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Clinical Research

A comparative study on efficacy of *Bharangyadi Avaleha* and *Vasa Avaleha* in the management of *Tamaka Shwasa* with reference to childhood asthma

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Abstract

Ayurvedic concept is of the opinion that *Tamaka Shwasa* (Bronchial Asthma) is a *Yapya Vyadhi*. The etiopathogenesis, signs, and symptoms of *Tamaka Shwasa* may be correlated with Bronchial Asthma. Each child reacts differently to the factors that trigger asthma and treated symptomatically. Asthma is the most common chronic allergic disorder in childhood and third leading cause of hospitalization under the age of 15 years. As it is a *Kapha-Vata* predominant disorder, Ayurvedic medicine may help to decrease the recurrence, improve immunity, and check symptoms naturally. With this aim, a clinical study was undertaken on two groups for duration of 6 weeks. The drugs *Bharangyadi Avaleha* and *Vasa Avaleha* were given orally, separately in both the groups. All the patients were kept under strict dietary control during the treatment. The observation on effect of therapy was encouraging and showed less recurrence.

Key words: *Bharangyadi Avaleha*, childhood asthma, *Tamaka Shwasa*, *Vasa Avaleha*

Introduction

Shwasa word indicates both physiological and pathological state of respiration. *Tamaka Shwasa* is one of the five types of disease *Shwasa*. *Tamaka Shwasa* is a disease mainly of *Pranavaha Srotasa*.[1] The signs, symptoms, and etiopathogenesis of Bronchial Asthma explained in modern diagnosis have lot of similarities with the disease entity *Tamaka Shwasa*. Both *Ayurveda* and modern medical Science agree regarding the *Nidana* of the disease as host factors (*Nija Hetus – Doshadushti* and *Ama*) and Environmental factors (*Agantuja Hetus – Raja, Dhuma, Pragvata*, etc). It can be easily correlated with the allergic condition. *Nidana Parivarjanam* hence plays a key role in the management strategy in both sciences.[2]

Asthma is the most common chronic disease of childhood, and yet many parents know little about it.

In children aged 5 to 14 years, the rate of death from asthma almost doubled between 1980 and 1993. Among children aged 0 to 4 years in 1993, blacks were six times more likely to die from asthma than whites.[3]

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Although asthma can occur in people of any age, even in infants, most children with the illness developed it by about the age of 5 years. Asthma seems to be more common in boys than in girls in early childhood. Children with Asthma and lower immunity become more susceptible to a lower respiratory disorder.

Aims and objectives

1. To study conceptually the etiopathogenesis of childhood asthma vis-à-vis *Tamaka Shwasa* occurring in children contemplating both Ayurved and Modern points of view.
2. To assess clinically, the efficacy of Yogas, i.e., *Bharangyadi Avaleha* (BA) and *Vasa Avaleha* (VA) in the management of *Tamaka Shwasa* with special reference to childhood asthma.

Materials and Methods

Patients attending the OPD of Kaumarabhritya, Institute for Post Graduate Teaching and Research in Ayurveda, Jamnagar, having the complain of *Tamaka Shwasa* as well as Asthmatic children from pediatric department G.G. Hospital.

Selection of patients

Inclusion criteria

- Age group between 2 and 10 years.
- Classical symptoms of *Tamaka Shwasa* with emphasis to symptoms of childhood asthma like wheezing, shortness of

breath, tightness in chest, and cough.

Exclusion criteria

- Severe cases of Asthma with complications like suspected infection, large airway lesions, heart diseases, etc.
- Cardiac complaints, other chronic debilitating diseases like Tuberculosis,Acquired Immune Deficiency Syndrome etc., other systemic and endocrine complaints associated with any degree of Asthma.

Diagnosis criteria

It had been based on the specially prepared proforma, including all clinical signs and symptoms of the disease, in which detailed history had been taken.

Preparation of the drugs

Bharangyadi Avaleha as described in *Sahastra Yogam*, *Shwasa roga Chikitsa* (*Kshaya Prakarana*)[4] was selected. The list of the herbs is as mentioned in Table 1. In other group, *Vasa avaleha*[5] as mentioned in *Bhaishajya Ratnavali* in *Kasa Roga Chikitsa* (16/179-181) was selected. The ingredients are enlisted in Table 2 in equal quantity for preparation of *avaleha*.

