflammatory | 75mg |
| 2. | *Vasa Ghan* | *Adhatoda vasica* | Antitussive,expectorant bronchodilator. | 50mg |
| 3. | *Shwas Kuthar Rasa* (AFI) | - | *Vatashleshm* a *Jwara,Kasa hara*[5] | 50mg |
| 4. | *Abhrak Bhasma* (AFI) | - | Anti-inflammatory, immunomodulator, *Rasayana,Vrishya, Yogavahi* | 25mg |
| 5. | *Shring Bhasma* (AFI) | - | Expectorant, mucolytic | 25mg |
| 6. | *Apamarg Kshar* (AFI) | *Achyranthes aspera* | Anti-inflammatory | 10mg |
| 7. | *Kadli Kshar* (AFI) | *Musa acuminate* | Immune modulatory, anti-oxidant,anti-microbial | 10mg |
| 8. | *Mal Sindoor* (AFI) | - | Anti-viral anti-bacterial, useful in *vat kapha* disorders | 5 mg |
| 9. | Excipient | | | q.s. |

**Table 2: Syrup *Shwasi*- Composition of Syrup is as under.**

**Aq. Extract of**

| Sr. No | Name of the drug | Latin name | Descriptive role | Quantity/5ml Syrup |
|---|---|---|---|---|
| 1. | *Apamarga* | *Acyranthes aspera* | Broncho-protective,anti-inflammatory | 100mg |
| 2. | *Arjuna* | *Terminalia arjuna* | Antioxidant,anti-inflammatory,anticarcinogenic,anti atherogenic | 100mg |
| 3. | *Vanfsa* | *Viola odorata* | Expectorant, anti-inflammatory, anti-pyretic. | 100mg |
| 4. | *Bharangi* | *Clerodendrum serratum* | Anti-oxidant,anti-allergic,hepatoprotective | 100mg |
| 5. | *Vibhitak* | *Teminalia bellirica* | Anti-asthmatic,anti-tussive, anti-spasmodic,anti-oxidant. Treat cough and sore throat[6] | 100mg |
| 6. | *Dhatura* | *Dhatura metel* | Antiasthmatic, Antispasmodic, Antitussive and bronchodilator. | 100mg |
| 7. | *Gaazbaan* | *Onosoma bracteatum* | Anti-oxidant, anti-bacterial, psycoimmunomodulatory action | 100mg |

| | | | | |
|---|---|---|---|---|
| 8. | *Kantkari* | *Solanum xanthocarpum* | Anti-histaminic, anti-asthamatic, anti-inflammatory | 100 mg |
| 9. | *Kapur kachri* | *Hedychium spicatum* | Anti-histaminic, anti-pyretic, anti-microbial. | 100mg |
| 10. | *Resha-e-khatmi* | *Althaea officinalis* | Anti-tussive, anti-inflammatory, demulcent,emollient | 100mg |
| 11. | *Sapistan* | *Cordia dichotoma* | Anti-bacterial,anti tussive | 100mg |
| 12. | *Somlata* | *Ephedra gerardiana* | Anti-microbial,anti- inflammatory | 100mg |
| 13. | *Vasaka* | *Adhatoda vesical* | Anti-tussive,expectorant bronchodilator. | 100mg |
| 14. | *Yashtimadhu* | *Glycyrrhiza glabra* | Anti-inflammatory,[6] Anti-oxidant, anti asthamatic,anti tussive,demulcent | 100mg |
| 15. | *Draksha* | *Vitis vinifera* | *Jwara gana* , anti-oxidant | 50mg |
| 16. | *Pushkarmool* | *Inula racemosa* | Broncho dialator,expectorant | 50mg |
| 17. | *Unaab* | *Zigyphus vulgaris* | Anti-oxidant,immunostimulant | 50mg |
| 18. | *Zufa* | *Hyssopus officinalis* | Expectorant, used in sore throat,cold | 50mg |

