

## EFFECT OF VASA GHANA SATVA I.E. HYDROLIC EXTRACT OF *JUSTICIA ADHATODA* LINN ON PATIENTS OF TAMAKA SWASA I.E. BRONCHIAL ASTHMA

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### ABSTRACT

*Vasa* (*Justicia adhatoda* Linn.) is a Diffuse shrubs of family Acanthaceae. It has Antitussive, Expectorant, and Bronchodilator, Wound healing and Immunomodulator properties. Out of them, we here evaluate the properties those are useful in the management of *Tamaka Swasa* (~Bronchial asthma). The present study was undertaken clinically on patients of Bronchial asthma to evaluate the efficacy of *Vasa* (*Justicia adhatoda* Linn.). Leaves of *Vasa* are used in the form of *Ghana Satva* (~Water extract) in a dose of two 500 mg capsules twice in a day with luke warm water. Seventy patients were registered and three follow ups at the interval of 15 days were taken. Out of seventy patients ten patients were drop out at different follow ups. The frequency of *swasa vega* (breathlessness), *swasakastata* (~dyspnoea), *kasa* (~cough), *kaphanisthivana* (~sputum) and *kantha ghuraghurakama* (~wheezing) were taken for the subjective assessment of the disease. Paired t-test is used for knowing the effect of treatment on the basis of improvement in symptoms. If p value is < .05 then it is significant and if it is >.05, it is insignificant. There was significant improvement in all symptoms in follow up second and third, in first follow up except *kaphanisthivana* (~sputum) there was also significant improvement. On overall assessment, complete remission, Markedly improvement found in 55% and 35% patients and 10% patients were deteriorate. As per the disease concept of *Ayurveda* and its treatment in accordance with the *Rasa, Guna, Veerya, Vipaka* of *Vasa*, it can be inferred that *tikta rasa* having *laghu, ruksha guna* pacify *kapha* along with *katu vipaka*. In our study it seems that cases which were deteriorated may be due to *vatika* predominancy because *seeta virya* increase the *vata*.

**Keywords:** Vasicine, Adhatodine, *Swasa vega*, *Swasa Kastata*

### INTRODUCTION

Asthma is a problem worldwide, with an estimated 300 million affected individuals. It appears that the global prevalence of asthma ranges from 1% to 18% of the population in different countries. <sup>[1]</sup> There is good evidence that asthma prevalence has been increasing in some countries <sup>[2]</sup> and has recently increased but now may have stabi-

lized in others. <sup>[3,4]</sup> The World Health Organization has estimated that 15 million disability-adjusted life years (DALYs) are lost annually due to asthma, representing 1% of the total global disease burden. <sup>[5]</sup>

*Tamaka swasa* (~Bronchial asthma) is progressively increasing in the society. It is a subtype of *swasa* as described by different *Ayurvedic* scholars. <sup>[6]</sup> This disease arise

due to dust, smoke, wind, residing in cold place, using cold water, intake of rough food, irregular meal.<sup>[7]</sup> Due to these causative factors *vayu* situated in the chest entering in to the channels carrying vital breath is vitiated and enforcing the *kapha*. When *vayu* preceded by *kapha* obstructs the passages and itself being obstructed move here and there, it produce *swasa*.<sup>[8]</sup> In bronchial asthma, there is increase in mast cells. Increased mast cell numbers in airway smooth muscle may be linked to airway hyperresponsiveness.<sup>[9]</sup> Mucosal mast cells release bronchoconstrictor mediators (histamine, cysteinyl leukotrienes, prostaglandin D2).<sup>[10]</sup> Leaves of *Vasa* having phytochemical constituent i.e. vasicine, vasicinone, deoxyvasicine, vasicol, adhatodinine, vasicinol, these all are well known bronchodilator property.<sup>[11]</sup> Leaves also having Polysaccharide, Proteins, uronic acids having antitussive property.<sup>[12]</sup>

The drug *Vasa* is indicated in *swasa* in different classical text. In pharmacological properties *Vasa* having *tikta* and *kasaya rasa*, *laghu ruksha guna*, *seeta virya* and *katu vipaka*.<sup>[13]</sup> The present work has been planned to know the efficacy of the *Vasa ghan satva* in the management of *Tamaka swasa* (~Bronchial asthma).

#### **MATERIAL AND METHOD:**

This study is designed to evaluate the clinical efficacy of *Vasa Ghana Satva* (~Hydrolic extract of *Adhatoda Vasica* Nees.) in patients of *Tamaka swasa* (~Bronchial asthma) on the basis of improvement in symptoms. The study is and open end clinical study. 25 patients suffering from the disease *Tamaka swasa* (~Bronchial asthma) were selected for the

