Clinical Research

A comparative study of Shvasahara Leha and Vasa Haritaki Avaleha in the management of Tamaka Shvasa (Bronchial Asthma)

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Abstract

Tamaka Shvasa is a type of Shvasa Roga associated with difficulty in breathing as a result of which the patient prefers to sit in bed to get relief from his discomfort. Movement of air through Pranavaha Srotas is hampered in this disease resulting in the cry of organ heading toward complete failure for want of air. Tamaka Shvasa is well known for its episodic and chronic course which comes under the life-threatening disease. It is analogous to bronchial asthma due to similarity in symptoms, pathogenesis, onset, causes, and precipitating factors. In this study, 40 patients of Tamaka Shvasa were registered and randomly divided into two groups, out of which 31 patients completed the treatment. In Group A, Shvasahara Leha (5 g twice a day) was given for 2 months, while in Group B Vasa Haritaki Avaleha (5 g twice a day) was given for 2 months and follow-up was done for one month in both groups. The effects of therapy in both groups were assessed by a specially prepared proforma. Diagnosis was done by adult asthma diagnosis questionnaire and differential diagnosis with COPD (Chronic obstructive pulmonary disease) was done by differential diagnosis questionnaire as both these conditions are overlapping. The results of the study indicate that the Vasa Haritaki Avaleha provided better relief than Shvasahara Leha in Tamaka Shvasa.

Key words: Bronchial asthma, Shvasahara Leha, Tamaka Shvasa, Vasa Haritaki Avaleha

Introduction

Asthma is a serious health problem throughout the world, and worldwide deaths from this condition have reached over 1,50,000 annually.¹ This clinical condition is similar with Tamaka Shvasa in Ayurveda. Human race gets inevitably exposed to atmospheric pollution and thus with the passing of decade and increasing of urbanization and industrialization the incidence of Tamaka Shvasa will keep on increasing. Modern medicine gives immediate relief to the patients of Tamaka Shvasa, but the relief will be transient and symptomatic. The patient suffers with recurrent attacks and other complications. On the other hand, Ayurveda can give promising results to the patient by adding Rasayana and thus enhancing vital capacity and resistance of the lungs or can be adjuvant to the present modern regimen in the management of Tamaka Shvasa by improving the quality of life of affected patients. Considering these points, the study was planned to clinically evaluate the role of Shvasahara Leha and Vasa Haritaki Avaleha in the management of Tamaka Shvasa. The patients of Group A were administered with Shvasahara Leha and in Group B Vasa Haritaki Avaleha was administered. Ingredients of both the formulations, are having Vata Kaphaghna, Rasayana, and Ushna properties.

The pharmacognostical study of the drugs was carried out in the Pharmacognosy Laboratory, IPGT and RA, GAU, Jamnagar, which evaluated genuinety of raw raw material.

Aims and objectives

• To study the comparative effect of Shvasahara Leha and Vasa Haritaki Avaleha in Tamaka Shvasa.

Materials and Methods

Selection of patients

Patients attending the OPD of Kayachikitsa Dept., IPGT and RA, GAU, Jamnagar with signs and symptoms of Tamaka Shvasa were selected for the study. Clinical protocol was
approved by the Institutional Ethics Committee (PGT/ Ethics/2008-2009/2520 dt-24/11/2009).

**Inclusion criteria**

- Age group: 16–60 years
- Chronicity less than 10 years
- Uncomplicated cases of Tamaka Shvasa
- Normal findings of chest X-ray

**Exclusion criteria**

- Tuberculosis, cardiac complaints, and chronic obstructive pulmonary disease
- Endocrine disorders such as diabetes mellitus, hypo or hyperthyroidism, etc.
- Other complicated respiratory diseases, having any organic lesion such as tumor or any anatomical defect in the airways.