Though both the drugs are of known efficacy, the patient's age group due to their bad palatability did not accept the forms of the medicines, *kwatha*, etc. Taking the aspect of palatability and acceptability into effective consideration, the medicines were planned to be administered in *Avaleha* form. To make the *Avaleha* form of above mentioned *Kashaya*, *siddhantas* told by *Sharangdhara* had been followed.

Posology: Dose of *Avaleha* in classics is not clearly mentioned for child. So, the dose was fixed according to Young's Formula keeping in the mind the adult dose of *Avaleha* as 1 Pala (48 g). The dose is shown in Table 3.

Criteria of assessment

1. Clinical features as *Tamaka Shwasa* will objectively assess periodically.
2. Improvement in frequency, intensity, and duration of symptoms had been considered.
3. Hematological investigations.
4. Absolute eosinophil count.

Effect of therapy

The clinical efficacy of the drug was analyzed statistically on all the symptoms mentioned in the assessment criteria. Initially, the variation and significance of effect seen within the 18 patients were calculated by paired *t test*. The difference of individual score SD was calculated with Standard Error in Mean (SEM). These data are shown as Mean ± SEM. Then, to more specifically quantify the percentage of improvement in each patient, this was also calculated using the formula (BT − AT) × 100/BT.[6]

Effect of therapy is evaluated as

- No improvement - 0-25%
- Mild improvement - >25-50%
- Moderate improvement - >50-75%
- Markedly improvement - >75-<100%
- Complete remission - 100%

Table 1: Contents of *Bharangyadi Avaleha*

Drug	Latin name	Quantity
Bharangi	*Clerodendrum serratum Linn*	1 part
Kasamarda	*Cassia occidentalis Linn.*	1 part
Vasa	*Adhatoda vasica Nees.*	1 part
Maricha	*Piper nigrum Linn.*	1 part
Pippali	*Piper longum Linn.*	1 part
Haridra	*Curcuma longa Linn.*	1 part
Guduchi	*Tinospora cordifolia Miers.*	1 part
Sunthi	*Zingiber officinale Roscoe.*	1 part
Dhanya ka	*Coriandrum sativum Linn.*	1 part
Madhu	-	q.s.
Mishri	-	q.s.
Ghrita	-	q.s.

q.s.- Quantity sufficient

Table 2: Contents of *Vasa Avaleha*

Drug	Latin name	Quantity
Vasa	*Adhatoda vasica Nees.*	64 Tola*
Pippali,	*Piper longum Linn.*	8 Tola
Madhu	-	32 Tola
Mishri	-	32 Tola
Ghrit	-	8 Tola

*1 Tola = 12 g

Observations and Results

The general demographic data is shown in Table 4. The effect of therapy on various parameters is presented in Table 5-8.

Effect on *Roga Bala*

As the sample was small in both the groups, percentage-wise data are more reliable than the statistical data.

In both the groups, symptoms related to *Shwasakashtata* were reduced but was statistically more highly significant in VA than BA, although trial drug decreases the *Vega Tivrata* and *Vega Avadhi*, between the treatment not whenever attacks come and not in emergency condition. So, the trial drug plays an effective role.

But, during the treatment, two patients reported increase in the complaints with emergency modern medicine in control group VA.

In *Kasa* and its associate symptoms, VA showed slight better result than BA. Actually, *Kasa*, *Kaphanisthvan*, *Urahashool*, *Shirograha*, and symptoms are interrelated and cannot be assessed separately, but these all four symptoms make a complex feature which shows the different picture of *Tamaka Shwasa*, and symptoms of *Shwasakashtata* is also related with this.

In *Kapha nishthivan*, both the groups showed significant results.

In *Parshvashula* and *Shirograha*, BA showed better result, but wheezing was decreased in VA, which may be due to decreased *Kaphanisthvan* and the mucous inside. In Peak expiratory flow rate BA showed better result.

Effect on *Agni Bala*

Abhyavaharana Shakti: In the group BA, *Abhyavarana Shakti* was improved by 76%, which was statistically highly significant.