**Powder of**

| | | | | |
|---|---|---|---|---|
| 1. | *Nrisar* | Ammonium chloride | Expectorant | 50mg |
| 2. | *Sudh Tankan* | Purified borax | Anti-microbial | 50mg |
| 3. | *Sat pudina* | Menthe piperita | Digestive, Used in IBS, headache etc,sensitizer | 2mg |

**Distilled extract**

| | | | | |
|---|---|---|---|---|
| 1. | *Nila thotha* | Copper sulphate | Anti-fungal,analgesic,astringent | 160mg |
| 2. | *Phitkari* | Alum | Anti-inflammatory,astringent,anti-haemorrhagic,larvicidal | 160mg |
| 3. | *Kalmishora* | Salt petra | Anti asthamatic,anti-inflammatory | 40mg |
| 4. | *Tankan (Shuddh)* | Borax | Expectorant, antibacterial | 40mg |
| 5. | *Chuna* | Lime | Rejuvinate skin, anti-oxidant | 10mg |
| 6. | *Gandhak* | Sulphar | Anti-bacterial, anti-pyretic,adaptogic | 10mg |
| 7. | *Lotta sajji* | *Salsola baryosma* | Anti-bacterial, anti-tumor | 20mg |
| 8. | *Mal* | Processed Arsenic | Anti-bacterial,anticancerous | 5 mg |
| 9. | *Hartaal* | Yellow Arsenic | Anti-bacterial,anticancerous | 5 mg |
| 10. | *Nrisar* | Ammonium chloride | Expectorant | 10mg |
| 11. | Base | | | Q.S. |

The trial drug was prepared and provided by Shree Dhanwantri Herbals Amritsar following G.M.P. norms.

**Grouping of the patients**

Study was conducted on 30 selected patients. Study subjects were randomly divided in two groups:

**Group 1**: In this group patients were given Capsule Shwasi.

**Dosage:** 2 Capsule TID with water. (500mg each)

**Group 2:** In this group patients were given Syrup Shwasi along with Capsule Shwasi.

**Dosage:** 10 ml TID & 2 Capsule TID with water

**Mode of administration**: Oral

**Duration of Trial:** 30 Days

**Follow up:** After every 15 days till completion of the trial.

**Criteria of assessment:** To evaluate the effect of therapy, study subjects were assessed on various subjective and objective parameters.

**Subjective assessment**

Subjective parameters incorporated following clinical features of *Tamak Shwas* / Bronchial Asthma.

- Episodic breathlessness
- Chest tightness
- Cough
- Wheezes

Scoring system was adopted for the assessment of various subjective parameters.

Assessment of subjective parameter (clinical features) and objective parameters depending on severity was done as four point scale.

**OBJECTIVE ASSESSMENT**

The objective parameters incorporated following criteria

- $FEV_1$
- PEFR

**Data collection and analysis**

Data was collected and recorded in detail in cinical proforma. The obtained data was analyzed statistically and expressed in terms of mean score before treatment (BT), after

treatment (AT), difference of mean (BT – AT), standard deviation (SD) and standard error (SE). Overall percentage improvement of each patient was calculated.

Student paired‘t’ test was applied at $p > 0.05$, $p < 0.05$, $p < 0.01$, and $p < 0.001$, to observe significance of results obtained after treatment. The results were considered significant or insignificant depending upon the value of p.

- Highly significant - $p < 0.001$
- Significant - $p < 0.05$-0.01
- Insignificant - $p > 0.05$

**Overall assessment of therapy**

For the purpose of overall assessment of the effect of therapy the patients were categorized according to the following grades:

- Complete remission - 100% improvement in clinical features
- Markedly improved - 76-99% improvement in clinical features
- Moderately improved- 51-75 % improvement in clinical features
- Mildly improved - 26-50% improvement in clinical features
- No improvement - Below 25% improvement in clinical features

## OBSERVATIONS

**General observations made in the study were**

- A total of 30 patients of *Tamaka Shwasa* were registered in this trial, out of which 29 patients completed the course of the treatment. Maximum patients (83.33%) in this trial were from age group of 41-60 year. 56.63% subjects were found to be males and rest were females.
- 46.67% of the subjects in the present study gave positive family history of the disease.
- Majority of the subjects 86.67% were dwelling in the rural area which may be due to the fact that hospital is located in a rural place.
- 3333% of the subjects were studied only upto primary level, 26.67% were studied upto matric and 26.67% were illiterate.
- Maximum number of subjects (40%) were farmers in the present study, 66.67% were having mixed diet. 53.33% of the subjects had disturbed sleep in the present study. 53.33% of the subjects had positive history of smoking.

