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Research Article

Clinical Efficacy of *Simhyadi Kwath* along with *Shati Churna* in *Tamaka Shwasa* (Bronchial Asthma)

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ABSTRACT

Bronchial Asthma is a chronic inflammatory condition of the lung airways resulting in episodic airflow obstruction.[1] the prevalence of Bronchial Asthma has increased continuously since the 1970s, and now affects an estimated 4 to 7% of the people worldwide.[2] Increase amount of pollution with stressful lifestyle changes are major factors for Bronchial Asthma. Ayurveda explained *Tamaka Shwasa* which is most comparable to Bronchial Asthma. Modern science has many medicine with proven immediate effect but also has significant amount of adverse effects. World is looking towards other alternatives system of medicine which are comparatively safer and has significantly better results. Study was undertaken to access the efficacy of *Simhayadi Kwath* along with *Shati Churna* in *Tamaka Shwasa*. The clinical trial was carried out from OPD and IPD of A & U Tibbia College and Hospital in Delhi on total of 30 patients. Patients were treated with *Simhayadi Kwath* 20 ml and *Shati Churna* 2.5 gm QID for 90 days. Data was statistically analyzed for biological parameters, symptomatic relief and pulmonary function parameters. A significant decrease in AEC, ESR and Serum IgE were observed. The study suggests that *Simhayadi Kwath* with *Shati Churna* can be used as an effective drug regimen for bronchial asthma.

Keywords: *Tamaka Shwas*, Bronchial Asthma, *Simhyadi Kwath, Shati Churna*

INTRODUCTION

Ayurveda described five types of Shwasa Roga and among these, *Tamaka Shwasa* is one of them. *Tamaka Shwasa* is a - Swatantra Vyadhi i.e. independent disease entity and having its own etiology, patho-physiology and management. It is mentioned as Yapya Vyadhi i.e. a disease of chronic and difficult to cure in nature. *Tamaka Shwasa* is basically a disorder of Pranavaha Srotas while other Srotas are also vitiated. In this condition Vayu gets vitiated from its normalcy due to obstruction made by Kapha. This vitiation leads to severe episodes of breathlessness[1].

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Bronchial Asthma is a chronic inflammatory condition of the lung airways resulting in episodic airflow obstruction[2]. The prevalence of Bronchial Asthma has increased continuously since the 1970s, and now affects an estimated 4 to 7% of the people worldwide[3]. In India Overall prevalence varies between 2.05% to 3.5% of total population. There has been an increase in the prevalence and similar trend is observed in India. The prevalence of asthma is continuously increasing day by day and expected additional 100 million develop asthma by the year 2025[4].Industrialization, continuous environmental changes, lifestyle changes and mental stress are the predisposing factors which are responsible for continuous rise in *Tamaka Shwasa*.

Acharya Charaka has prescribed 500 kashayas in 50 Maha kashayas out of them Shati is the foremost Kashaya explained in Shwasahar Mahakashya. Acharya Yoga Ratnakar explained that Simhyadi kwath and promoted by saying that "this Kwath will destroy the Shwas roga similar to clouds destroy the fire". The therapeutic effects explained for shati are Kaphahara (DN, BP), Kasahara (DN, BP), Shwashara (BP) and Shothahara (BP). Many studies has been done which showed Analgesis and anti-pyretic activities[5], Anti-histaminic[6], Anti-eosinophilic[7] and Spasmolytic plus vasodilator[8] effect of Shati.

MATERIALS AND METHODS

The study was conducted at OPD and IPD of Kayachikitsa at A & U Tibbia College and Hospital, Karol Bagh, New Delhi. Raw Drug identification is being done by NICAIR New Delhi. Approval from the Institutional Ethics Committee has been taken before starting the study. 34 patients of both the sex were selected and informed about the details of the trial in detail also prior consent for the trial was taken in presence of a witness. 30 patients have been completed the treatment, whereas only 04 patients were dropped out from the study. Raw material for trial drug Simhayadi Kwath and Shati Churna, purchased only after identification has been done by NISCAIR. Course powder for Kwath and Fine powder for Shati Churna is prepared in the departmental laboratory by following Standard Operative Procedures (SOP). The formulation Simhayadi Kwath composition is placed at Table 1 and Shati Churna in Table 2.