Table 3: Dose and duration of trial drugs

Group	Dose acc. to age (2-6 years) 3 times/day	Dose acc. to age (6-10 years) 3 times/day	*Anupan*	Duration	Follow-up
Group A	6 to 14 g	15 to 19 g	Lukewarm water	6 weeks	1 month
Group B	6 to 14 g	15 to 19 g	Lukewarm water	6 weeks	1 month

Table 4: General observations

Observations	Result (Max.) (%)
Age (2-6 years)	57.69
Sex (Male)	73.08
Education (Primary)	50
Paternal education (High school)	46.15
Maternal education (High school)	26.92
Chronicity (0-3 years)	65.54
Frequency (Weekly)	34.62
Intensity:- Night and Midnight	53.85
Morning	50
Family history (Positive)	19.23
Nidana:- *Sheeta and Ruksha Ahara*	80.77
Shleshmala Ahara	57.69
Diet habit (*Vishamashana*)	42.31
Dominancy of *Rasa* in diet (*Madhura Rasa*)	61.54
Prakriti:- Vata-Pitta Prakriti	42.31
Kapha-Vata Prakriti	38.62
Agni (Mandagni)	65.38
Nidanarthakara Roga (Kasa):-	88.46
Pratishyaya	65.38
Pandu	53.85
Pneumonia	26.92
Pranavaha Sroto dushti- Alpalpa, Sashabda Sashula	76.92
Annavaha Sroto Dushti (Avipaka)	65.38
Chief Complaint:- *Shwasa Kashtata* and *Kasa*	100
Peenasa, Ruksha kasa	76.92
Upashaya:-(Asino labhate saukhyam)	57.69
Ushnopachara	42.31
Anupashaya-(Sheeta Ahara and Sheeta Vata)	80.77
Shelshmala Ahara	57.69
Type of Respiration Abdomino-thoracic.	65.85
Auscultation-(Bronchial breathing)	61.54
Wheeze	65.38
Rhonchi (Sibilant)	15.38
PEFR (100 and 200 l/min)	15.38

PEFR: Peak expiratory flow rate

Jaranashakti: In the group BA, *Jarana Shakti* was improved by 86.67%, which was statistically highly significant.

By the treatment of BA, all the parameters of *Agni Bala* showed improvement except *Ruchi*, which may be due to the ingredients of BA containing *Pippali*, *Shunthi*, *Maricha*, *Dhanyaka*, and *Guduchi*, which have more specific action on *Agni*.

Effect on *Chetasa Bala*

Chetasa bala is very much related to the counseling of the patients during the treatment. Sleep improvement (*Nidralabho-yathakalam*) may be due to release attack of asthma in the both the group.

Effect on other hematocrit values

Hematocrit values: In the BA Group, there was no statistically significant changes in hematocrit values, only lymphocyte count was reduced by 19.23%, Hb% was improved by 1.51%, eosinophil count was reduced by 24.19%, and Erythrocyte sedimentation rate was reduced by 47.95%.

Effect on absolute eosinophil count

In both the groups, there were no statistically significant changes in hematocrit values in comparison with VA (27.27%); BA showed better results to decrease absolute eosinophil count (AEC) (39.69%).

Overall effect of therapy

In BA group, highest number of patient (63.64%) got markedly improvement, 18.18% was observed with moderate improvement, and 18.18% of patients were observed with complete remission. In VA group, highest number of patients (71.43%) was markedly improved and 28.57% were observed with complete remission.

Discussion

Disease review

Since the *Tamaka Shwasa* is a *Vata -Kapha*-dominated disease, its incidence should be witnessed more either during the *Balyaavastha*, which is the normal time of *Kapha* dominance, or the *Vriddhavstha*, which is the normal time of *Vata* dominance.[7]

This increased risk remained in boys aged 5 to 14 years, who were 1.3 times more likely to die from asthma than girls in that age group. By the ten years, the risk seems to even out between girls and boys.[8]

Clinical review

Age: In the present study, maximum number of patients (57.69%) were in the age group of 2 to 6 years, followed by 42.31% in >6 to 10 years age group.

In the classical literature, ordinarily, we do not find a mention of the relation between *Tamaka Shwasa* and age.

Sex: Maximum number of patients (73.08%) were male. No relation between the gender and *Tamaka Shwasa* has been established by the ancient writers. Similarly, during the modern era also, no such relation has been established.

