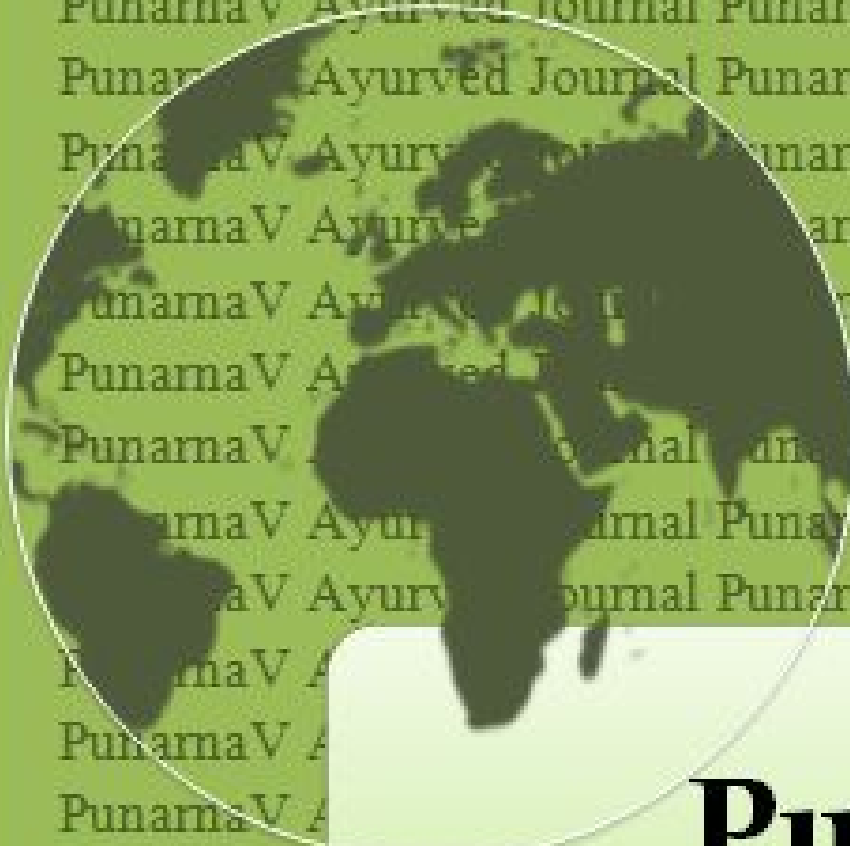


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**TITLE**

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RANDOMISED CONTROLLED STUDY**

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## EFFICACY OF KANTAKARYAVALEHYA ON CHILDHOOD ASTHMA – A RANDOMISED CONTROLLED STUDY

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### ABSTRACT:

*Childhood bronchial asthma has increased the number of preventable hospital emergency visits and elementary school absenteeism in India. Childhood asthma has multifactorial causation with contributions from geographical location, environmental, racial and behavioural factors. Ayurvedic counterpart Tamakashwasa is characterized by Shwasa krucchrata, Kasa, Ghurghurukata, Asino labhate sukham, lalata swedana and parshwa shula. A comparative study was done to assess the effectiveness of Kantakaryavalehya along with pathyaahara and viharain relieving the symptoms of childhood bronchial asthma and compare its effectiveness with pathyaahara and vihara alone. Participant children were grouped into A and B. Group 'A' received Kantakaryavalehyawith pathyaahara and viharaand group B received pathyaahara and viharaalone. After the study period of 30 days, the results were analysed. Statistically highly significant results were observed in Shwasa krucchrata ( $p<0.001$ ), Kasa( $p<0.001$ ) and significant result with regards to Asino labhate sukham( $p<0.05$ ) parameter in group A when compared to group B. Kantakaryavalehya with pathyaahara and viharaoffered better results when compared to pathyaahara and viharaalone based on the present study.*

**KEY WORDS:** *Childhood Asthma, Kantakaryavalehya, Pathya ahara vihara, Samprapti vighatana, Tamaka shwasa.*

## INTRODUCTION

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Asthma is the most prevalent major chronic lung disease, which constitutes a serious public health problem all over the world. Asthma affects all age groups and may be severe and sometimes fatal. Although asthma affects people of all age groups, the disease is most common in children.<sup>1</sup>

The prevalence of Asthma is on the upswing mainly because of the changes in the *ahara* and *vihara* of the people living in the modern age. Increased use of junk food, especially among children along with uncontrolled atmospheric pollution is one of the prime causes for the increased prevalence of Asthma in children. The prevalence of Asthma is found to be around 7% of all age groups of children put together. In majority of the cases, it starts before the age of 10 years.<sup>1,2</sup>

