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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 1,80,000 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*[2] 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

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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.[3] 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

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 Shvashara Leha are depicted at Table 3.

Preparation of *Shvasahara Leha*

The general principles mentioned at *Sharangadhara Samhita*[4] 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 Avaleha*as described in Siddha Yoga Samgraha.[5]

Do's and Dont'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 *Kapha* 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.

Table 3: Ingredients of *Shvashara Leha*

Sr. no.	Sanskrit name	Botonical name	Part used	Quantity
	Kvatha Dravyas			
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	600g
5.	*Shyonaka*	*Oroxylum indicum* Vent.	Root	600g
6.	*Patala*	*Stereospermum suaveolens* DC.	Root	600 g
7.	*Gambhari*	*Gmelina arborea* Roxb.	Root	600 g
8.	*Brihati*	*Solanum 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*	*Uraria picta* Desv.	Root	600 g
13.	*Haritaki*	*Terminalia chebula* Retz.	Fruit	600 g
14.	*Bibhitaka*	*Terminalia bellirica* Roxb.	Fruit	600 g
15.	*Amalaki*	*Emblica officinale* Gaertn.	Fruit	600 g
16.	*Dugdhika*	Euphorbia 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			
1.	*Mallasindura*	----	----	75 g
2.	*Abhraka Bhasma*	----	----	150 g
3.	*Tulasi*	*Ocimum sanctum* Linn.	Leaf	300 g
4.	*Shunthi*	*Zingiber officinale* Roxb.	Rhizome	300 g
5.	*Karchura*	*Curcuma zedoaria* Rose	Rhizome	300 g
6.	*Shuddha Dhattura*	*Datura metal* Linn.	Seed	40 g
	Base			
1.	*Sharkara (Sugar)*	Saccharum officinarum	----	17 kg
2.	Honey	----	----	1 kg

Table 4: Ingredients of *Vasa Haritaki Avaleha*

Sr. no.	Sanskrit name	Botonical name	Part used	Quantity
	Kvatha Dravyas			
1.	*Vasa*	*Adhatoda vasica* Nees.	Whole plant	8.5 kg
2.	*Haritaki*	*Terminalia chebula* Retz.	Fruit	5.44 kg
	Prakshepa Dravyas			
1.	*Vanshalochana*	*Bambusa arundinacea*	Exudate	350 g
2.	*Pippali*	*Piper longum* Linn.	Fruit	45 g
3.	*Karkatashringi*	*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 cardamomum* Linn.	Seed	25 g
7.	*Nagakeshara*	*Mesua ferrea* Linn.	Stamen	25 g
	Base			
1.	*Sharkara* (Sugar)	*Saccharum officinarum*	----	8.5 kg
2.	*Honey*	----	----	700 g

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 χ^2-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

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 ($\alpha<0.05$, $\alpha\leq0.02$) 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 *Kapha Nishthivana* (expectoration) while Group B provided significant ($\alpha<0.02$) effect on the symptom of *Kapha Nishthivana* (expectoration), Group A provided significant ($\alpha\leq0.02$) 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 *Abhayavaharana 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 Mutra Purisha Mukti* (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 *SharirаUpachaya* (improvement in body build assessed by weight)on one patient of each group was 100%. Effect on *Svara 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 *Sukhena Cha Pratibodhanam* (filing of well-being) was improved only in Group B, i.e., 07%. The effect of therapy on *Vaikarikanam Cha Svapnanam Adarshanam* (no pathological dreams) was only 8% in Group A while 10% in Group B. The effect of therapy on *Mano Buddhi Indriya Avyapatti* (psychology status of patient) was 25% in Group A and 10% in Group B.