Male to female ratio was 2 : 1. Male children tend to suffer more, since they have smaller air ways for a given lung size, which is independently inherited in addition to the fact that boys have a higher incidence of respiratory infections during childhood.[9]

Table 5: Effect of therapy on cardinal features in *Tamaka Shwasa* (b. asthma) in group-A

Symptoms	*n*	Mean		%	SD	SE	t	*P*
		BT	AT					
Shwasakashtata	11	3.1	0.36	88.24	0.77	0.24	11.50	<0.001
Shwasa Vega	11	2.91	0.37	87.5	1.29	0.39	6.53	<0.001
Vega Tivrata	11	1.82	0.27	85	0.82	0.25	6.25	<0.001
Vega Avadhi	11	2.55	0.18	92.86	0.81	0.24	9.67	<0.001
Asinolabhate Saukhyam	07	1.86	0.00	100	0.69	0.26	7.12	<0.001
Kasa	11	3.09	0.90	70.59	0.87	0.26	8.28	<0.05
Kaphanishthivan	3	1.67	0.00	100	0.57	0.33	5	<0.001
Wheezing	8	2.38	0.25	89.47	0.83	0.30	7.20	<0.001
Pinasa	11	2.78	0.78	73.33	0.63	0.19	10.49	<0.001
Urahashool	6	1.67	0.00	100	0.40	0.17	7	<0.001
Shirograha	5	1.6	0.00	100	0.89	0.4	4	<0.05
Kanthodhvansana	4	1.75	0.00	100	0.96	0.48	3.66	<0.05
Nidra labho	11	1.82	0.18	90	0.50	0.15	10.76	<0.001
Abhyavarana Shakti	10	2.5	0.6	76.00	0.73	0.23	8.14	<0.001
Jarana Shakti	9	1.67	0.22	86.67	0.73	0.24	5.96	<0.001
Aruchi	8	1.13	0.00	100	0.70	0.5	3	<0.001

Highly significant (<0.001), significant (<0.05)

Table 6: Effect of therapy on hematological parameters in 11 pateints of *Tamaka Shwasa* (b. asthma) in group-A

Hematological parameters	*n*	Mean		%	SD	SE	t	*P*
		BT	AT					
Hemoglobin (gm %)	11	10.87	10.70	1.50	0.50	0.15	10.76	<0.1
Total leucocyte count (/cmm)	11	5975.84	7166.24	−19.92	2721.36	820.52	−1.45	<0.1
Neutrophil	11	49.56	56.90	−14.86	11.10	3.347	−2.19	<0.1
Lymphocyte	11	43.54	34.90	19.83	12.26	3.69	2.34	<0.01
Eosinophil	11	4.64	5.27	−13.72	3.85	1.16	−0.55	<0.1
Monocytes	11	2.72	2.90	−6.67	0.75	0.23	−0.80	<0.1
Erythrocyte sedimentation rate	11	17.81	9.27	47.95	10.62	3.20	2.67	<0.1
Absolute eosinophil count	11	422.72	531.81	−25	504.39	152.07	−0.71	<0.1
Peak expiratory flow rate	2	214	185	15	15.55	11	2.63	<0.1

Table 7: Effect of therapy on cardinal features in *Tamaka Shwasa* (b. asthma) in group-B

Symptoms	*n*	Mean		%	SD	SE	t	*P*
		BT	AT					
Shwasakashtata	7	2.71	0.14	94.74	1.39	0.53	4.87	<0.01
Shwasa Vega	7	2.29	0.29	87.5	0.58	0.22	9.17	<0.001
Vega Tivrata	7	2.00	0.00	100	1.15	0.44	4.58	<0.01
Vega Avadhi	7	2.14	0.14	93.33	o.58	0.22	9.17	<0.001
Asinolabhate Saukhyam	06	1.83	0.17	90.91	0.82	0.33	5	<0.01
Kasa	07	2.14	0.43	80	0.76	0.29	6	<0.001
Kaphanishthivan	05	1.6	0.00	100	0.55	0.24	6.53	<0.01
Wheezing	07	2.29	0.00	100	0.76	0.29	8	<0.001
Pinasa	07	2.26	0.14	93.75	1.07	0.40	5.30	<0.01
Urahashool	06	1.17	0	100	0.41	0.17	7	<0.001
Shirograha	03	1	0.33	66.67	0.58	0.33	2	<0.1
Kanthodhvansana	05	1.2	0.00	100	0.45	0.2	6	<0.01
Nidra labho	07	1.71	0.00	100	0.49	0.18	9.2	<0.001
Abhyavarana Shakti	07	2.14	0.14	93.33	0.58	0.22	9.17	<0.001
Jarana Shakti	6	1.5	0.17	88.89	0.81	0.33	4	<0.001
Aruchi	5	1.6	0.00	100	0.55	0.24	6.53	<0.001