**Subjective criteria**

Diagnosis was done on the basis of classical symptomatology of the disease Tamaka Shvasa and cardinal symptoms of bronchial asthma. A adult asthma diagnosis questionnaire and a differential diagnosis questionnaire were selected for the diagnosis and differential diagnosis of the asthma from chronic obstructive pulmonary disease.[1] A special proforma has been designed by using Ayurvedic and modern parameters.

**Objective criteria**

1. Laboratory investigations: Hemoglobin, complete blood count with absolute eosinophil count
2. Biochemical investigations
3. Peak expiratory flow rate test
4. Spirometry
5. Serum IgE test, sputum test for exclusion of tuberculosis

**Radiological examination**

Chest X-ray (PA view) was done in registered patients to rule out any other pathology.

**Criteria of assessment**

1. Clinical features of Tamaka Shvasa were assessed at weekly interval till the end of the treatment.
2. Following laboratory investigations were carried out before and after treatment.
   - Hematological and biochemical investigations.
   - Absolute eosinophil count.
3. Serum IgE.
4. The peak expiratory flow rate was repeated during treatment.
5. Spirometry was carried out before and after treatment.
6. Improvement in Roga Bala along with Deha Bala, Agni Bala, and Satva Bala was considered for assessment.
   - Roga Bala—60
   - Agni Bala—20
   - Deha Bala—10
   - Satva Bala—10

After completion of the treatment, an assessment criterion has been designed, which has been placed at Table 1.

Patients of both the groups were given the medicaments in the dose of 5 gm b.d. with Godugdha [Table 2].

| Table 1: Overall assessment of therapy |
|--------------------------------------|
| Duration (month) | Group A | Group B |
| 0 | Unchanged |  |
| 1–25% | Mild improvement |  |
| 26–50% | Moderate improvement |  |
| 51–75% | Marked improvement |  |
| 76–100% | Complete remission |  |

| Table 2: Grouping/dose/Anupana/Kala/duration/ follow-up |
|-----------------------------------------------|
| Posology | Group A | Group B |
| Drug | Shvasahara Leha | Vasa Haritaki Avaleha |
| Dose | 5 g | 5 g |
| Anupana | Godugdha | Godugdha |
| Kala | Two times a day/early morning and night | Two times a day/early morning and night |
| Duration (month) | 2 | 2 |
| Follow-up (month) | 1 | 1 |

**Ingredientes of Shvasahara Leha**

The ingredients of Shvasahara Leha are depicted at Table 3.

**Preparation of Shvasahara Leha**

The general principles mentioned at Shharangadhara Samhita[10] were followed in preparation of trial drug.

**Ingredients of Vasa Haritaki Avaleha**

The ingredients of Vasa Haritaki Avaleha are depicted at Table 4.

**Preparation of Vasa Haritaki Avaleha**

The preparation method was adopted for Vasa Haritaki Avalehas described in Siddha Yoga Samgraha.[5]

**Do’s and Don’t’s**

- If a patient is using inhaler he/she is advised to gargle his/her mouth with water after the use. Care is to be taken by the patient in daily activities such as maintaining proper bowel habits, taking warm water in the morning, simple diet with minimum spices at regular hours, etc.
- Avoid ghee, butter, oily and spicy food, rice, Krishara, and other Kaptha aggravating diet such as dairy foods, chocolates, refined white flour, bread, cakes, and white sugar, triggering factors such as perfumes, pet animals, etc.

**Observations**

40 patients of Tamaka Shvasa were registered for this study, 20 in each group. Out of that, 31 patients completed the course of treatment and nine patients discontinued. 17 patients completed the treatment in Group A (Shvasahara Leha), 3 patients discontinued while 14 patients completed the treatment and 6 patients discontinued in Group B (Vasa Haritaki Avaleha).