**Table 3: Patient profile expressed in percentage.**

| Contents | Detail | Number of Patients | | | Percentage |
|---|---|---|---|---|---|
| | | Group I | Group II | Total | |
| Age | 20-40 | 1 | 4 | 5 | 16.66% |
| | 41-60 | 14 | 11 | 25 | 83.33% |
| Gender | Male | 8 | 9 | 17 | 56.67% |
| | Female | 7 | 6 | 13 | 43.33% |
| Marital Status | Married | 15 | 12 | 27 | 90% |
| | Unmarried | 0 | 3 | 3 | 10% |
| Family History | Positive | 7 | 5 | 14 | 46.67% |
| | Negative | 8 | 8 | 16 | 53.33% |
| Residence | Rural | 15 | 11 | 26 | 86.67% |
| | Urban | 0 | 2 | 2 | 6.67% |
| | Semi-urban | 0 | 2 | 2 | 6.67% |
| Educational Qualification | Illitrate | 2 | 6 | 8 | 26.67% |
| | Primary | 8 | 2 | 10 | 33.33% |
| | Matric | 4 | 4 | 8 | 26.67% |
| | Graduate | 1 | 2 | 3 | 10% |
| | Post graduate | 0 | 1 | 1 | 3.33% |
| Occupation | Govt. Job | 0 | 1 | 1 | 3.33% |
| | Private Job | 0 | 2 | 2 | 6.67% |
| | Farmer | 8 | 4 | 12 | 40% |
| | Business | 0 | 0 | 0 | 0% |
| | Any other | 7 | 8 | 15 | 50% |
| Economic status | IRDP | 4 | 1 | 5 | 16.67% |
| | BPL | 3 | 1 | 4 | 13.33% |
| | APL | 8 | 13 | 21 | 70% |
| Dietary Habits | Vegetarian | 6 | 4 | 10 | 33.33% |
| | Mixed | 9 | 11 | 20 | 66.67% |
| Addiction wise distribution | Smoking | 9 | 7 | 16 | 53.33% |
| | Drinking | 3 | 1 | 4 | 13.33% |
| | Others | 1 | 0 | 1 | 3.33% |
| | None | 6 | 8 | 14 | 46.67% |
| Lifestyle wise distribution | Active | 4 | 7 | 11 | 36.67% |
| | Sedentary | 0 | 1 | 1 | 3.33% |
| | Average | 11 | 7 | 18 | 60% |
| Sleep wise distribution | Sound | 8 | 6 | 14 | 46.67% |
| | Disturbed Sleep | 7 | 9 | 16 | 53.33% |
| Appetite | Normal | 11 | 13 | 24 | 80% |
| | Reduced | 4 | 2 | 6 | 20% |
| Bowel Habits wise distribution | Regular | 10 | 9 | 19 | 63.33% |
| | Irregular | 1 | 2 | 3 | 10% |
| | Constipated | 4 | 4 | 8 | 26.67% |
| | Loose stool | 0 | 0 | 0 | 0% |

## RESULTS

In all the symptoms related to *Tamaka Shwas* trial drugs showed a remarkably high

percentage improvement. Parameters like frequency of cough, chest tightness, breathlessness, and wheeze were reduced by 65.5%, 62.5%, 50%, 62.96%, respectively in Group-I and 74.28%, 75%, 61.2%, 70.58% respectively in group II. The results were statistically highly significant ($p<0.001$) for both the groups. (Table 4, 5, 6, 7) Inter group comparison (Table 8) between Group-I and Group II on various subjective criteria i.e. cough, breathlessness, chest tightness and wheeze showed that a marginally better improvement in these features was observed in Group-II in comparison to Group-I. But this inter group difference was statistically insignificant. ($p>0.05$).