Comparative study of both groups (χ^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 ($P<0.1$) 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

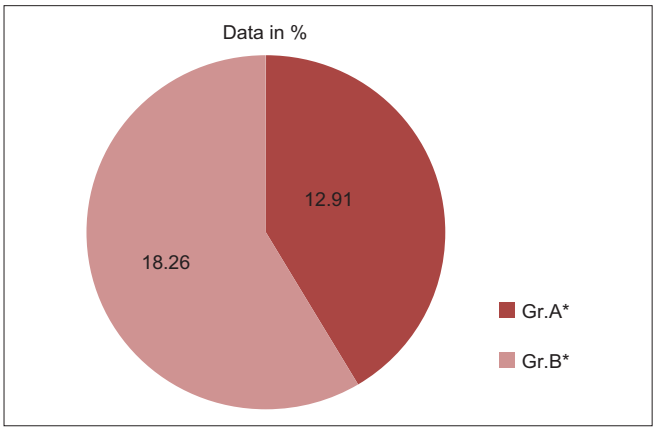
In spirometric findings, it was observed that FVC was increased in both the groups but it showed statistically insignificant ($P<0.1$) results for both groups. In FEV_1, Group A showed statistically significant ($P<0.02$) relief and Group B showed statistically insignificant ($P<0.1$) relief. FEV_1% 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

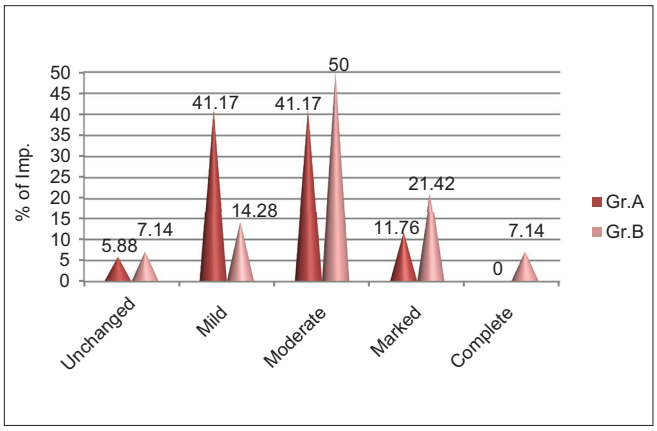
Marked relief was found in 21.42% in Group A and 11.76% in Group B. The 7.14% patients of Group B showed complete remission [Graph 2].