Highly significant (<0.001), significant (<0.05)

Table 8: Effect of therapy on hematological parameters in 11 pateints of *Tamaka Shwasa* (b. asthma) in group-B

Hematological parameters	*n*	Mean		%	SD	SE	t	*P*
		BT	AT					
Hemoglobin (gm %)	7	11.26	11.1	1.39	0.53	0.19	0.79	<0.1
Total leucocyte count (/cmm)	7	8230.19	6973.4	15.27	2631.97	994.79	1.26	<0.1
Neutrophil	7	50.86	48.28	5.05	7.98	3.02	0.85	<0.1
Lymphocyte	7	40.28	43.57	−8.15	6.68	2.52	−1.30	<0.1
Eosinophil	7	6.28	5.43	13.64	4.29	1.62	0.52	<0.1
Monocytes	7	2.57	2.86	−11.11	0.76	0.28	−1	<0.1
Erythrocyte sedimentation rate	7	12.57	17.43	−38.63	19.86	7.50	−0.65	<0.1
Absolute eosinophil count	7	628.57	457.14	27.27	499.04	188.62	0.90	<0.1
Peak expiratory flow rate	3	200.67	177.67	5.54	18.76	7.09	1.38	<0.1

Insignificant (<0.1)

Past History: *Peenasa* results due to chronic *Pratishyaya* which causes the *Khavaigunya* in *Pranavahasrotas*. It is the manifestation of allergic reaction, which further develops into Asthma.

Family history: Role of hereditary factor in Asthma has been elicited by various studies recently. Absence of *Nrf2* gene has been found to increase the number of inflammatory cells within the airways, causing the airway lining to swell, which induces asthma in mice. Interestingly, in the present study, except for a minor percentage of 19.23%, majority of the patients had a positive family history, either from the maternal or paternal side.[10]

Education status: Majority of the patients were school going. Of them, a large percentage of 50% were primary students. This discussion may also be taken as a fulfillment of the modern concepts of data presentation in the biostatics in the medicine. The areas to be considered in patient education for asthma include the following:

1. Explaining the disease process, and recognition of early attacks.[11]
2. Explaining the medication, techniques, and side effects.
3. Social impact of the disease at home, school, and sports.

Prakriti-wise analysis of the patients in the study shows a predominance of *Vata-Pitta Prakriti* scoring up to 42.31%. *KaphaVata Prakriti* was 38.46%.

Majority is dominant in *Rajo, Guna*, i.e., 42.31%. *Manasa Prakriti* is difficult to be elicited in children. All children are sensitive and have comparatively low tolerance. Still, based on behavior, activity, out spookiness, cooperation in treatment, relative tolerance, and with respect to age, this classification is done.

Proper *Prakriti* analysis is difficult in children because of "*Sarva Dhatu Asampoornata*.[7]" Still, an attempt has been made to analyze the *Prakriti* on the basis of current behavior, physical features, and other physical characters.

Nidan: A large majority of patients in the present study (80.77%) were consuming refrigerated food, which are *Sheeta* and *Ruksha*, regularly. 57.69% of patients were using *Shleshmala Ahara*. Chocolates, *Takra*, and *Dadhi* were consumed by 30.77% on regular basis. 26.92% were taking fruits regularly.

Sheeta, Vidhahi, and *Vishthambhi Aahara*. *Abhishayandi Aahara* can create the *Srotorodha* and vitiate the normal path of *Vata*. It is having *Guru* Property which is heavy for digestion and hampers the function of *Agni*. All other *Aharaja Nidana* mainly acts as *Utpadaka* as well as *Preraka Hetu*.

Among most commonly seen *Viharaja Nidanas*, *Sheeta Vata* leads in majority (80.77%). Exposure to dust was seen in 30.77% patients very regularly, and 19.23% were exposed to *Dhuma*. *Divaswapna* was regularly seen in 61.54% of patients. *Sheeta sthana* caused *Shwasa Vega* in 73.08% patients. These factors act as predisposing factors. *Raja* and *Dhuma* contain number of allergens which adds to chronic airway inflammation in airways.

Nidana is highly important in *Shwasa Roga*. Primary prevention strategy in Asthma focuses on avoidance of etiological factors. Among the classical *Nidana* listed and also on the basis of attributes of commonly used food articles, a list of 6 *Ahara Dravyas* was considered in the present study for evaluation.