Increase in $FEV_I$ and PEFR was statistically highly significant. ($p< 0.001$). There was an increase in $FEV_I$ by 16.82% and 23.6% respectively in group I and increase in PEFR by 17.78% and 29.43% in group II after the therapy. (Table 9 and 10) Inter group comparison (Table 11) between Group-I and Group-II on objective criteria i.e., $FEV_1$ & PEFR showed that a marginally better improvement in these features was observed in Group-II in comparison to Group-I. But this inter group difference was statistically insignificant. ($p>0.05$).

Analysis of other parameters revealed that Hb gm %, Erythrocyte sedimentation rate, Total leukocyte count, Differential leukocyte count ,Fasting blood sugar, Blood urea and Serum creatinine were within normal limits both before and after treatment and statistically insignificant effects on these parameters were observed in both the groups($p >0.05$). No untoward effect was observed during the therapy. (Table 12, 13 and 14).

On analyzing the effects of therapy on each patient it was observed that in Group-I, 2 patients showed marked improvement, while 8 patients showed moderate improvement, 4 patients showed mild improvement and none of the patient remained unimproved. In Group-II, 6 patients showed marked improvement, while 6 patients showed moderate improvement, 3 patients showed mild improvement and none of the patient remained unimproved. (Table 15 and Fig 1).

**EFFECTS ON SUBJECTIVE CRITERIA**

**1. Cough**

**Table 4: Effect of therapy on cough before and after therapy using paired 't' test.**

| Group | N | Mean score | | % Change | Diff. | SD± | SE± | 't' | 'p' |
|---|---|---|---|---|---|---|---|---|---|
| | | BT | AT | | | | | | |
| I | 14 | 2.07 | 0.71 | 65.51% | 1.35 | 0.74 | 0.19 | 6.8 | <0.001 |
| II | 15 | 2.33 | 0.06 | 74.29% | 2.27 | 0.59 | 0.15 | 11.3 | <0.001 |

**2. Chest Tightness**

**Table 5: Effect of therapy on chest tightness before and after therapy using paired 't' test.**

| Group | N | Mean score | | % Change | Diff. | SD± | SE± | 't' | 'p' |
|---|---|---|---|---|---|---|---|---|---|
| | | BT | AT | | | | | | |
| I | 14 | 1.7 | 0.64 | 62.5% | **1.0** | 0.61 | 0.16 | 6.59 | <0.001 |
| II | 15 | **1.6** | 0.4 | 75% | **1.2** | 0.67 | 0.17 | 6.87 | <0.001 |

**3. Breathlessness**

**Table 6: Effect of therapy on breathlessness before and after therapy using paired 't' test.**

| Group | N | Mean score | | % Change | Diff. | SD± | SE± | 't' | 'p' |
|---|---|---|---|---|---|---|---|---|---|
| | | BT | AT | | | | | | |
| I | **14** | 2.0 | 1.0 | 50.00 | **1.0** | 0.39 | 0.10 | 9.53 | <0.001 |
| II | 15 | 2.0 | 0.8 | 61.29 | **1.2** | 0.59 | **0.15** | 8.26 | <0.001 |

**4. Wheeze**

**Table No. 7 - Effect of therapy on wheeze before and after therapy using paired 't' test.**

| Group | N | Mean score | | % Change | Diff. | SD± | SE± | 't' | 'p' |
|---|---|---|---|---|---|---|---|---|---|
| | | BT | AT | | | | | | |
| I | 14 | 1.92 | 0.71 | 62.96% | 1.21 | 0.57 | 0.15 | 7.84 | <0.001 |
| II | 15 | 2.26 | 0.66 | 70.58% | 1.59 | 0.63 | 0.16 | 9.79 | <0.001 |