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



Graph 1: Effect on PEFR *Significant



Graph 2: Overall effect of therapy

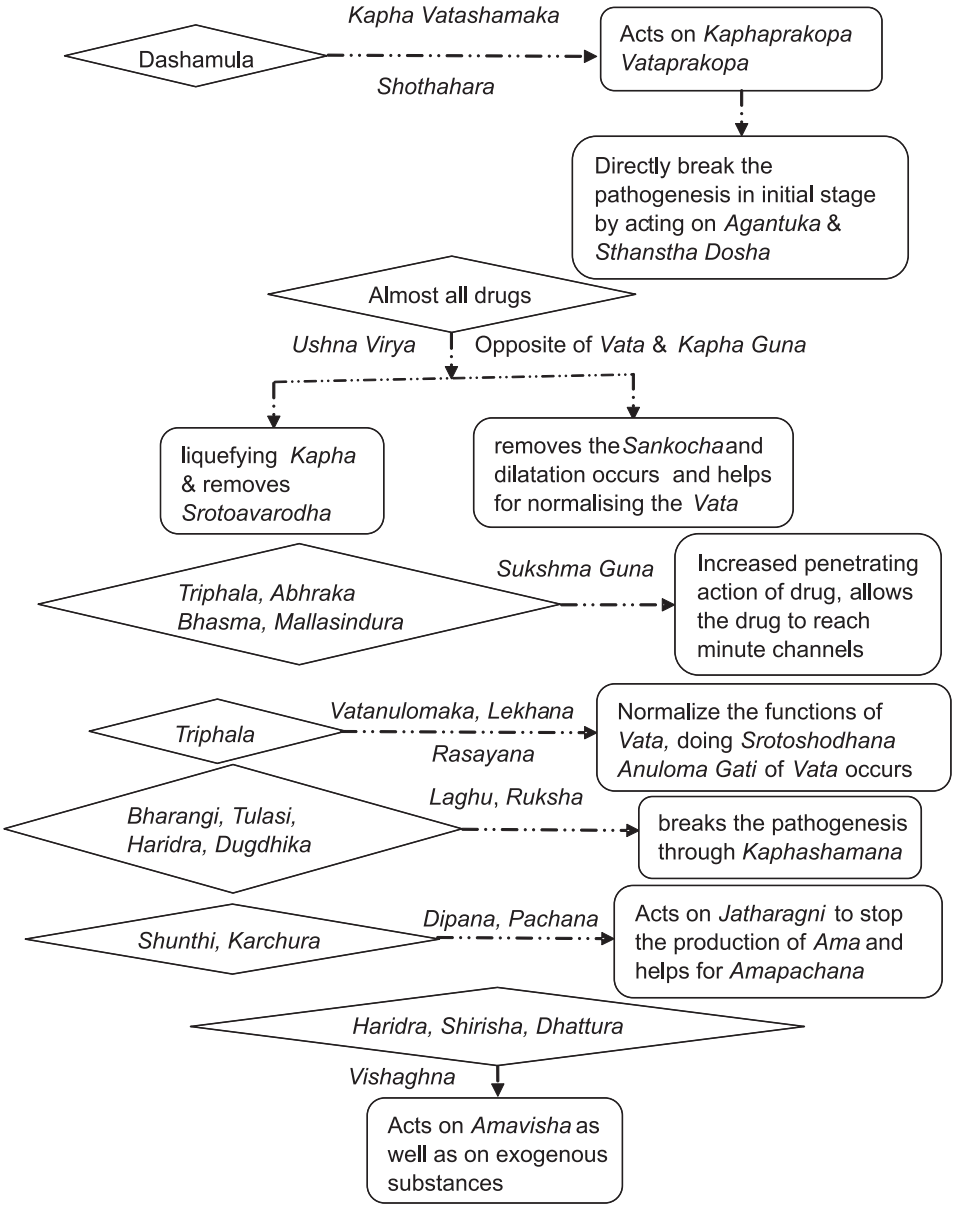


Chart 1: Probable mode of action of *Shvasaharaleha*

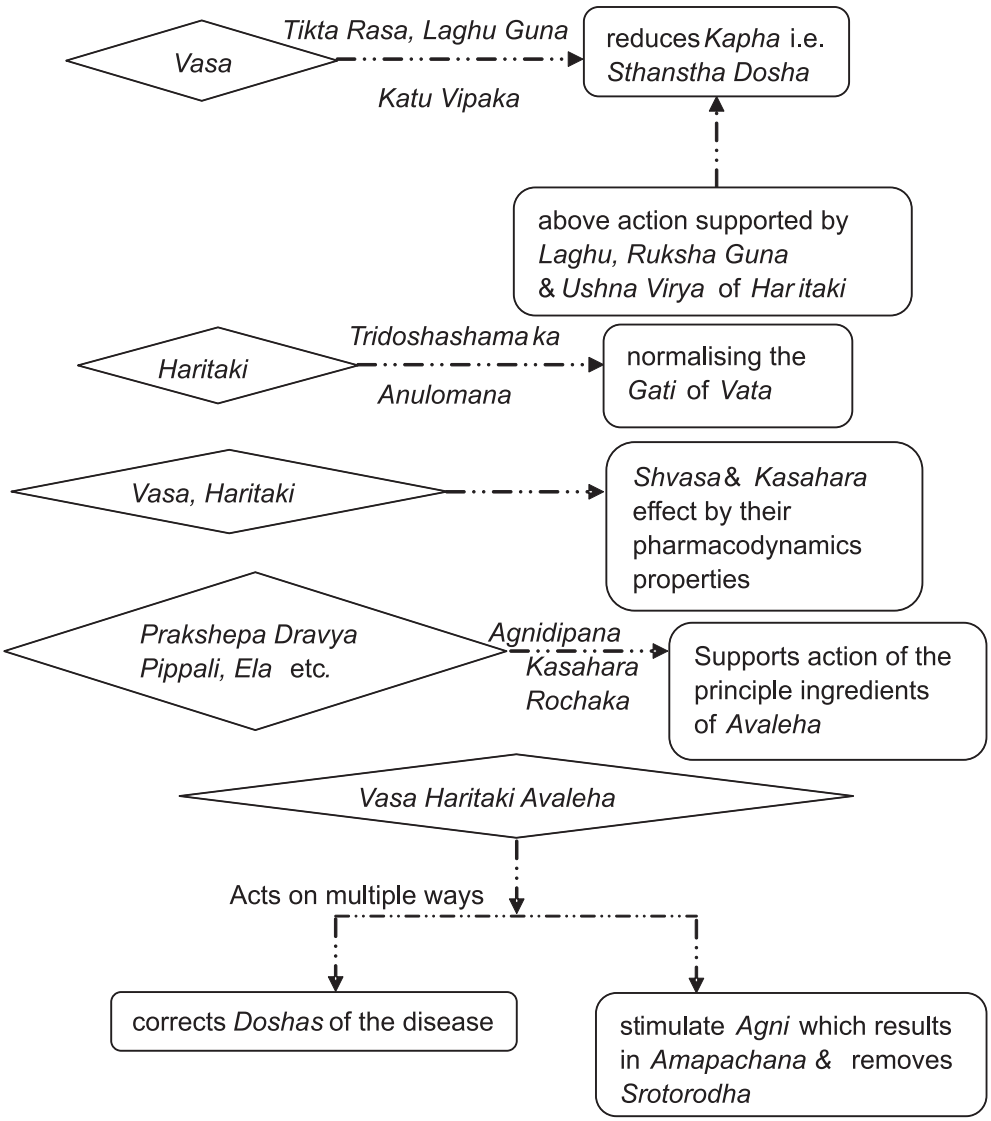


Chart 2: Probable mode of action of *vasa haritakiavaleha*

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 Sroto Dushti* and in its pathogenesis *Pratiloma Gati* of *Vata* plays an important role along with *Srotorodha* 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

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 Vipaka* properties by which *Kapha Shamaka* action observed. *Haritaki* is having *Ushna virya*, *Anulomana* properties and *Rasayana* action by 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-asthamatic 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 FEV_1. 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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हिन्दी सारांश

तमक श्वास के रोगियों में श्वासहर लेह एवं वासाहरीतकी अवलेह का तुलनात्मक चिकित्सकीय अध्ययन

मनीषा शर्मा, अलंकृता आर. दवे, वी. डी. शुक्ला