CRITERIA FOR INCLUSION

Patients between 10-60 years and with symptoms of Cough, difficult breathing, attacks of Dyspnoea, Difficulty in expectoration were included in that study. Ayurvedic classics explained signs and symptoms of *Tamaka Shwasa* were also considered while selecting the patients.

CRITERIA FOR EXCLUSION

Acute asthmatic condition requires emergency measures, Pulmonary tuberculosis, Lung Cancer, Lung fibrosis, Emphysema, Bronchiectasis, Cor-Pulmonale, IHD, Hypertension, Type – 2 Diabetes, Status asthematicus, Pregnancy also incurable types of shwas explained in Ayurveda text i.e. Maha Shwasa, Urdha Shwasa and Chhinna Shwasa.

INVESTIGATIONS

Investigations were done before and after treatment of 90 days.

1. Hematological, including ESR, Hb, AEC and Sr IgE were done before and after treatment
2. Spirometry: Forced expiratory volume at first second (FEV1), Forced Vital Capacity (FVC) and Peak Expiratory Flow Rate (PEFR) were done before and after treatment.
3. Biochemical including SGOT, SGPT, Alkaline Phosphatase to exclude any underlying pathology.
4. Sputum and chest X-Ray to exclude pulmonary tuberculosis and other respiratory diseases

DIET AND RESTRICTIONS

Patients were advised wholesome diet examined in Ayurveda classics and also restricted them from susceptible aggravating factors. Advised them not to take curd, cold drinks, fish and meat, tobacco chewing and smoking, alcohol. Also restrict from excessive physical work, day sleep, dust, smoke, pets, and pollens. Also asked them to drink warm water after meal and before going to bed.

TRIAL DRUG

Yoga Ratnakar mentioned Simhyadi kwath which is a combination of 9 drugs, cumulatively all have Anti-inflammatory, analgesic, anti-pyretic, mucolytic, expectorant, vasodilator, anti-histaminic, immunomodulator, anti-esonophilic properties. Along with that Shati churna which is good in anti-pyretic, mucolytic, expectorant, vasodilator, anti-histaminic properties are selected for the study. Simhayadi Kwath with dose of 20 ml with prakshepa of Pippali and Maricha Powder, and Shati Churna 2.5 gm four times a day. The drug was administered muhurmuha (many times a day). The dose were giving by considering the rogi-rogabala (stamina of patient and severity of disease)[9].

Table 1: Formulation Composition Of *Simhyadi Kwath*[10]			
Ingredient	**Latin Name**	**Part Used**	**Ratio**
Kantakari	**Solanum surattense Burm. f., Syn. Solanum xanthocarpum Schrad . & Wendl , (Fam. Solanaceae**	**Whole Plant**	**1 Part**
Haridra	**Curcuma longa Linn. (Fam. Zingiberaceae)**	**Rhizome**	**1 Part**
Vasa	**Adhatoda vasica Nees (Fam. Acanthaceae)**	**Leaf**	**1 Part**
Guduchi	**Tinospora cordifolia (Willd.)Miers. {Fam: Menispermaceae}**	**Stem**	**1 Part**
Shunthi	**Zingiber officinale Roxb. (Fam. Zingiberaceae)**	**Rhizome**	**1 Part**
Pippali	**Piper longum Linn. (Fam. Piperaceae)**	**Fruit**	**1 Part**
Bharangi	**Clerodendrum serratum (Linn.) Moon (Fam. Verbenaceae)**	**Root**	**1 Part**
Nagarmotha	**Cyperus rotundus Linn. (Fam. Cyperaceae)**	**Rhizome**	**1 Part**
Marich	**Piper nigrum Linn. (Fam. Piperaceae)**	**Fruit**	**1 Part**