Among school going children, the prevalence is found to be 4-20% which is much higher in comparison with the prevalence of adults which is 10-12% and is the third-ranking cause of hospitalization among children under the age of 15 years. Asthma is more prevalent in urban areas than in rural areas.<sup>3</sup>

Childhood Asthma is responsible for school absenteeism, restricted activities, social, economic and psychological impact on the family. In rapidly growing cities like Bangalore with high pollution, children are at increased risk to Respiratory problems and allergies, especially Allergic Bronchitis, on the time being which becomes Chronic Bronchitis or Asthma.<sup>3</sup>

Bronchial asthma mentioned in Modern Medicine closely resembles with *Tamakashwasa*. *Tamaka shwasa* is mentioned as one of the variety among five types of *shwasa*.<sup>4</sup> *Tamaka shwasa* is a '*swatantra*' *vyadhi* & having its own etiology, pathology & management. It is mentioned as *yapya vyadhi*.<sup>5</sup>

5% of all Asthmatic patients are resistant to treatment with conventional therapy.<sup>3</sup> In this particular study Kantakaryavalehya was administered to study its effects on Childhood asthma along with *pathyaahara* and *vihara* in comparison with *pathyaahara* and *vihara* alone.

# EFFICACY OF KANTAKARYAVALEHYA ON CHILDHOOD ASTHMA – A RANDOMISED CONTROLLED STUDY

## OBJECTIVES OF THE STUDY

To study the efficacy of Kantakaryavalehya on Childhood asthma in comparison with *pathyaahara* and *vihara* alone.

## MATERIALS AND METHODS

40 patients, both male and female children of the age group of 5 to 15 years attending the O.P.D and I.P.D of Sri Jayachamarajendra Institute of Indian Medicine Hospital, Bengaluru were selected at random without bias of social, economic, educational or religious status.

## DIAGNOSTIC CRITERIA

Patients with following lakshanas of *tamaka shwasa* were selected.

- *Shwasa krucchrata* (Breathlessness)
- *Kasa* (Cough)
- *Ghurghurukata* (Wheezing)
- *Parshwa shoola* (Pain in the flanks)
- *Lalata swedana* (Forehead sweat)
- *Asino labhate sukham* (Comfortable in sitting position)

## INCLUSION CRITERIA

- Patients in the age group of 5 to 15 years.
- Patients fulfilling the symptoms mentioned in Diagnostic criteria.
- Intermittent, Mild Persistent and Moderate Persistent Asthma.

## EXCLUSION CRITERIA

- Patients with Cardiovascular, Renal and other systemic disorders.
- Patients with other chronic and infective disorders of respiratory system.
- Primary Complex.
- Foreign body aspiration.
- Acute Severe Asthma.
- Severe Persistent Asthma

## STUDY DESIGN

1. Patients fulfilling the inclusion criteria were selected for the study and divided into 2 groups A and B, randomly.
2. Patients in group A were administered with *kantakaryavalehya* 10 ml TID.
3. Patients in group B were kept only on *pathyaahara* and *vihara*.
4. Findings were statistically analysed.
5. Consent was taken from parents of all subjects and Ethical clearance was also obtained.

## SCREENING AND RECRUITMENT –

Patients visiting the OPD and IPD of Sri Jayachamarajendra Institute of Indian Medicine Hospital, Bengaluru were screened based on the inclusion and exclusion criteria and grouped into two.

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**SUBJECTIVE PARAMETERS:**

**RANDOMISATION** – Lottery method.

**STATISTICAL ANALYSIS** –Using paired ‘t’ test.

**PARENTAL EDUCATION**

Parental education has become an integral part of management of many disorders and especially those of children, more so with Chronic Childhood Airway Disorders. It is necessary to avoid identifiable allergens, irritants and assure environmental control measures.

Parents were advised to maintain a hygienic environment in the house – free from fomites, leaky ceilings, dust, fungus free walls, use of cotton clothes, prevention of exposure to irritants like strong fumes, scents, smoke, fog and avoidance of certain foods which trigger the episode.

1. *Shwasa krucchrata* (Breathlessness)
2. *Kasa* (Cough)
3. *Asino labhate sukham* (Comfortable in sitting position)

**OBJECTIVE PARAMETERS:**

1. Respiratory Rate
2. Wheezing
3. Peak expiratory flow meter

**OVERALL ASSESSMENT**

Overall assessment was made by considering all the subjective and objective parameters.