Allergens of various types and chemical nature may act as exciting causes and produce asthma labeled as allergic asthma. The most important in this group are foods, inhalants, bacteria, emotions, and immunology. Others factors like fatigue, exhaustion, change of climate, dietic indiscretions and exercise, weekend asthma, asthma occurring at night due to low output of adrenaline, etc., are well recognized and may play a part in the causation of disease.[8]

Dominancy of *Rasa* in diet: In this study, maximum patients, i.e., 61.54%, were taking *Madhura Rasa Pradhana Aahara*.

The observation in the present study reveals that 42.31% of the patients were of *Vishamashana* habit, with good variation depending on the liking of food and variation in appetite.

Most of the patients were having affinity to some specific food article or a specific taste, and quantity of food intake in children generally depends on their likes and dislikes.

Dietary restrictions: The patients were strictly advised to follow the restrictions regarding food, food habits, and life style. To the extent possible, they were instructed to avoid the probable causative factors of the disease and causes for *Agnimandya*.

These restricts almost *Pathyacharana* and *Apathya Varjana*. The role of other dietary substances including the yellow dye tartrazine, benzoate, and monosodium glutamate in exacerbating asthma is probably minimal; confirmation of their relevance requires double-blind challenge before making specific dietary restrictions.[10]

Agni wise: Present study revealed that 65.38% of patients had *Mandagni* and 23.08% had *Vishamagni*. *Ama* plays a key role in

the *Samprapti* of *Tamaka Shwasa*. The status of *Agni* has to be invariably assessed in all diseases for the understanding of the etiopathology as well as its management.

Jarana Sakti: It was found that 80.77% of the patients had *Madhyama Jarana Shakti* and remaining 11.54% patients possessed *Avara Jarana Shakti*.

Abhyavaharana Shakti was found to be less in all the patients due to the dominance of *Manda* and *Vishama Agni*.

Seasonal wise: Rainy season was the triggering factor in aggravation of the disease *Tamaka shwasa* and was observed in 53.85% of patients; *Tamaka Shwasa* in the rainy season was observed in 53.85% patients, but in 100% patients, the aggravation was reported jointly during the winter and rainy season. Asthma is highly influenced by seasonal variations.

While discussing the time of aggravation of *Tamaka Shwasa*, the Ayurvedic scientists have pointed out that the *Shwasa Roga* and particularly the *Tamaka Shwasa* get aggravated during the rainy season and winter season.

Adverse weather conditions, such as cold temperatures, high humidity, and episodes of acute pollution brought on by weather conditions that promote the concentration of atmospheric pollutant and antigen, have been associated with Asthma exacerbations.

Chronicity wise: Chronicity-wise distribution of the patients into three groups as follows: 0 to 3 years was found in maximum patients (65.54%), >3 to 6 years was found in 26.92%, and >6 to 9 years was found in 7.69%. The diseases were definitely of a chronic duration and their curability was never expected. So, *Krichhra-sadhyata* or *Yapyata* could have been expected.[12]

Intensity of attack: Maximum patients had increased intensity of attack in night and mid-night (53.85%); in 50% of the patients, it was found in the morning and after physical exercise. Increasing *Shwasa* is observed.

Frequency of attack was found daily in 26.92%, weekly in 34.62%, fortnightly in 30.77%, and monthly in 19.23%.

Area wise

Majority of patients (84.62%) were from urban area and 15.38% were residing in rural areas. Children in populations that migrate to urban from rural areas begin to experience a much higher prevalence of asthma when followed over a period than similar children who remain in the rural areas. The urbanized environmental increase exposure to new allergens.[13]

So, urbanization is one of the factors that increase Asthma prevalence. *Jamnagar* being an industrial city has a high prevalence of Asthma.

Srotodusti wise: It was interesting to observe the symptoms told in *Prana Vaha* that *Sroto Dushti* were present in a very high number of patients as such. *Alpalpa Shwasa* and *Sashabda Shwasa* were symptoms found in all the patients showing 76.92% incidence. *Ati badha* was found in 11.54%, *Abhikshna Shwasa* was seen in 46.15% of patients, *Sashabda Shwasa* was seen in 76.92%, and *Sashula Shwasa* was seen in 76.92% of the patients who participated in the present clinical trial.