Table 2: Formulation Composition Of *Shati Churna*[11]			
Ingredient	**Latin Name**	**Part Used**	**Ratio**
Shati	**Hedychium spicatum Ham.ex Smith (Fam. Zingiberaceae)**	**Rhizome**	**1 part**

CRITERIA FOR DIAGNOSIS

Patient were selected after detail history and physical examination on the basic of specifically designed research pro-forma. The subjective and objective criteria of the study which were as follows:

SUBJECTIVE CRITERIA

Sing and Symptoms based out of classical references were considered as subjective criteria for assessment of drug on Tamaka Shwas. Shwasakastta (dyspnoea), Kasa (Cough), Ghurghur shabda (Wheeze), Peenas (nasal discharge or coryza), Asino labhte saukhayam (orthopnea), Ura Graha (Chest tightness), Frequency of exacerbation, Meghanbushitapragvatee vivardhate (Paroxysms of dyspnoea with megha, cold weather, cold drinks)[12]

OBJECTIVE PARAMETERS

Following laboratory investigations which were done during clinical trial such as FEV1 (Forced expiratory volume at first second), FVC (Forced vital capacity), PEFR (Peak expiratory flow rate) ESR (Erythrocyte Sedimentation Rate), AEC (Absolute Eosinophil Count) and Serum IgE.

ASSESSMENT CRITERIA

Assessment of treatment is done on the basis of improvement based on the Subjective and Objective parameters before and after treatment.

Percentage relief was calculated and assessed based on the below criterion.

1. Unchanged 0% relief in sign and symptoms
2. Mild Improvement <25% relief in sign and symptoms
3. Moderate Improvement 26-50% relief in sign and symptoms
4. Marked Improvement 51-75% relief in sign and symptoms
5. Complete Remission >75% relief in sign and symptoms

Questionnaire (Scoring Pattern/Grading)

1. *Shwasakastta* (dyspnoea)

Grades	Severity
0	No Dyspnoea
1	Occasional or morning bouts – do not disturb work
2	Continuous during morning – disturb working
3	Continuous during morning and night dyspnoea – disturb activities

2. *Kasa* (Cough)

Grades	Severity
0	No Cough
1	Occasional or morning bouts – do not disturb work
2	Continuous during morning – disturb working
3	Continuous during morning and night cough – disturb activities

3. *Ghurghur shabda* (Wheeze)

Grades	Severity
0	No wheeze
1	Wheezing at the end of respiration, brief not more than 1 to 2 times/week
2	Loud wheezing throughout expiration not more than 2-4 times/week
3	Loud Inspiration and expiration wheeze more than 4-6 times/week

4. *Peenas* (nasal discharge or coryza)

Grades	Severity
0	No Symptoms
1	Initially present or occasionally
2	Continuous in day with cough
3	Continuous in day and night with cough

5. *Asino labhte saukhayam* (orthopnea)

Grades	Severity
0	No orthopnea
1	Able to recline
2	Prefers sitting
3	Unable to recline

6. *Chest tightness*

Grades	Severity
0	No tightness in the chest
1	Slight tightness in the chest – able to tolerate
2	Tightness in the chest along with cough
3	Feels difficult to tolerate tightness in the chest along with cough and wheezing

7. *Frequency of exacerbation*

Grades	Severity
0	No Exacerbation
1	Exacerbation up to 2 times/week
2	Exacerbation up to 3-4 times/week

3	Exacerbation up to 5-6 times or above/week

8. *Duration of exacerbation*

Grades	Severity
0	No Symptoms
1	Symptoms lasting < 1 hour
2	Symptoms lasting < 1-3 hours
3	Symptoms lasting > 3 hours

9. *Meghanbushitapragvatee vivardhate* (Paroxysms of dyspnoea with *megha*, cold weather, cold drinks)

Grades	Severity
0	No Symptoms
1	Symptoms aggravates with any one of the factor
2	Symptoms aggravates with any two factors
3	Symptoms aggravates with all of the factors

10. *Need for allopathic drugs*

Grades	Severity
0	No need for allopathic treatment
1	Occasional need for inhaled bronchodilators (β2 – agonist only)
2	Regular need for inhaled β2 – agonist as well as corticosteroids/cromolyns
3	Regular/Occasional need of oral or injectables bronchodilators, steroids, mast cell stabilizers etc… apart from inhaled drugs

OBSERVATIONS AND RESULTS

Most of the Cardinal symptoms explained by Ayurvedic text about *Tamaka Shwasa* were observed in the patients and analyzed.

