



**A CLINICAL STUDY TO EVALUATE THE EFFECT OF RAJANYADI YOGA IN THE
MANAGEMENT OF TAMAKASHWASA W.S.R. TO ASTHMA IN CHILDREN**

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ABSTRACT

Asthma is a major health concern globally, may have its onset at any age; most cases have had its origin in the very first 2 years of life. According to WHO there are approximately 300 million^[1] people around the world are suffering from Asthma. The frequency in India is 3-5 % of the total global incidence which needs due consideration. The peak incidence is seen in 5 to 10 years of age group,^[2] causes a great burden on the family and society, accounts for a large number of lost school days and interferes with academic achievement and social interaction.^[3] A better comparison of Asthma of modern medicine to the disease Tamakashwasa.^[4] Tamakashwasa is explained in our most ancient and trust worthy health care system, Ayurveda gives detailed explanation regarding the pattern, transformation and treatment of the disease. Among the five types of Swasa rogas, Tamakashwasa is considered as curable in its early stage. In view of this a clinical study was undertaken to evaluate the effect of Rajanyadi yoga^[5] in the management of Tamakashwasa. "Effect of Rajanyadi yoga in the management of Tamakashwasa" on 30 cases got good response, 23 got moderate relief, 7 got good relief. The effect of the treatment was observed highly significant (p<0.001) in relieving the subjective and objective parameters.

KEYWORDS: Tamakashwasa, Asthma in children, Rajanyadi yoga.

INTRODUCTION

Any disease is a burden in the community, and is most upsetting expression of the people, which hampers/interfere their daily activities. It will be a big reason for a great worry, if the disease is recurring in pattern and affecting the people of all age groups. Among such diseases Asthma is a major health concern globally and causes a great burden on the family, since it affects the people of all age groups including pediatric population.

In developing countries like India, Asthma is the highest threat over the entire population unlike other disease. The prevalence of Asthma in children is a worldwide problem, having an incidence rate of 10 to 15% in boys and 7 to 10% in girls, male female ratio^[6] 2:1. In general population about 80% of children begins to have symptoms before the age of 4 to 5 years and 10% starts wheezing for the first time in the later childhood. It is increasing day by day due to the changed mode of life, dietic changes pollution, environmental variations, and various stimuli like dust, smoke, pollens, viral infections etc.

Asthma is a chronic respiratory disease with airway obstruction, airway inflammation and airway hyper

reactivity to various stimuli, often reversible with bronchodilators and anti-inflammatory drugs. If not treated properly some of persistent asthmatics end up in irreversible state due to air way remodeling.^[3]

Shwasa is a disease of Pranavaha srotas, mainly predominant of Vata and Kapha. Tamakashwasa is one among the 5 varieties of Shwasa, manifested with symptoms of Shwasa(~dyspnoea), Ateeva tevravegam cha Shwasam(~tachypnoea), Gurghuraka(~wheeze), pratamyativegascha kasate(~bouts of cough), Asinolabhate soukhyam(~orthopnoea), Moha(~fainting) etc. are mentioned by Acharya Charaka.^[4] By these clinical features Tamakashwasa can be compared with Bronchial Asthma.

Ayurvedic treatment can provide improved key for the management of Asthma. Asthma is a chronic disease which leads to *Agni mandhya*, *Dhatu kshaya* and *Bala kshaya*, intern there is improper nourishment of the *Dhatu*s (~ bodily tissues), thus reduces strength in the children, which is the main cause for the severity of the disease and its poor prognosis. Unless the disease is de rooted completely and strength is restored there is no possibility of optimum health. After the initial controls of acute symptoms, the *Rasayanas* which are disease

specific are selected, which will restore the strength and integrity of the *Dhatus* improves the function of *Agni* and prevents the recurrent exacerbation of the disease.

The trial drug “Rajanyadi yoga”^[5] mentioned by Shodala in his text, the individual drugs in the combination are- Rajani (Haridra- *Curcuma longa* Linn.), Daru (Devadaru- *Cedrus deodara*), Sarala (*Pinus longifolia* Rox.), Shreyasi (Haritaki- *Terminalia Chebula*), Bruhati (*Solanum indicum* Linn), Kanthakari (*Solanum surattense* Burm), Prushtiparni (Prashnaparni- *Uraria picta* Desv), Shatahva (Shatapushpa- *Anethum sowa* Kurz), having *Agni* deepana, Vatanulomana, Kapha hara and Rasayana properties, and the combination is said to be effective in *Shwasa*. Hence the Rajanyadi yoga was selected for scientific evaluation of its effect in the management of *Tamakashwasa* in children.