**Table No.8: Inter group comparison of subjective parameters using unpaired 't' test.**

| Sr. No. | Symptoms | % Relief | | Diff. in %age | SD ± | SE ± | 't' | P |
|---|---|---|---|---|---|---|---|---|
| | | Group-I | Group-II | | | | | |
| 1. | Cough | 65.52% | 74.29% | 8.77% | 0.67 | 0.24 | 1.50 | >0.05 |
| 2. | Breathlessness | 50% | 61.29% | 11.29% | 0.51 | 0.19 | 1.4161 | >0.05 |
| 3. | Chest tightness | 62.5% | 75% | 12.5% | 0.65 | 0.24 | 0.53413 | >0.25 |
| 4. | Wheeze | 62.97% | 70.59% | 7.62% | 0.61 | 0.22 | 1.7092 | >0.025 |

## EFFECT OF THERAPY ON OBJECTIVE PARAMETERS

**Table No. 9: Effect of therapy on $FEV_1$ before and after therapy using paired 't' test.**

| Group | N | Mean score | | % Change | Mean Diff. | SD± | SE± | 't' | 'p' |
|---|---|---|---|---|---|---|---|---|---|
| | | BT | AT | | | | | | |
| I | 14 | 2.34 | 2.73 | 16.82% | **0.39** | 0.14 | 0.037 | 9.59 | <0.001 |
| II | 15 | 1.78 | 2.2 | 23.6% | **0.42** | 0.13 | 0.034 | 12.32 | <0.001 |

**Table No. 10: Effect of therapy on PEFR before and after therapy using paired 't' test.**

| Group | N | Mean Score | | % Change | Mean Diff. | SD± | SE± | 't' | 'p' |
|---|---|---|---|---|---|---|---|---|---|
| | | BT | AT | | | | | | |
| I | **14** | 269.29 | 289.29 | 17.78% | **20** | 13.51 | 3.61 | 14.25 | <0.001 |
| II | **15** | 210.67 | 272.67 | 29.43% | **62** | 28.34 | 7.32 | 8.475 | <0.001 |

**Table No. 11: Inter group comparison of objective parameters using unpaired 't' test.**

| Sr. No. | Parameter | % Change | | Diff. in %age | SD ± | SE ± | 't' | P |
|---|---|---|---|---|---|---|---|---|
| | | Group-I | Group-II | | | | | |
| 1. | FEV1 | 16.82% | 23.60% | 6.78 | 0.135 | 0.05 | 0.54 | >0.25 |
| 2. | PEFR | 17.78% | 29.43% | 11.65 | 22.45 | 8.34 | 1.267 | >0.10 |

## EFFECT OF THERAPY ON INVESTIGATIONS

**Table No. 12: Effect of Therapy on Hematological parameters-1.**

| | Hb | | TLC | | ESR | |
|---|---|---|---|---|---|---|
| | Group I | Group II | Group I | Group II | Group I | Group II |
| **Mean BT** | 12.24 | 11.98 | 8200 | 8580 | 25.36 | 17.8 |
| **Mean AT** | 12.36 | 11.87 | 8264.29 | 8413.33 | 26.36 | 16.8 |
| **S.D. ±** | 0.28 | 0.44 | 701.22 | 1153 | 2.038 | 9.04 |
| **S.E. ±** | 0.08 | 0.11 | 187.41 | 297.72 | 0.55 | 2.33 |
| **t-value** | 1.5 | 1.0075 | 0.34 | 0.56 | 1.84 | 0.428 |
| **p-value** | >0.05 | >0.10 | >0.25 | >0.25 | >0.15 | >0.10 |