Marked response -> 75%

Moderate response – 50-74%

Mild response – 25-49%

Poor response - <24%

**DURATION OF THE STUDY:** 30 days.

**ASSESSMENT CRITERIA**

**RESULTS**

**TABLE: NO: 01 : RESPONSE ON PARAMETERS AS SEEN IN PATIENTS OF GROUP A**

PARAMETER	MEAN BT	MEAN AT	MEAN DIFF	% OF MEAN DIFF.	SD	SE	‘t’ (df=19)	p value	REM
SHWASA KRUCCHRATA	1.4	0.25	1.15	82	0.489	0.109	10.504	<0.001	HS
KASA	2.1	1	1.1	52	0.718	0.160	6.846	<0.001	HS

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ASINO LABHATE SUKHAM	0.85	0.25	0.6	71	0.598	0.133	4.483	<0.001	<b>HS</b>
RESPIRATORY RATE	0.6	0.1	0.5	83	0.512	0.114	4.356	<0.001	<b>HS</b>
WHEEZING	1.95	0.95	1	51	0.725	0.162	6.161	<0.001	<b>HS</b>
PEAK EXPIRATORY FLOW RATE	96	109	13	14	19.76	4.42	2.940	<0.05	<b>S</b>

**TABLE: NO: 02 : RESPONSE ON PARAMETERS AS SEEN IN PATIENTS OF GROUP B**

PARAMETER	MEAN BT	MEAN AT	MEAN DIFF	% OF MEAN DIFF	SD	SE	't' (df=19)	p value	REM
SHWASA KRUCCHRATA	1.45	0.95	0.5	34	0.512	0.114	4.356	<0.001	<b>HS</b>
KASA	1.75	1.5	0.25	14	0.444	0.099	2.515	<0.05	<b>S</b>
ASINO LABHATE SUKHAM	0.6	0.35	0.25	42	0.444	0.099	2.515	<0.05	<b>S</b>
RESPIRATORY RATE	0.65	0.25	0.4	62	0.502	0.112	3.5573	<0.05	<b>S</b>
WHEEZING	2.1	1.65	0.45	21	0.5104	0.114	3.940	<0.001	<b>HS</b>
PEAK EXPIRATORY FLOW RATE	96	99	3	3	7.326	1.639	1.830	<0.10	<b>NS</b>

**TABLE: NO: 03 : COMPARATIVE RESPONSE ON PARAMETERS BETWEEN PATIENTS OF GROUP A AND GROUP B**

PARAMETER	GROUP	MEAN DIFF	% OF MEAN DIFF	SD	SE	't' (df=38)	p value	REM
SHWASA KRUCCHRATA	A	1.5	82	0.489	0.109	4.100	<0.001	<b>HS</b>
	B	0.5	34	0.512	0.114			
KASA	A	1.1	52	0.718	0.160	4.501	<0.001	<b>HS</b>
	B	0.25	14	0.444	0.099			
ASINO LABHATE	A	0.6	71	0.598	0.133	2.101	<0.05	<b>S</b>

**EFFICACY OF KANTAKARYAVALEHYA ON CHILDHOOD ASTHMA – A RANDOMISED CONTROLLED STUDY**

SUKHAM	B	0.25	42	0.444	0.099			
RESPIRATORY RATE	A	0.5	83	0.512	0.114	0.622	>0.10	NS
	B	0.4	62	0.502	0.112			
WHEEZING	A	1	51	0.725	0.162	2.773	<0.05	S
	B	0.45	21	0.510	0.114			
PEAK EXPIRATORY FLOW RATE	A	13	14	19.76	4.420	2.122	<0.05	S
	B	3	3	7.326	1.639			

**TABLE: NO: 04 : OVERALL ASSESSMENT OF RESULTS**

IMPROVEMENT	GROUP A		GROUP B		TOTAL	
	CASES	%	CASES	%	CASES	%
MARKED (ABOVE 75%)	7	35	0	0	7	17.5
MODERATE (50-74%)	9	45	3	15	12	30
MILD (25-49%)	4	20	12	60	16	40
POOR (10-24%)	0	0	5	25	5	12.5

MARKED RESPONSE i.e. more than 75% of results was observed only in group A in 7 (35%) cases.

MODERATE RESPONSE i.e. between 50-74% of results was observed in 9 (45%) cases in group A and in 3 (15%) cases of group B.

MILD RESPONSE i.e. between 25-49% of results was observed in 4 (20%) cases in group A and in 12 (60%) cases of group B.

POOR RESPONSE i.e. between 10-24% of results was observed in 5 (25%) cases in group B.