In chief complaints, Shvasakashtata (difficulty in breathing) was found in all patients, Kasa (cough) in 92.5% of patients, Pinasa (coryza) and Parshvashula (chest pain) in 40% patients each.
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Results

Statistical analysis was done by applying the Wilcoxon-signed rank test for all nonparametric tests, Student’s paired ‘t’-test for objective parameters such as hematological, biochemical, spirometry investigations, and χ²-test for evaluating the difference in the effects of two therapies for subjective parameters and interpretation was the same as Student’s paired ‘t’-test. The

### Table 3: Ingredients of Shvashara Leha

| Sr. no. | Sanskrit name | Botanical name | Part used | Quantity |
|---------|---------------|----------------|-----------|----------|
| 1.      | Bharangi      | Clerodendrum serratum Linn. | Root      | 600 g    |
| 2.      | Shirisha      | Albizzia lebbeck Benth. | Bark      | 600 g    |
| 3.      | Bilva         | Aegle marmelos Corr. | Root      | 600 g    |
| 4.      | Agnimantha    | Clerodendrum phlomidis Linn. | Root | 600 g    |
| 5.      | Shyonaka      | Oroxylum indicum Vent. | Root      | 600 g    |
| 6.      | Patala        | Stereospermum suaveolens DC. | Root | 600 g    |
| 7.      | Gambhari      | Gymnema arboarea Roxb. | Root      | 600 g    |
| 8.      | Bhihari       | Solarium indicum Linn. | Root      | 600 g    |
| 9.      | Kantakari     | Solanum xanthocarpum Schrad. and Wendl. | Root | 600 g    |
| 10.     | Gokshura      | Tribulus terrestris Linn. | Root      | 600 g    |
| 11.     | Shalaparni    | Desmodium gangeticum DC. | Root      | 600 g    |
| 12.     | Prashniparni  | Uraia picta Desv. | Root      | 600 g    |
| 13.     | Haritaki      | Terminalia chebula Retz. | Fruit | 600 g    |
| 14.     | Bibhitaka     | Terminalia bellirica Roxb. | Fruit | 600 g    |
| 15.     | Amalaki       | Emblica officinalae Gaertn. | Fruit | 600 g    |
| 16.     | Dugdhika      | Euphoria thymifolia Whole plant | 600 g    |
| 17.     | Kantakari     | Solanum xanthocarpum Schrad. and Wendl. Whole plant | 600 g    |
| 18.     | Haridra       | Curcuma longa Linn. | Rhizome   | 600 g    |

### Prakshepa Dravyas

| Sr. no. | Sanskrit name | Part used | Quantity |
|---------|---------------|-----------|----------|
| 1.      | Mallasindura  | ----      | 75 g     |
| 2.      | Abhraka Bhasma| ----      | 150 g    |
| 3.      | Tulasi        | Leaf      | 300 g    |
| 4.      | Shunthi       | Rhizome   | 300 g    |
| 5.      | Karchura      | Rhizome   | 300 g    |
| 6.      | Shuddha Dhhatta| Seed      | 40 g     |

### Base

| Sr. no. | Sanskrit name | Part used | Quantity |
|---------|---------------|-----------|----------|
| 1.      | Sharkara (Sugar) | Saccharum officinarum | ---- | 17 kg |
| 2.      | Honey         | ----      | 1 kg     |

### Table 4: Ingredients of Vasa Haritaki Avaleha

| Sr. no. | Sanskrit name | Botanical name | Part used | Quantity |
|---------|---------------|----------------|-----------|----------|
| 1.      | Vasa          | Adhatodas vasica Nees. | Whole plant | 8.5 kg |
| 2.      | Haritaki      | Terminalia chebula Retz. | Fruit | 5.44 kg |