MATERIALS AND METHODS

Total number of 30 patients between the age group 5 to 15 years who comes under inclusion criteria's were selected from the OPD of Alva's Ayurveda Medical College, Moodbidiri and Other referrals for the study.

Inclusion Criteria

1. Patients of either sex.
2. Patients between age group of 5 to 15 years.
3. Patients with mild and moderate cardinal symptoms based on assessment of severity^[7] and symptoms described in the context of *Tamakashwasa* were selected.

Exclusion Criteria

1. Patients with acute or severe exacerbation and Status asthmatic who require immediate intervention were excluded.
2. All other varieties of *Shwasa* except *Tamakashwasa*.
3. Patient's of *Tamakashwasa* associated with other

Assessment of Severity of Asthma in Children^[7]

Based on	Mild	Moderate	Severe
Frequency/Month	<One episode	>One episode	4 episodes
Duration of Symptoms	Brief for hours	Prolonged 2-3days	Almost continuous
Activities			
- Eating	- Normal	- Solids	- Liquids
- Sleep disturbance	- Nil	- At times	- Frequent
- Playing	- Able	- Restricted	- Not able
- School absenteeism	- Nil	- Occasional	- Frequent
Hospitalisation	Rare	Occasional	Frequent
PEFR	60-80% Predicted	40-60% Predicted	40%
Chest x-ray	Normal	Hyperairation	Emphysema

Criteria for assessing the total effect

% of Relief	Effect of Treatment
< 25 %	No Relief
26 – 50 %	Mild Relief
51 – 75 %	Moderate Relief
> 75 %	Good Relief

systemic disorders, Asthma as a complication of other acute or grave infection.

4. Patients with history of malignancy, or any other congenital anatomical abnormalities of chest andrespiratory system.

Patients thus selected were administered *Rajanyadi yoga* in *Avaleha* form in the dose of 5gm for the age group 5 to 10 years, 7gm for the age group 11 to 15 years, twice daily before food in divided doses for 30 days.

Assessment Criteria Subjective criteria

- *Shwasa* (Difficulty in breathing)
- *Kasa* (cough- dry or productive)
- *Kaphanishteevana* (Expectoration of sputum)
- *Muhurmuhurshwasa* (paroxysm of dyspnoea)
- *Aseenolabhatesaukhyam* (Orthopnoea)
- *Urahparshwapeedanam* (Tightness of chest)

Objective Criteria

- *Gurguraka* (Wheeze / Rhonchi)
- *Ateevateevravegamchashwasam* (Tachypnoea)
- *PEFR* (Peak Expiratory Flow Rate)

Laboratory investigations

1. Blood investigation – Eosinophil, AEC, ESR.
2. Chest X-ray (if required)
3. If necessary other investigations will be carried out.

The patients were assessed for the severity of the clinical features subjectively and objectively before the study and during treatment assessment was done on 16th and 31st day. Follow up was done 15 days after the completion of treatment. Data was collected analyzed by ‘paired t’ test using SPSS software.

Grading's on Assessment criteria

Assessment Criteria	3	2	1	0
<i>Shwasa</i> ~ Dyspnea	Dyspnea forcing absolute rest.	Dyspnea hampering daily / physical activities.	Dyspnea doesn't hamper normal activities.	No dyspnea
<i>Kasa</i> ~ Cough	Frequently in day & night.	During morning & or night.	After ingestion of irritable factor (food, cold water etc.)	No cough
<i>Kaphanishteevana</i> ~ Expectoration of sputum	No expectoration despite of cough / dyspnea.	Mucoid expectoration with difficulty on long cough.	Cough with bouts of sputum expelled easily.	No expectoration or any discomfort / dyspnea.
<i>Muhur muhur shwasa</i> ~ Paroxysm dyspnea	More than 2-3 episodes per month.	Less than 2 episodes per month.	Episode of dyspnea on exposure to specific allergen / cold environment.	No attack of dyspnea.
<i>Aseenolabhate saukhyam</i> ~ Orthopnea	No comfort even in sitting posture.	Can't lie flat & has to remain in semi erect / upright position.	Can lie flat & sleep with little distress.	Can lie flat & sleep comfortably.
<i>Urah parshwa peedanam</i> ~ Tightness & / tenderness in flanks and chest.	Severe tightness in flanks & tenderness in chest disturbing daily physical activity.	Mild tightness in flanks & mild tenderness in chest not disturbing daily physical activity.	Either of mild tightness in flanks & or mild tenderness in chest.	None of the above.
<i>Gurguraka</i> ~ Wheeze / Rhonchi	Diffuse in both phases of respiration.	Diffuse in one phase of respiration.	At occasional spots.	No wheeze / rhonchi at all.
<i>Ateeva teevra vega shwasam</i> ~ Tachypnea	RR > 40 per min.	RR – 31 to 40 per min.	RR – 24 to 30 per min.	RR – 18 to 23 per min.
PEFR	< 50% of the predicted	50 – 80% of the predicted	>80% of the predicted	Normal.