Chief complaint wise: Of the 26 patients of *Tamaka Shwasa* in the present clinical trial, all (100%) had *Shwasa Krichhtata* or shortness of breath and *Kasa* as chief complaints. *Peenasa* was reported in 76.92%, *Ruksha Kasam* in 76.92%, *Sakapha Shwasa* in 19.23%, and *Parshwa Shula* was seen in 34.62%. *Shwasakashtata* is a *Pratyatma Lakshana* of *Shwasa* which is commonly associated with *Kasa* too, as it occurs mainly due to *Srotorodha* produced by *Kapha* in the path of *Vata*. So as to get the relief when patient tries to expel out the obstruction, that is why more and more cough reflex is produced; in some patients (*Kapha Pradhana*), it is easily expelled out, while in others (*Vata Pradhana*), patient has to make more efforts as in *Vatic* due to *Sankoch* in *Pranavaha Sroto Nadi*, usually without *Kasa*, or *Kasa* will be very troublesome and there will be no relief even after expulsion of sputum and due to excessive coughing, respiratory muscles get exhausted, so *Parshva Shula* is observed. *Pratishyayam* is a very common *Nidana*.

Associated symptoms during attack: In associated symptoms of *Tamaka Shwasa*, 50% found relief after *Kasten sleshma nirharam and Vamana*. *Kshavathu* was seen in 46.15%, 34.62% was figured in prevalence of symptoms of *Shiro Greeva Parigra*.

Upashaya: *Ushnopachara* was reported as a relieving factor in as many as 42.31% patients. And, 57.69% patients reported that they get relief in sitting posture (*Ashino labhate Saukhyam*).

Anupashaya: *Anupasaya* with cold drinks which caused the vitiation of *Vata* and *Kapha* without *Sanchaya* due to extreme *Sheeta Guna*. Three patients were reported with touch of cold water as an *Anupshaya*. A large majority had cold drinks and refrigerated food as aggravating factor, figuring up to 80.77%. *Sheeta Vata* (relatively less percentage due to less habit of early rising and that is why no morning breeze exposure) was reported in 80.77%, *Raja* in 30.77%, 19.23% was found reported *Dhuma* (relatively less than *Raja* as it include only outdoor pollution containing various allergens and indoor smoke is nowadays less as all the house wives are using gas in well-ventilated kitchen), *Meghambu* in 53.85%, *Dadhi* was *Anupshaya* in 30.77% of patients. 57.69% was found *Shleshmala Ahara*, i.e., milk products and sweet.

Drug review

Mode of action

The drug BA consists of many ingredients which excellently balance each other in *Rasa-Panchaka* and enhance the *Vatakaphahara*, *Deepana*, *Pachana*, and *Vatanulomana* properties, which are the main *Doshas* in the pathogenesis. The main factor in this disease as in many other diseases is *Ama*, and the *Deepana-Pachana* properties of the drug will digest the *Ama* by kindling the *Jatharagni* as well as *Rasagni* and *Bhutagni*. Furthermore, the *Sothaharatwa Karma* of most of the contents will neutralize the *Srotorodha* in *Pranavaha Srotasa* due to *Sotha* created by *Sama Vata*.

The main logics behind the actions are as follows:

The *Dosha-Prashamana* effect (*Bharangi*, *Pippali*, *Sunthi*, *Maricha*, *Haridra*, *Kasmarda*) acts on the main *Doshas* which contribute to the *Samprapti*, viz. *Vata* and *Kapha* and *Guduchi* and *Dhanyaka Tridoshahara* properties are present.[14] *Deepana-Pachana Karma* (*Pippali*, *Maricha*, *Guduchi*, *Shunthi*, *Dhanyaka*) digest *Ama*. *Vatanulomana* property (*Pippali*, *Sunthi*) maintains the normal flow of *Vata*. *Shwasa*, *Kasa*,

Shothahara Prabhava (*Bharangi*, *Vasa*, *Shunthi*, *Kasmarda*, *Pippali*, *Maricha*, *Dhanyaka*) act on the symptoms. The pharmacological studies already reported on the individual drugs also favor its effect in disease bronchial asthma as given below:

Antiallergic[15]—*Haridra*, *Bharangi*, *Guduchi*; anti-inflammatory—*Haridra*, *Guduchi*, *Maricha*, *Kasmarda*, *Pippali*, *Shunthi*; antispasmodic—*Vasa*, *Dhanyaka*; Antitussive—*Vasa*, *Shunthi*; bronchodilator—*Vasa*, *Pippali*; expectorant—*Vasa*; immunomodulator—*Pippali*, *Guduchi*. VA has *Madhura Rasa* dominancy along with *Tikta*, *Katu*, and *Kashaya Rasa*. *Sheet Veerya* and *Katu Vipaka* contribute to the pharmacodynamics of VA. Contemplation of the ancient classics reveals no such specific property of *Avaleha* regarding the pharmacokinetics, except its site of action starts from mouth. *Avaleha* may work as *Rasayana* for the *Pranavaha Srotas* and also shows *Kapha Vatahara* effect.