### Prakshepa Dravyas

| Sr. no. | Sanskrit name | Botanical name | Part used | Quantity |
|---------|---------------|----------------|-----------|----------|
| 1.      | Vanshalochana | Bambusa arundinacea | Exudate | 350 g |
| 2.      | Pippali       | Piper longum Linn. | Fruit | 45 g |
| 3.      | Karkatastringi| Pistacia integerrima Stew. ex Brandis | Gall | 100 g |
| 4.      | Tvak          | Cinnamomum zeylanicum Blume | Bark | 25 g |
| 5.      | Tamalapatra   | Cinnamomum tamala (Buch Ham) Nees and Eberm. | Leaves | 25 g |
| 6.      | Ela           | Elettaria cardamomomum Linn. | Seed | 25 g |
| 7.      | Nagakeshara   | Mesua ferrea Linn. | Stamen | 25 g |

### Base

| Sr. no. | Sanskrit name | Part used | Quantity |
|---------|---------------|-----------|----------|
| 1.      | Sharkara (Sugar) | Saccharum officinarum | ---- | 8.5 kg |
| 2.      | Honey         | ----      | 700 g    |
obtained subjective results were interpreted by the Wilcoxon signed rank test for nonparametric tests as insignificant (\(\alpha > 0.05\)), significant (\(\alpha < 0.05\)), and highly significant (\(\alpha < 0.01\)). The obtained objective results were interpreted by Student’s paired ‘t’-test for parametric tests as insignificant (\(P > 0.05\)), significant (\(P < 0.01\)), and highly significant (\(P < 0.001\)).

In this study, Shvasa Kashtata was relieved by 58% in Group A while 53% in Group B. In the symptom of Shushka Kasa (dry cough) 60% relief was found in Group A while 75% in Group B [Table 5].

By applying the Wilcoxon-signed rank test, both the groups provided statistically highly significant (\(\alpha < 0.01\)) results on the symptom of Shvasa Kashtata (difficulty in breathing), in reducing the dosage of emergency medicine used in a week both groups provided statistically significant (\(\alpha < 0.05\), \(\alpha < 0.02\)) effect, both the groups provided statistically significant (\(\alpha < 0.1\)) effect, both the groups provided statistically insignificant (\(\alpha < 0.1\), \(\alpha < 0.1\)) effect on the symptom of Ardra Kasa (productive cough). Rank number was less for Shushka Kasa (dry cough) so the test was not applicable for it.

Group A provided insignificant (\(\alpha < 0.1\)) effect on the symptom of Kaptha Nishthivana (expectoration) while Group B provided significant (\(\alpha < 0.02\)) effect on the symptom of Kaptha Nishthivana (expectoration), Group A provided significant (\(\alpha < 0.02\)) effect on the symptom of Pinasa (coryza). The rank number was less in Group B, so the test was not applicable for this group, Group A provided insignificant (\(\alpha < 0.1\)) effect on the symptom of Parshvashula (chest pain) while Group B provided highly significant (\(\alpha < 0.01\)) effect on the symptom of Parshvashula (chest pain).

**Effect of therapy on Agni Bala Pariksha**

The effect of therapy on Jarana Shakti (capacity to digest the food) was 7% in Group A and 14% in Group B. The effect on Abhayavaharanata Shakti (capacity to intake the food) was 11% in Group A and 23% in Group B. Effect on Ruchi Hi Aharakale (willing towards food during meal hour) was 20% in Group A and 25% in Group B while effect on Vata Mytra Parisha Muki (habit of routine urge) was 17% in Group A and 64% in Group B.

**Effect of therapy on Deha Bala Pariksha**

The effect of therapy on BalaVriddhi (improvement in strength) was 47% in Group A which was statistically significant (\(\alpha < 0.05\)) and 37.5% in Group B. The effect of Shatrait/pachaya (improvement in body build assessed by weight) on one patient of each group was 100%. Effect on Svarata Varna Yoga (facial expression) was 23% in Group A and 25% in Group B.