SYMPTOMS

All the cardinal symptoms have shown highly significant results at p value <0.001. Frequency and duration of attack has been drastically reduced. Also dose and duration of steroids and other emergency medicine are not used by most of the patients. Interesting fact is that every patient enrolled in the study withdrawn themselves from the use of emergency medicine. *Kasa*, *shwashkashtta*, *ura graha*, *ghurghur shabda* and *peenas* these are those symptoms shows highly significant reduction starting from very first dose.

HAEMATOCRIT VALUES:

Patients treated during she study have shown significant favorable changes in ESR, AEC and Sr IgE at p value <0.001, whereas a mild significant changes in hemoglobin values is also been noticed.

SPIROMETRIC VALUES:

During the study highly significant improvement has been noticed in important parameters of Spirometry. FEV1, FVC and PEFR showed significant change at p value <0.001.

OVERALL EFFECT OF TREATMENT:

Maximum 66.67% of the patients shown marked improvement followed by 26.67% patients with complete remission and 06.66 % with moderate improvement. Highly significant result is noticed in symptoms and spirometric values during study.

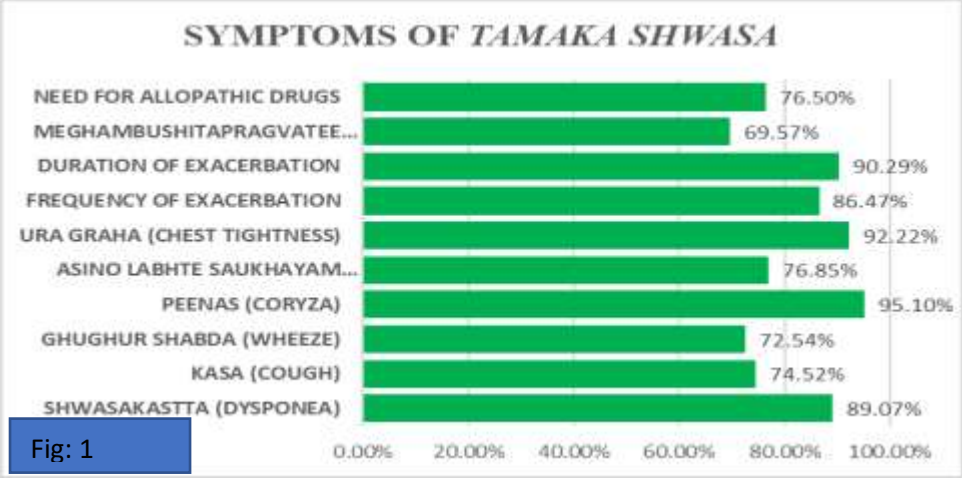


Fig: 1

Table 3: Effect of treatment on symptoms of *Tamaka Shwasa*