OBSERVATIONS

The demographic data showed that majority of the children in the study belong to 5 – 10 years of age group. A male predominance was seen in the study 53.33% as compared to female 46.66%. Most of children were from urban area i.e 53.33% from rural area 46.66%. It was observed that *Tamakashwasa* is more prevalent in lower class 50% and middle class 46.66%. *Vata Kaphaja Prakriti* patients were more 50% when compared to *Vata Pittaja* 26.66% and *Pitta Kaphaja* 23.33%. 60% were absence of family history. Most of the patients were taking mixed diet 73.33%; 46.66% had irregular bowel habits; 33.33% had constipation; 46.66% patients had poor appetite. This may be said that these factors are inter related. The fried, spicy, non-veg food items may act on *Pittasthana*, *Guru guna* of non-veg food items leads to *Agnimandya*, *Ama* formation and *Srotorodha*, which in fact are the main factors for the development of Asthma. 76.66% patients had disturbed sleep as a result of nocturnal attack of Asthma and cough interfering with sleep. 46.66% patients were having habit of sleeping in day time; 33.33% patients were consuming freeze foods. Day sleeping causes *Prakopa* of all the *Doshas* mainly *Kaphadosha*. The coldness of freeze foods aggravates both *Vata* and *Kapha*. It leads to pooling of mucous in to the bronchial tree causes aggravation of Asthma.

OBSERVATION TABLES

Distribution of patients acc to the age.

Age	No. of patients	Percentage
5 - 10	23	76.66
11 - 15	07	23.33

Distribution of patients according to gender.

Gender	No. of patients	Percentage
Male	16	53.33
Female	14	46.66

Distribution of patients according to Domicile.

Domicile	No. of patients	Percentage
Rural	14	46.66
Urban	16	53.33

Distribution of patients according to Socio-economic status.

Socio-economic status	No. of patients	Percentage
Upper class	01	03.33
Middle class	14	46.66
Lower class	15	50

Distribution of patients according to Family history.

Family history	No. of patients	Percentage
Present	12	40
Absent	18	60

Distribution of patients according to Diet.

Diet	No. of patients	Percentage
Vegetarian	08	26.66
Mixed	22	73.33

Distribution of patients according to Appetite.

Appetite	No. of patients	Percentage
Good	06	20
Moderate	10	33.33
Poor	14	46.66

Distribution of patients according to Bowel.

Bowel	No. of patients	Percentage
Normal	03	10
Irregular	14	46.66
Constipation	10	33.33
Loose stool	03	10

Distribution of patients according to Sleep pattern.

Sleep pattern	No. of patients	Percentage
Sound	07	23.33
Disturbed	23	76.66

Distribution of patients according to Habit.

Habit	No. of patients	Percentage
Day sleep	14	46.66
Freeze foods	10	33.33
Night wakening	06	20
Others	00	00