**Effect of therapy on Satva Bala Pariksha**

The effect of therapy on Nidra Labho Yathakalam (proper sleep at time) was 31% in Group A and 69% in Group B. Group A showed insignificant (\(\alpha < 0.1\)) relief while Group B showed significant (\(\alpha < 0.02\)) relief in Nidra Labho Yathakalam. The effect of therapy on Sukhana Cha Pratibodhanam (filing of well-being) was improved only in Group B, i.e., 07%. The effect of therapy on Vaikarikanam Cha Swapanam Adarshana (no pathological dreams) was only 8% in Group A while 10% in Group B. The effect of therapy on Mano Buddhi Indriya Ayapatti (psychology status of patient) was 25% in Group A and 10% in Group B.

**Comparative study of both groups (\(\chi^2\)-test)**

Chi square was applied for all subjective parameters. Insignificant difference was found between effect of therapies of both the groups in Shvasa Kashtata, decreasing the frequency of attacks, reduction of duration of attacks, reduction in requirement of emergency medicine in a week, productive cough, dry cough, Agni Bala, Deha Bala, and Satva Bala. Thus, both groups showed equal effect on above parameters.

**Effect of therapy on clinical investigations (paired ‘t’-test)**

It was observed that the hemoglobin level was increased by 2.02% in Group A which was statistically significant (\(P < 0.05\)). All the biochemical parameters showed statistically insignificant (\(P < 0.1\)) changes such as serum creatinine, SGPT, Serum IgE, etc. Both the groups showed statistically insignificant (\(P > 0.05\)) results on increased absolute eosinophil count.

**Effect on PEFR**

It was observed that both the groups showed statistically significant results, i.e. \(P < 0.01\) and \(P < 0.05\), respectively, on PEFR. It was observed that 12.9% improvement was found in PEFR in Group A and 18.26% relief in Group B [Graph 1].

**Effect on spirometry**

In spirometric findings, it was observed that FVC was increased in both the groups but it showed statistically insignificant (\(P > 0.1\)) results for both groups. In FEV1, Group A showed statistically significant (\(P < 0.02\)) relief and Group B showed statistically insignificant (\(P < 0.1\)) relief. FEV1% was increased in both the groups which showed insignificant (\(P > 0.1\)) results. In PEF, Group A showed statistically significant (\(P < 0.05\)) relief while Group B showed statistically insignificant (\(P > 0.1\)) relief.

**Overall effect of therapy**

Marked relief was found in 21.42% in Group A and 11.76% in Group B. The 7.14% patients of Group B showed complete remission [Graph 2].

| Table 5: Effect of therapy on chief complaints in Groups A and B |
|---------------------|-----------------|-----------------|
| **Chief complaints** | **Shvasahara Leha** | **Vasa Haritaki Avaleha** |
|                     | **No. of patients** | **% Improvement** | **No. of patients** | **% Improvement** |
| Shvasa Kashtata      | 17               | 58              | 14               | 53              |
| Shushka Kasa (dry cough) | 04             | 60              | 05               | 75              |
| Ardra Kasa (productive cough) | 12             | 50              | 06               | 28              |
| Pinasa              | 08               | 81              | 03               | 50              |
| Parshvashula        | 08               | 67              | 09               | 100             |
| Frequency of Shvasa Kashtata | 17           | 54              | 14               | 47              |
| Duration of Shvasa Kashtata | 17           | 48              | 14               | 57              |
| Number of emergency medicine taken/week | 09             | 72              | 09               | 80              |

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Graph 1: Effect on PEFR *Significant

Graph 2: Overall effect of therapy

Chart 1: Probable mode of action of Shvasaharaleha
Effect of therapy on follow-up

It was observed that recurrence was found in 50% patients in Group A and recurrence was observed in none of the patient of Group B during 1 month follow-up.