**Table No. 13: Effect of Therapy on Hematological parameters- II.**

| | Neutrophils | | Lymphocytes | | Mixed | |
|---|---|---|---|---|---|---|
| | Group-I | Group-II | Group-I | Group-II | Group-I | Group-II |
| **Mean BT** | 60.04 | 60.15 | 27.76 | 26.94 | 12.84 | 11.5 |
| **Mean AT** | 59.82 | 61.87 | 30.36 | 25.42 | 11.84 | 11.58 |
| **S.D. ±** | 7.19 | 6.26 | 10.98 | 5.08 | 5.60 | 4.20 |
| **S.E. ±** | 1.99 | 1.62 | 2.93 | 1.31 | 1.50 | 1.06 |
| **t-value** | 0.1115 | 1.059 | 0.886 | 1.1614 | 0.67 | 0.076 |
| **p-value** | >0.25 | >0.15 | >0.15 | >0.10 | >0.25 | >0.25 |

**Table No. 14: Effect of Therapy on Biochemical Parameters.**

| | FBS | | B. Urea | | S. Creatinine | |
|---|---|---|---|---|---|---|
| | Group-I | Group-II | Group-I | Group-II | Group-I | Group-II |
| **Mean BT** | 88.29 | 89.47 | 30.21 | 31.07 | 0.94 | 1.05 |
| **Mean AT** | 88.14 | 85.67 | 31.07 | 31.13 | 0.99 | 0.99 |
| **S.D. ±** | 5.036 | 10.40 | 1.92 | 3.15 | 0.17 | 0.19 |
| **S.E. ±** | 1.34 | 2.69 | 0.51 | 0.81 | 0.05 | 0.05 |
| **t-value** | 0.1061 | 1.41 | 1.678 | 0.082 | 0.92 | 1.2104 |
| **p-value** | >0.25 | <0.05 | >0.05 | >0.25 | >0.15 | >0.10 |

**OVERALL EFFECT OF THERAPY**

**Table No. 15.**

| Category of improvement | Group- I | | Group- II | | Total | |
|---|---|---|---|---|---|---|
| | No. of pts. | % age | No. of pts. | % age | No. of pts. | % age |
| Complete remission | 0 | 0% | 0 | 0% | 0 | 0% |
| Markedly improved | 2 | 14.28% | 6 | 40% | 8 | 27.586% |
| Moderately improved | 8 | 57.14% | 6 | 40% | 14 | 48.276% |
| Mildly improved | 4 | 28.57% | 3 | 20% | 7 | 24.138% |
| No relief | 0 | 0% | 0 | 0% | 0 | 0% |