RESULTS

Analysis	Mean		MD	%Relief	Paired t-Test				
	BT	AT			SD	SE	t	p	
<i>Urah Parshwa peedan</i> (Chest Tightness)	1.53	AT1	1.03	0.50	32.68	0.51	0.09	5.39	<0.001
		AT2	0.33	1.20	78.43	0.41	0.07	16.16	<0.001
		FU	0.33	1.20	78.43	0.61	0.11	10.77	<0.001
<i>Kasa</i> (Cough)	2.37	AT1	1.87	0.50	21.10	0.51	0.09	5.39	<0.001
		AT2	0.93	1.43	60.76	0.50	0.09	15.58	<0.001
		FU	0.90	1.47	62.03	0.68	0.12	11.79	<0.001
<i>Shwasa</i> (Dyspnea)	1.67	AT1	1.40	0.27	16.17	0.45	0.08	3.25	<0.01
		AT2	0.63	1.03	62.28	0.18	0.03	31.00	<0.001
		FU	0.73	0.93	56.29	0.69	0.13	7.39	<0.001
<i>Aseenolabhate Saukhyam</i> (Orthopnoea)	1.57	AT1	1.13	0.43	28.03	0.50	0.09	4.71	<0.001
		AT2	0.27	1.30	82.80	0.47	0.09	15.28	<0.001
		FU	0.53	1.03	66.24	0.55	0.10	10.18	<0.001
<i>Muhur Muhur Shwasa</i> (Paroxysm dyspnea)	2.43	AT1	1.80	0.63	25.93	0.49	0.09	7.08	<0.001
		AT2	0.90	1.53	62.96	0.57	0.10	14.70	<0.001
		FU	1.07	1.37	55.97	0.55	0.10	13.46	<0.001
<i>Kaphanishteevana</i> (Expectoration Sputum)	2.27	AT1	1.63	0.63	28.19	0.49	0.09	7.08	<0.001
		AT2	0.77	1.50	66.08	0.50	0.09	16.16	<0.001
		FU	0.93	1.33	59.03	0.61	0.11	12.04	<0.001
PEFR	2.13	AT1	1.67	0.47	21.60	0.50	0.09	5.04	<0.001
		AT2	0.83	1.30	61.03	0.47	0.09	15.28	<0.001
		FU	0.97	1.17	54.46	0.53	0.10	12.04	<0.001
<i>Ateevateevra vaga Shwasa</i> (Tachypnea)	1.50	AT1	1.13	0.37	24.67	0.49	0.09	4.10	<0.001
		AT2	0.33	1.16	78.00	0.53	0.10	12.04	<0.001
		FU	0.40	1.10	73.33	0.40	0.07	14.97	<0.001
<i>Ghurguraka</i> (Wheez)	2.27	AT1	1.43	0.83	37.00	0.37	0.07	12.04	<0.001
		AT2	0.53	1.73	76.65	0.52	0.10	18.23	<0.001
		FU	0.53	1.73	76.65	0.69	0.13	13.73	<0.001

Analysis	Mean		MD	Paired t-Test			
	BT	AT		SD	SE	t	p
Eosinophils	5.23	3.50	1.73	1.08	0.10	8.79	<0.001
AEC	547.50	459.87	87.63	48.57	8.87	9.88	<0.001
ESR	19.20	13.16	6.03	5.31	0.97	6.21	<0.001

DISCUSSION

The disease *Tamakashwasa* is primarily produced due to Vitiated *Vata* & *Kapha*. While selecting the drugs to treat, which should have the property of alleviating *Vata*

& *Kapha Doshas*, *Vatanulomana* property & hot in potency. Coldness once again aggravates these two *Doshas*, hence drugs possessing opposite *Guna* to that of *Doshas* should be selected. *Vata Prakopa* causing *Vata*

Vimargagamana & *Atipravritti* of *Vata* should be brought to normal by *Vatanulomaka* Drugs. But in children drugs should not be too hot in potency, not having offensive odor & should be palatable.

With these points in mind *Rajanyadi Yoga* was considered for the study. The drugs in the combination are having *katu- tikta Rasa*, *Laghu Guna*, *Ushna Veerya*, *Katu Vipaka*, *Deepana*, *Pachana*, *Rasayana* properties. *Rajanyadi yoga* was administered in *Avaleha* form while preparing, Ghee, Sugar candy and at last Honey was added.

Honey being *Yogavahi* & *Kaphahara*, helps in removal of vitiated *Kapha* & in easy transportation of the drug. Ghee & Sugar candy make drug palatable. Sugar candy is also having mucolytic action. Since *Vata* is vitiated in *Tamakashwasa*, to avoid this Ghee & sugar candy are used.

The mean change in dyspnea / breathlessness ($p < 0.001$) can be attributed to *Shwasahara* activity of *Rajanyadi Yoga*, mainly Anti-inflammatory activity of *Haridra* (Katare, 1974), by reducing the airway inflammation and obstruction.