Discussion

The disease Tamaka Shvasa is predominantly caused by Pranavaha Srotodushti and in its pathogenesis Pratiloma Gati of Vata plays an important role along with Srotodushti produced by Kapha. In one of the pathogenesis of Tamaka Shvasa, Vata is in the normal state and Kapha is vitiated with its own etiological factors. Vitiated Kapha in the Uraha Pradesha (chest region) causes the obstruction in the normal path of Vata (Prana). This further leads to Avaranajanya Vata Prakopa and Pratiloma Gati of Vata which can be stated as Kapha dominant pathogenesis of Tamaka Shvasa. On other hand, in certain cases, in the beginning Vata is vitiated through its own etiological factors and this vitiated Vata causes contraction of Pranavaha Srotasa, which further produces Pinasa (coryza) by excitation of Kapha Dosha. The above description is supported by endobronchial obstruction, hyper reactivity, and inflammation which are three important mechanisms in the pathogenesis of bronchial asthma.

Hemoglobin was increased in Group A which may be because of the Abhraka Bhasma. Abhraka Bhasma is having Rasa, Rakta Dhatuvardhaka, and Rasayana properties.[5] Other hematological and biochemical parameters showed statistically insignificant ($P<0.1$) changes which suggest that the formulations did not produce any harmful effects such as renal disorders, liver disorders, bone marrow depression, etc. In this study, drugs gave a satisfactory result in percentage especially in group B. However, it shows its limitation in the

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**Chart 2: Probable mode of action of vasa haritakiavaleha**

- Tikta Rasa, Laghu Guna
  - Katu Vipaka
  - reduces *Kapha* i.e. Sthanastha Doṣha

- Tridoshashamaka
  - Anulomana

- Vasa, Haritaki
  - Prakshepa Dravya Pippali, Ela etc.
  - Agnidipana Kasahara Rochaka
  - Supports action of the principle ingredients of Avaleha

- Vasa Haritaki Avaleha
  - Acts on multiple ways
  - corrects Doshas of the disease
  - stimulate Agni which results in Amapachana & removes Srotorodha

- above action supported by
  - Laghu, Ruksha Guna
  - Ushna Virya of Haritaki
  - normalising the Gati of Vata

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with infection. Group B had lasting effects in comparison to Group A during follow-up.

In Shvasahara Leha almost all drugs like Dashamula, Triphala, Shirisha etc. having Kapha Shamaka and Sroto Shodhaka action and drugs like Bharangi, Tulsi are having Shvasahara action (Chart 1). Vasa Haritaki Avaleha contains mainly Vasa and Haritaki. Vasa having Tikta Rasa, Katu Virya properties by which Kapha Shamaka action observed. Haritaki is having Ushna virya, Amla virya and Rasayana action which it may support to break down the pathogenesis (Chart 2).

In addition Anti-inflammatory, Anti-allergic, Anti-cholinergic, Anti-oxidant, Immunomodulatory etc. activities of Bharagi, Shirisha, Vasa, Karkatshringi, Dashmula, Triphala will also potentiate the anti-asthmatic activities of trial drugs.

**Conclusion**

Vata dominant pathogenesis and Kapha dominant pathogenesis may be correlated with pathophysiology of asthma-like inflammation and endobronchial obstruction. Early morning is the Vata and Kapha Dosha dominancy time because of this early morning may lead to aggravation of concerned Dosha of Tamaka Shvasa (bronchial asthma). In Group A maximum number of the patients have Kapha Dosha dominant pathogenesis and in Group B maximum number of the patients have Vata Dosha dominant pathogenesis. Although both the therapies provided better relief in most of symptoms, Group A may be useful in Kapha Pradhana Sampratijanya Tamaka Shvasa and Group B may be useful in Vatapradhana Sampratijanya Tamaka Shvasa. Both the groups showed significantly improvement in PEFR. Group A showed significant improvement in Hb%, PEF, and FEV1. Group A showed mild and moderate improvements and Group B showed marked and moderate improvements in maximum patients. It can be concluded from the study that both the trial drugs, can be successfully used in the patients with Tamaka Shvasa. No adverse effects observed with the treatment during the whole study.

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