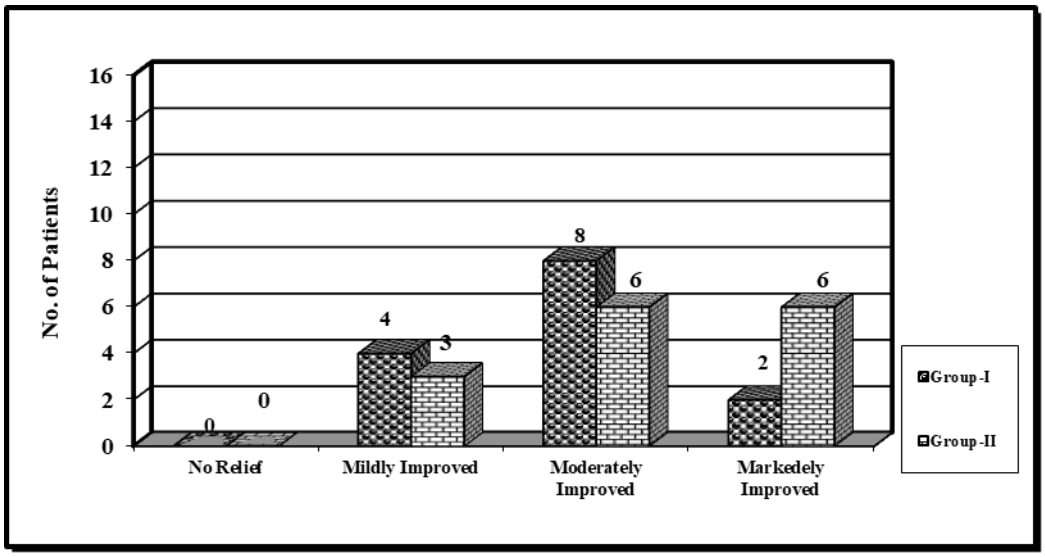


**Fig. No.1: Graphical presentation of Overall effect of therapy on subjective criteria in 29 patients.**

**DISCUSSION**

Bronchial asthma is a disease of concern as there is a significant increase in the number of individuals suffering from the disease in almost every age group in last few decades. According to the *global initiative for asthma* (GINA), asthma is defined as a chronic inflammatory disorder of airways which is associated with airway hyper-responsiveness. It

leads to recurrent episodes of wheezing, breathlessness, chest tightness and coughing, particularly at night or early morning.[7] In India, the prevalence of asthma has been found to be around 7% in the majority of surveys done. However, it has been reported to vary from 2% to 17% in different study populations, the disease can start at any age.[7] In the present study maximum number of subjects were found between age 41-60 years (83.33%). 56.63% subjects were found to be males and rest were females. In the present study, maximum patients (86.67%) gave negative family history of the disease. Majority of the subjects 86.67% were dwelling in the rural area which may be due to the fact that hospital is located in a rural place. 33.33% of the subjects were studied only up to primary level, 26.67% were studied up-to matric and 26.67% were illiterate. Maximum number of subjects (40%) were farmers in the present study, 66.67% were having mixed diet. Environmental tobacco smoke, especially maternal cigarette smoking, is associated with high risk of asthma prevalence.[8] In the present study, maximum subjects (53.33%) had positive history of smoking and 13.33% had addiction of alcohol.

In the classical texts, *Shwasa Roga* have been explained as *Pttasthanodbhava* due to which there is formation of *Ama dosha* that further leads to vitiation of *Vata* and blocked by *Kapha*. This vitiated *Vata Dosha* moves upward instead of its normal flow and leads to *Shwasa roga*.

In the present scenario, bronchial asthma has been correlated with *Tamaka Shwasa* due to similarity in features. Ayurveda offers a unique insight and comprehensive approach to asthma management through proper care of the respiratory tract. A number of herbs have been explained in classical texts these herbs and the herbs have upper edge as apart from exerting bronchial action they also possess concomitant properties like antioxidant, digestive, cardiac, nerve tonics etc. Syrup Shwasi and Capsule Shwasi constitute number of formulations like Shwasa Kuthara rasa and single drugs like Somalata, Dhatura, Pushkaramoola, Draksha etc that exhibit multiple therapeutic effects.

Onosoma bracteatum prevents inflammation and broncho constriction which leads to normal lumen size of bronchioles and normal lung cell architecture.[9] Somalata (Ephedera geradiana possesses bronchodilator, anti-inflammatory and anti-histaminic activity.[10] Banafsha is being supposed to have anti-bacterial activity against respiratory tract pathogens.[11] Rest of the drugs are also found to have bronchodialator, anti-inflammatory, anti-oxidant, digestive and carminative properties. Thus, study drugs have a beneficial role in alleviation of the features of the disease as well as provide other health benefits along with that.

In the present study statistically significant improvement was observed in subjective as well as objective parameters in both the groups yet Group-II showed marginally better results. The present trial drugs served the purpose and were found effective and safe in the management of Bronchial Asthma.

## CONCLUSION

Overall observations of the present study on the basis of various scientific parameters revealed that Group-I patients who were treated with Capsule *Shwasi* showed promising results in management of bronchial asthma. However, Group-II patients who were managed with Capsule as well as Syrup *Shwasi* showed marginally better improvement in various subjective as well as objective parameters over Group-I patients. Thus, Capsule and Syrup *Shwasi* is proved to be safe and effective remedy for managing bronchial asthma.

The present study provided a lead for the further study. However, this is only a preliminary study so further clinical and experimental studies on large sample and for longer duration are required to establish the anti-asthmatic potential of the drug.

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