तमक श्वास रोग श्वासोच्छवास की प्रक्रिया में बाधा होने से होता है जिसमें रुग्ण को राहत के लिए सोते हुए भी उठकर बैठ जाना पड़ता है। प्राणवह स्रोतस के द्वारा होनेवाली श्वास की प्रक्रिया और उरः प्रदेश में तकलीफ होती है। यह पुनः पुनः होनेवाली तथा जीर्ण व्याधि है। तमक श्वास की समानता उसके लक्षण, संप्राप्ति, हेतु, उद्भव, कारण में समानता होने से ब्रोंकीअल अस्थमा के साथ की जा सकती है। इस गवेषण में कुल ४० तमक श्वास के रोगियों को पंजीकृत किया गया तथा उन्हें २ वर्गों में सरल यदृच्छ पद्धति से बांटा गया। इनमें से ३१ रुग्णों ने चिकित्सा अवधि पूर्ण की। वर्ग 'अ' में श्वासहर लेह ५ ग्राम २ बार दो महीने तक दिया गया, जबकि वर्ग 'ब' में वासाहरीतकी अवलेह ५ ग्राम २ बार दो महीने तक दिया गया। दोनों वर्गों की औषधियों के प्रभाव का विशेष रुप सेतैयार रुग्णशोधपत्र के द्वारा निरीक्षण किया गया। निदान के लिए एडल्ट अस्थमा डायग्नोसिस प्रश्न परीक्षा तैयार की गई और COPD के साथ सापेक्ष निदान करने के लिए व्यवच्छेदक रोगनिदान प्रश्न परीक्षा की गई। इस परीक्षण में दोनों ही वर्गों में अच्छा लाभ देखा गया, लेकिन तुलनात्मक अध्ययन में वासाहरीतकी अवलेह वर्ग का श्वासहर लेह समूह की तुलना में अधिक अच्छा प्रभाव तमक श्वास के लक्षणों में पाया गया।