Antispasmodic—*Vasa*; expectorant—*Vasa*; immunomodulator—*Pippali*; anti-tissue—*Vasa*; bronchodilator—*Vasa*, *Pippali*-Anti inflammatory.

Conclusion

Bharangyadi Avaleha and Vasa Avaleha both showed approximately equal effect on *Roga Bala*.

Combination of *Bhrangyadi Avaleha* is very good having all the properties required to break the *Samprapti* of *Tamaka Shwasa;* however, the results are statistically not so encouraging, which may be due to the use of same formulation in both types of patients (having *Vata Pradhana Samprapti* and having *Kapha Pradhana Samprapti*).

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References

1. Goyal HR. A clinical study of Tamaka Shwasa (Bronchial Asthma). New Delhi: Central Council for Research in Ayurveda and Siddha; 1997.
2. Hemlatha N. A clinical and experimental study on the efficacy of Shunthi Pushkaramooladi yoga in the Management of Tamaka Shwasa W.S.R. to childhood Asthma. MD Thesis Jamnagar: Gujarat Ayurved University; 2006.
3. Nelson HS, Sharon Hipkins, Suzanne Rutkowski, Atkins FM. Asthma and Allergy Foundation of America. Editorial board. Available from: http://www.aafa.org/display.cfm [Last updated on 2008 Aug].
4. Sharma R, Sharma S. Sahsrayogam Shwasa roga Chikitsa (Kshaya Prakarana) Delhi, India: Chaukhamba Sanskrit Pratisthan; 2004.
5. Bheshajya Ratnavali, Kasa Roga Chikitsa Ref. 16/179-181 by Siddhi Nandan Mishra. 1st ed. Varanasi: Chaukhamba Surbharti Prakashan; 2005.
6. Agarwal S. Effect of Shireeshadi Ghanavati in the Management of Tamaka Shwasa W.s.r To Bronchial Asthma. MD Thesis Jamnagar: Gujarat Ayurved University; 2008.
7. Vaidya Yadavaji Trikamaji Acharya, Charaka Samhita of Agnivesha with Ayurvedadipika Commentary of Chatrapani Dutta. Varanasi: Choukhamba Publication; 2004.
8. Viswanathan J, Desai AB. Achar's Text book of Pediatrics. 3rd ed. New Delhi, India: ICMR; 1961.
9. A parthasarathy, PSN Menon, MKC Nair. IAP Textbook of Pediatrics. 2nd ed. New Delhi, India: Parthasasthy Jaypee Brothers Medical Publishers, Ltd; 2002. p. 400.
10. Bateman ED, Bousquet J, FitzGerald M, Barnes PJ. GINA Pocket guide for Asthma Management, based on the workshop report: Global Strategy for Asthma Management & Prevention. Updated 2008.
11. A parthasarathy, PSN Menon, MKC Nair. IAP Textbook of Pediatrics. 2nd ed. New Delhi: Parthasasthy Jaypee Brothers Medical Publishers Ltd; 2002. p. 403.
12. Vagbhata. Ashtanga Hridaya with Commentaries, Sarvanga Sundara and Ayurveda Rasayana. 9th ed. Varanasi: Choukhambha Orienta1 lia; 2005.
13. Parthasarathy A, Menon PS, Nair MK. IAP Textbook of Pediatrics. 2nd ed. New Delhi: Parthasasthy Jaypee Brothers Medical Publishers Ltd; 2002.
14. Bhavaprakasha Nighantu - Bhava Mishra by Brhmshankar Mishra. 10th ed. Varanasi: Chaukhamba Sanskrit Sansthan; 2002.
15. Sharma PC, Verne MB, Dennis TJ. Database medicinal plants. Vol. 1-5. New Delhi central council for research in Ayurveda and siddha Department of ISM& H ministry of health & family welfare. New Delhi: Govt. of India; 2000.