study from the OPD of the Department of *Dravyaguna* and *Kaya Chikitsa*, in Sir Sunder Lal Hospital, BHU, Varanasi randomly. Prior to the commencement of the therapy in the selected patients, general information both of the patients and the disease were recorded. A complete history of the disease along with complaints was recorded as per the prepared proforma for the *Tamaka swasa* (~Bronchial asthma) with written consent of patient which includes the general, systemic and local examination of the patient. The local examination procedures like inspection, palpation and auscultation and some investigation (T.LC, D.L.C, E.S.R, FEV1) were also performed to confirm the diagnosis and for knowing improvement at different follow ups. Patients between the age group of 10-60 years having *Nidan* (~Causes), *Lakshana* (~Clinical feature) and *Samprapti* (~Pathogenesis) of *Tamaka swasa* and no other complications like diabetes, carcinomatous conditions etc were selected for the study. Patients more than 70 years and below 10 years having Dyspnoea resulting from cardiac disease were also excluded. Selected patients were administered "*Vasa Ghana Satva*" in a dose of two capsules of 500 mg twice in a day with luke warm water, for 45 days and three follow ups were done at an interval of 15 days. Out of 25 patients 5 patients were dropout at different follow ups.

#### **Criteria of Assessment**

The effect of treatment has been assessed on the basis of the relief of the major symptoms of the disease. This has done at a period of once in fifteen days. Scoring pattern was adopted to determine the relief in the cardinal symptoms on the basis of grades of symptoms those as follows:

## Grading score of Symptoms

j	Symptoms				
	Frequency of <i>Swasa Vega</i> (~Breathlessness)	<i>Swasakastata</i> (~Dyspnoea)	<i>Kasa</i> (~Cough)	<i>Kaphanisthivan</i> (~Sputum)	<i>Kantha Ghuraghurakama</i> (~Wheezing)
0	No attack during one month	No <i>Swasakastata</i>	No <i>Kasa</i>	No <i>Kaphanisthivana</i>	No Wheezing
1	Frequency of attack once in a month	<i>Swasakastata</i> after heavy work, relieved by rest	<i>Kasa</i> vega sometimes but does not troublesome.	Occasional <i>Kaphanisthivana</i>	Wheezing during attack
2	Frequency of attack once in two weeks	<i>Swasakastata</i> on slight exertion	Troublesome <i>Kasa</i> , but do not disturbing the sleep.	Very often <i>Kaphanisthivana</i>	Very often Wheezing
3	Frequency of attack once in a week	<i>Swasakastata</i> even at rest	Very troublesome <i>Kasa</i> , does not even allowing to sleep at night.	Always <i>Kaphanisthivana</i>	Always wheezing found
4	Frequency of attack twice in a week				
5	Frequency of attack once or more than once in a day.				

### Overall assessment:

Total affect of therapy was assessed as follows.

- (1) Complete remission: If improvement found in all symptoms.
- (2) Markedly improved: If improvement found in more than 75% of symptoms.
- (3) Moderately improved: If improvement found in 50%-75% of symptoms.
- (4) Slightly improved: If improvement found in 25%- 50% of symptoms.
- (5) No improvement: If improvement found in Less than 25% of symptoms.
- (6) Deteriorate: If detoriation found in any symptoms

## RESULTS

The above said subjective parameters of the study were recorded without any bias and the obtained results were tabulated and the results are assessed statistically and are ex-

pressed in terms of 'p' values to show the significance of the study. Results obtained by investigative variables are also tabulated which support the effectiveness of the therapy on scientific parameters.

The result obtained by therapy on 25 patients is discussed here on the basis of improvement in individual symptoms. Improved cases of *Swasa Vega* (Breathlessness) from initial to F1, F2 and F3 are 50%, 85% and 90% respectively and in F3 20% cases were cured (table 1), improvement in cases of *Swasakastata* (Dyspnoea) from initial to F1, F2 and F3 are 45%, 80% and 95% respectively and in F3 45% cases were cured (table 2), improvement in cases of Cough from initial to F1, F2 and F3 are 60%, 95% and 85% respectively and in F3 40% cases were cured (table 3), improvement in cases of Sputum from initial to F1,

F2 and F3 are 25%, 80% and 85% respectively and in F3 45% cases were cured (table 4), improvement in cases of Wheezing from initial to F1, F2 and F3 are 55%, 95% and

90% respectively and in F3 45% cases were cured (table 5).

**Table 1: Distribution of patients with Frequency of Breathlessness in initial and in different follow ups**

Intial Frequency of Swasa Vega (Breathlessness)	Frequency Of Swasa Vega ( Breathlessness) on different follow ups										
	F1(after 15 days)			F2 (after 30 days)				F3 (after 45 days)			
	2	3	4	1	2	3	4	0	1	2	4
2	100% (2)			50% (1)	50% (1)			100% (2)			
3		100% (1)			100% (1)				100% (1)		
4		63.3% (8)	46.7% (7)	6.7% (1)	33.3% (5)	46.7% (7)	13.3% (2)	13.3% (2)	60% (9)	13.3% (2)	13.3% (2)
5			100% (2)			100% (2)					100% (2)

**Table 2: Distribution of patients with Swasakastata (Dyspnoea) in initial and in different follow ups**

Initial Swasa-kastata (Dyspnoea)	Swasakastata (Dyspnoea) in different follow ups									
	F1 (after 15 days)			F2 (after 30 days)			F3 (after 45 days)			
	1	2	3	1	2	3	0	1	2	4
2	28.6% (2)	71.4% (5)		57.1% (4)	28.6% (2)	14.3% (1)	42.9% (3)	57.1% (4)		
3		53.8% (7)	46.2% (6)	38.5% (5)	53.8% (7)	7.7% (1)	46.2% (6)	38.5% (5)	7.7% (1)	7.7% (1)