SYMPTOMS	N	Mean		% CHANGE	SD	SE	Paired 't' value	P value
		BT	AT					
SHWASAKASTTA (DYSPONEA)	30	1.83	0.2	89.07%	0.556	0.102	16.089	<0.001
KASA (COUGH)	30	1.57	0.4	74.52%	0.648	0.118	9.866	<0.001
GHUGHUR SHABDA (WHEEZE)	30	1.93	0.53	72.54%	0.621	0.113	12.339	<0.001
PEENAS (CORYZA)	30	1.43	0.07	95.10%	0.556	0.102	13.462	<0.001
ASINO LABHTE SAUKHAYAM (ORTHOPNEA)	30	2.03	0.47	76.85%	0.679	0.124	12.639	<0.001
URA GRAHA (CHEST TIGHTNESS)	30	1.67	0.13	92.22%	0.507	0.093	16.551	<0.001
FREQUENCY OF EXACERBATION	30	1.7	0.23	86.47%	0.819	0.15	9.805	<0.001
DURATION OF EXACERBATION	30	1.03	0.1	90.29%	0.45	0.082	11.366	<0.001
MEGHAMBUSHITAPRAGVATEE VIVARDHATE	30	2.07	0.63	69.57%	0.626	0.114	12.54	<0.001
NEED FOR ALLOPATHIC DRUGS	30	1.83	0.43	76.50%	0.563	0.103	13.614	<0.001

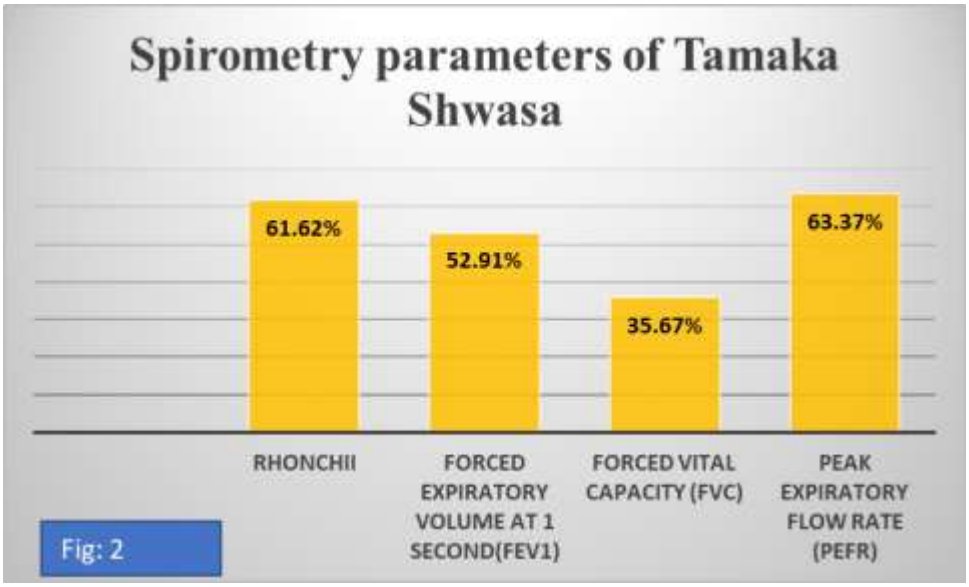


Fig: 2

Table 4: Effect of treatment on Spirometry parameters of *Tamaka Shwasa*

SYMPTOMS	N	Mean		% CHANGE	SD	SE	Paired 't' value	P value
		BT	AT					
RHONCHII	30	3.57	1.37	61.62%	0.484	0.088	24.884	<0.001
FORCED EXPIRATORY VOLUME AT 1 SECOND(FEV1)	30	1.856	2.838	52.91%	0.68209	0.12453	7.886	<0.001
FORCED VITAL CAPACITY (FVC)	30	2.7807	3.7727	35.67%	1.31518	0.24012	4.131	<0.001
PEAK EXPIRATORY FLOW RATE (PEFR)	30	4.5223	7.388	63.37%	2.391604	0.436645	6.563	<0.001