Reduction in audible wheeze ($p < 0.001$) and cough ($p < 0.001$) indicates that there is potential control in airway inflammation and plugging with secretion. This may be attributed to antitussive and expectorant action of the drug *Kantakari* due to its inorganic nitrate content (J.Res.Ind.Med.1971,6.200) and also other *shwasa* – *kasa hara* drugs present in the *Rajanyadi Yoga*.

The mean reduction in the frequency of attacks ($p < 0.001$) indicates over all control and reduced recurrence. This may be attributed to *Shwasahara*

activity of the drugs; *Agnivardhana* property of *Shatapushpa* and *immunomodulatory* effect of the drug *Bruhati* (Zh.Ushn.Nos.Gorl.Bolenz.1977,64) and *Haritaki* present in *Rajanyadi yoga*.

The mean reduction in respiratory rate ($p < 0.001$) after treatment indicates there was a less effort for breathing. This may be attributed to Anti histaminic activity of *Haridra*, (Sinha et al.,1972). Antitussive and expectorant action of *Kantakari* present in the yoga, which reduces excess pooling of mucous in to the bronchial tree making the airflow easy.

The mean reduction in expectoration of sputum ($p < 0.001$) indicates *Rajanyadi Yoga* was able to reduce chronic airway obstruction due to reduced secretion in bronchial tree. This can be attributed to the drugs possessing *Ushnaveerya* and *Kapha vilayana* property, Antitussive property of the drug *Kantakari* and is having its action on Bronchial Asthma and acts as expectorant. It expels mucous out.

The mean reduction in Orthopnea ($p < 0.001$) indicates the relief of dyspnea since the *Rajanyadi yoga* was able to reduce *Shwasa* and reduces discomfort. This can be attributed to *Shwasa Kasa hara* drugs present in the *Yoga*.

The mean reduction in chest tightness and tenderness in flanks ($p < 0.001$) indicates *Rajanyadi yoga* was able to reduce pain and tenderness. This can be attributed to the drugs possessing *Shotahara*, *Shoolahara* and *Angamardaprashamana* properties like – *Bruhati*, *Kantakari*, *Prashnaparni* and *Shatapushpa* present in it.

Significant results were seen in biochemical parameters after treatment. This can be attributed to the increase in the general health of children after treatment with *Rajanyadi yoga*, which improved *Agni bala*. With these properties the drug *Rajanyadi Yoga* Showed Significant effect ($p < 0.001$) in *Tamakashwasa*. This shows the potential of *Rajanyadi yoga* in Asthma and avoiding recurrence.

CONCLUSION

Tamakashwasa (Asthma) is a chronic disease, which has no bar of age, sex, race & geographical distribution. It is a global health problem, which is increasing since last three decades, in both developed & developing countries.

Clinical evaluation for accessing the severity of disease is necessary for proper diagnosis & treatment. Children are to be treated with *Shamana Chikitsa* using *Vati*, *Avaleha*, *Choorana*, *Ghrita* & *Kashayas* which are easy for administration & palatable.

Virechana is considered as best therapy for *Tamakashwasa*, whenever necessary *Virechana*, *Vamana*, *Nasya* should be adopted by considering the strength of the patient and disease.

The main aim of the study was to assess the effect of *Rajanyadi Yoga* in *Tamakashwasa* (Asthma in children), in all the criterias like- *Shwasa* (~Dyspnea), *Kasa* (~Cough), *Kaphanishteevana* (~Expectoration of sputum), *Muhur Muhu Shwasa* (~Paroxysm Dyspnea), *Aseenolabhatesaukhyam* (~Orhopnoea), *Urah-parshwa peedana* (~Tightness of chest/ tenderness in flank region), *Ghurguraka* (~Wheeze/Rhonchi), *Ateeva teevra vega shwasa* (~Tachypnea), *PEFR*, *Eosinophilia*, *AEC*, *ESR* in subjects with mild to moderate Asthma of chronic nature, the trial drug showed significant effect ($p < 0.001$).

The significant changes noted in subjective and objective criteria may be attributed to *Vata Kaphahara*, *Shwasahara*, *Kasahara* action of the drugs present in the *Rajanyadi yoga*. Thus this study proves that there is significant effect of *Rajanyadi Yoga* in *Tamakashwasa*.

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