### DISCUSSION

*Tamaka shwasa* is a disease in which *vayu* is vitiated and its normal movements are blocked due to *sroto sangha* caused by *kapha*, which results in *pratiloma gati* instead of *anulomagati* of *vayu*. The disease is

predominantly caused by *pranavaha sroto dushti* along with considerable involvement from *anna vaha* and *udaka vaha srotas*. The classical symptoms of *prana vaha sroto dushti* as described by *Charaka* can be seen in typical

cases of Asthma. The airway pathology in Asthma in modern parlance corresponds literally with the *sanga purvaka vimarga gamana* and *sankocha purvaka vimarga gamana* pathology, resulting in *atipravrtti* of *shwasa*. Charaka and other scholars have given a big list of causative factors which are *vata* and *kapha prakopaka*, *sroto dushaka* and also cause disturbances to *agni*. Few *nidanrthakara rogas* are also mentioned in which *shwasa* is found in later stages of that disease.

*Tamaka shvasa* is the *vyadhi* of *yapya* nature and has a tendency of recurrence whenever exposed to the *preraka hetu* so the due response should be given to *nidanaparivarjana* in the treatment of *tamaka shwasa*. The list of *aharaja* and *viharaja nidanas* and *anupashaya* of *tamaka shwasa* in conceptual part coincides with the risk factors explained in recent Asthma guidelines almost in its entirety. The classification of aetiological factors as Host and Environmental factors by World Asthma Council corresponds to *Ayurvedic* view of *nija hetus* which are *dosha-dushya-sroto dushtikara hetu* and *agantuja nidanas* like *raja*, *dhooma* etc.

Family history also causes the *khavaigunya* and *dhatu shaithilya*. *Agni* in its *vikruta* form being responsible for the production of *aama* holds a key factor in the *samprapti*. *Prakruti* with *vata* and *kaphadoshapradhanyata* are more prone to *tamaka shwasa* as the disease itself is *vata* and *kapha pradhana*.

*Kantakaryavalehyais* a combination of *Kantakari*, *Pippali*, *Chavya*, *Chitraka*, *Musta*, *Karkatashruni*, *Nagara*, *Maricha*, *Dhanvayasa*, *Bharangi*, *Shati*, *Rasna*, *Vamshalochana*, *Sharkara*, *Madhu*, *Ghruta* whose properties balance each other and enhance the *vata kapha hara* properties seen in all of them. They are all *kasahara*, *shwasahara*, *shothahara*, *deepana*,

*pachana*, thus exerting overall effect on all the involved *srotas* thus correcting the *Udbhava sthana*, *sanchara sthana* and *vyakta sthana*.

Numerous research works done on these drugs have proven their anti-tussive, bronchodilator, smooth muscle relaxant, anti-histaminic, antibacterial, antifungal, anthelmintic, bio-availability enhancer effects which are all required in *Tamaka shwasa*.

Statistically highly significant results were obtained among patients of group A with regard to *shwasa krucchrata*, *kasa asino labhate sukham*, Respiratory rate and Wheezing. The result obtained was significant with regard to PEFR.

Among patients of group B who were placed on *pathyaahara* and *vihara*, highly significant results were seen with regard to *shwasa krucchrata* and Wheezing. Results were significant with regard to *kasa*, *asino labhate sukham* and respiratory rate. The result was insignificant in respect of PEFR.

Comparison of response of patients between group A and group B showed that treatment in patients of group A produced highly significant results ( $p < 0.001$ ) with regard to *shwasa krucchrata* and *kasa*, and significant results ( $p < 0.05$ ) with regard to *asino labhate sukham*, Wheezing and PEFR. Respiratory rate did not show any significant change.

Marked response was found in 7 cases of group A only. Moderate response was observed in 9 cases of group A and 3 cases of group B. Mild response was observed in 4 cases of group A and 12 cases of group B. Poor response was observed in 5 cases of group B only.

This clearly states the superiority of *Kantakaryavalehya* in the management of *tamakashwasa* along with *pathyaahara* and



*vihara* when compared to only *pathyaahara* and *vihara*.

### CONCLUSION

*Tamaka shwasa* is a disease where in *kapha* and *vata* play a major role in the pathogenesis along with *aama*. *Agni* holds a key importance in the disease process which is responsible for the production of *aama*, *saama dosha*, *sroto dushti*. Winter, Cold articles, Junk, oily foods, smoke, dust were commonly found aggravating factors, while summer, steam inhalation were commonly found relieving factors denoting the importance of environment and lifestyle in the genesis of the disease.

On comparison, group A showed statistically highly significant results in *shwasa krucchrata* and *kasa*, proving it to be a potent anti-tussive and bronchodilator. Significant results were also seen in *asino labhate sukham*, Wheezing and PEFr further proving its bronchodilator and mucolytic activities. Thus it can be concluded that *Kantakaryavalehya* along with *pathyaahara* and *vihara* play a significant role in the *samprapti vighatana* of *tamaka shwasa* and also its further recurrence in children.

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