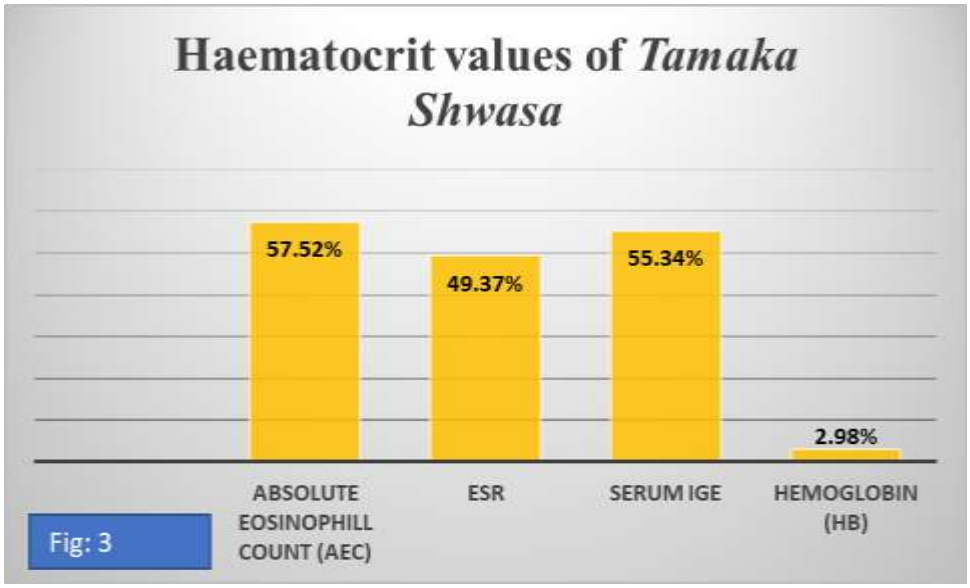
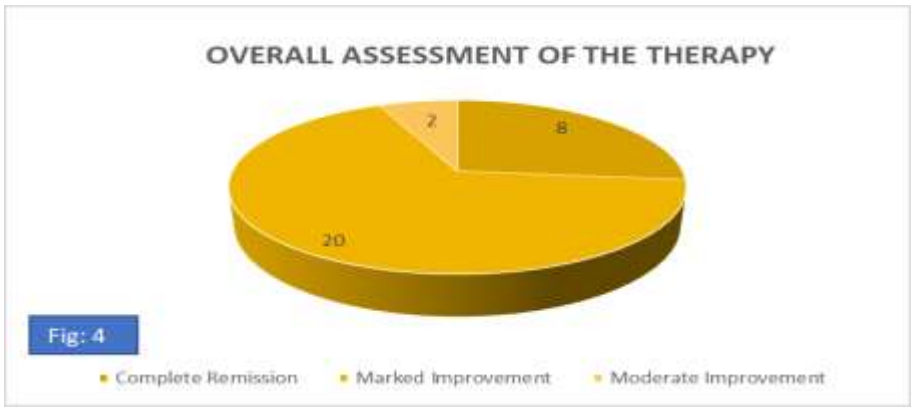


Table 5: Effect of treatment on Haematocrit values of *Tamaka Shwasa*

SYMPTOMS	N	Mean		% CHANGE	SD	SE	Paired 't' value	P value
		BT	AT					
Absolute Eosinophill Count (AEC)	30	461.2	195.9	57.52%	188.609	34.435	7.704	<0.001
ESR	30	28.7	14.53	49.37%	11.573	2.113	6.705	<0.001
SERUM IgE	30	515.527	230.26	55.34%	184.7644	33.7332	8.457	<0.001
HEMOGLOBIN (HB)	30	13.557	13.153	2.98%	1.0578	0.1931	1.743	<0.001



DISCUSSION

In this study, *Simhyadi Kwath* and *Shati Churna* is used as a trial drug. ***Simhyadi Kwath* is described by *Acharya Yogaratnakar* in *purvardha*.** *Simhyadi Kwath* have 9 ingredients i.e. *Kantakari, Haridra, Vasa, Guduchi, Shunthi, Pippali, Bharangi, Nagarmotha and Maricha* in equal parts. It is described as a potent formulation for *Hikka* and *Shwasa roga*. Each drug of *Simhyadi kwath* has variable mode of action. They predominately have *Kapha shamaka, Kapha chedana, Vatanulomana, Ushna virya, Agni-deepana, Krimighna, Kasagna and Pachana property.Acharya* said that this *kwath* destroy *shwas roga* like clouds destroy the fire. *Shati* is the formost drug mentioned by Acharya Charaka in his Shwashahar Dashemani.

Shwashkashtta : This considerable improvement in *shwashkastta* is may be because the trial drug has shati, vasa and Kantakari which has anti spasmodic activity on smooth muscles[13,14]. Bharangi, Pippali and Maricha also have an excellent broncho-dilater activity and thus alleviates shwasakasta[15,16].

Kasa: shati has anti-inflammatory and anti-histaminic property[17], Haridra has anti-allergic and anti-histaminic[18] action whereas Nagarmotha and Pippali has mucolytic property

Ghurghur shabda: This promising results is may be due to anti-spasmodic, bronchodilator and anti-inflammatory activity of shati, Vasa, Maricha, Pippali and Haridra.

Peenas (coryza) –Shati, Bharangi, Guduchi and Haridra anti-histaminic activity in various pharmacological studies and thus their action may be considered for such favorable result

Labhte Saukhyam (Orthopnea) –Pippali, Maricha and Nagarmotha has mucolytic effect due to its Ushana Virya. The improvement seen may be considered as a broncho-dilatory effect of Vasa, Kantakari and Bharangi which increases lung ventilation.

Chest tightness –The trial drug contains Vasa, bharangi, Nagarotha and Shunthi which chiefly do broncho-dilation and anti-inflammatory activity[20]
Frequency & Duration of exacerbation –This significant improvement is may be due to anti-histaminic, anti-inflammatory, broncho-dilater and anti- microbial activity of drugs in trial medicine.
Meghambushitapragvatee vivardhate –Reduction in mast cell formation and histamine secretion, decreased level of eosinophils and reduction in response towards allergens may be considered as the action of drugs like shati, bharangi, Haridra, Guduchi and Kantakari which helps in alleviation of this symptom of bronchial asthma.

Absolute Eosinophill Count –Shati, Vasa, bharangi, Kantakari, Haridra and Pippali predominately have eosinophils-lowering activity which may be considered as the reason behind promising results of trial drug.

ESR – Raised ESR levels are seen in acute inflammatory condition, autoimmune disorders and allergic conditions. But it is evident from various studies that raised ESR is non-specific in bronchial asthma and may not be related. It has also been noted that oral steroids increases ESR. Shati, Vasa, bharangi, Kantakari, Haridra and Pippali predominately have ESR-lowering activity which may be considered as the reason behind promising results of trial drug

Sr IgE – Raised serum IgE is one the major pathological event seen in allergic diseases like bronchial asthma. Shati, Vasa, bharangi, Guduchi, Haridra, Maricha and Pippali predominately have ESR-lowering activity which may be considered as the reason behind promising results of trial drug

CONCLUSION

Tamaka Shwasa is a disease of *pranavaha srotas*. Obstruction in *Pranvaha srotas* is due to Vitiated *Vata* and *Kapha* along with formation of *Ama*. The key factors in the pathology of bronchial asthma are Genetic predisposition, airways hyper-responsiveness, mucous production and inflammation of airways. The most common etiological factors for *Tamaka shwas* is polluted environment and hypersensitivity caused by allergens. On the basis of clinical features and triggering factors explained in classical text, *Tamaka Shwasa* is very much similar to bronchial asthma. *Ayurvedic* drugs having *ushna virya, katu vipaka, kapha chedana, agni deepana , ama pachana* and *vatanulomana* properties are useful in patients of *Tamaka Shwasa* or Bronchial Asthma. Pulmonary function test, AEC and Sr IgE are good parameters to assess the severity of disease as well as response of patients towards prescribed treatment. ESR is raised in allergic conditions but in this study it is found that ESR is non-specific in patients of bronchial asthma. Study shown better improvement in clinical parameters like *shwasakasta, kasa,Ghrurghur shabda, peenas, Asnolabhte saukhyam, Meghambusheetpragvate vivartate* and chest tightness.

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