**Table 3: Distribution of patients with Kasa (Cough) in initial and in different follow ups**

Intial Kasa (Cough)	Kasa (Cough) in different follow ups								
	F1(after 15 days)		F2(after 30 days)			F3 (after 45 days)			
	2	3	1	2	0	1	2	3	
2	100% (4)		75% (3)	25% (1)	50% (2)	50% (2)			
3	75% (12)	25% (4)	62.5% (10)	37.5% (6)	50% (8)	37.5% (6)	6.2% (1)	6.2% (1)	

Symptomatic Variable	Initial Vs F1	Initial Vs F1 p value	Initial Vs F2	Initial Vs F2 p value	Initial Vs F3	Initial Vs F3 p value	Result	%Relief
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**Table 4: Distribution of patients with Kaphanisthivana (Sputum) in initial and in different follow ups**

Intial Kapha-nisthivana (Sputum)	Kaphanisthivana (Sputum) in different follow ups								
	F1 (after 15 days)			F2 (after 30 days)			F3 (after 45 days)		
	1	2	3	1	2	0	1	2	3
2	7.1% (1)	85.7% (12)	7.1% (1)	71.4% (10)	28.6% (4)	64.3% (9)	28.6% (4)	7.1% (1)	
3		66.7% (4)	33.3% (2)	50% (3)	50% (3)	33.3% (2)	50% (3)		16.7% (1)

**Table 5: Distribution of patients with Kantha Ghuraghurakama (Wheezing) in initial and in different follow ups**

Intial Kantha	Kantha Ghuraghurakama (Wheezing) in different follow ups								
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Ghuraghurakama (Wheezing)	F1 (after 15 days)		F2(after 30 days)			F3 (after 45 days)		
	2	3	1	2	3	0	1	3
2	100% (1)		100% (1)			100% (1)		
3	57.9% (11)	42.1% (8)	52.6% (10)	42.1% (8)	5.3% (1)	42.1% (8)	47.4% (9)	10.5% (2)

**Table 6: Mean ± S.D of difference from initial vs different follow ups of symptomatic variables**

Table 6 shows that the Mean ± S.D at initial, F1, F2and F3 for different symptoms, and also showing the p-value in initial verses different follow ups. On observation we can say there is significant improvement in all symptoms in Second (F2) and third (3) follow up (p-value <.05).

**Table 7: Mean ± S.D value of different investigative variable in initial and different follow ups**

Investigative Variable	Initial	F1	F2	F3	Initial Vs F1	Initial Vs F2	Initial Vs F3	Results
					t / p value	t / p value	t / p value	
T.L.C	11884.35 ± 1241.136	11814.83 ± 997.338	11053.50 ± 686.703	10476.35 ± 664.123	.803/<.05	4.009/<.05	5.054/<.05	Significant
N%	72.25 ± 10.779	71.40 ± 10.410	69.25 ± 8.084	65.65 ± 9.224	1.439/.166	2.360/<.05	4.622/<.05	Significant
L%	54.65 ± 8.015	54.50 ± 7.515	50.35 ± 6.319	47.50 ± 6.362	.281/.782	4.243/<.05	4.645/<.05	Significant
E%	11.75 ± 1.970	11.10 ± 1.619	8.20 ± 1.704	5.45 ± 2.819	3.322/<.05	6.755/<.05	8.025/<.05	Significant
E.S.R	23.70 ± 7.828	21.50 ± 7.060	17.75 ± 5.035	13.50 ± 3.954	6.14/<.05	6.357/<.05	6.955/<.05	Significant
FEV1	202.266 ± 83.20166	206.667 ± 82.13273	213.8470 ± 83.3060	218.0142 ± 90.3847	3.392/<.05	5.798/<.05	4.205/<.05	Significant

Table 7 shows that the Mean ± S.D at initial, F1, F2and F3 for different investigative variables, and also showing the p-value in initial verses different follow ups. On observation we can say there is significant improvement in all investigative variables in Second (F2) and third (3) follow up (p-value <.05)

**Table 8: Overall Result**

Effect of Drug on Patients	No. of Cases	Percentage
<b>Complete remission</b>	11	55
<b>Markedly improved</b>	7	35
<b>Moderately improved</b>	-	-
<b>Slightly improved</b>	-	-
<b>No improvement</b>	-	-
<b>Deteriorate</b>	2	10

On overall observation, complete remission found in 55% patients, marked improvement found in 35% patients but 10% patients were deteriorate.

## DISCUSSION AND CONCLUSION

When we discuss about samprapti (~Pathogenesis) of *Tamaka swasa* (~Bronchial asthma) that is given by *Acharya Charak*, according to him when there is obstruction of *pranavaha Srotasa* (~Respiratory channel) due to *Kapha*, than *Vayu* moves *pratiloma* (~Opposite) in *pranavaha Srotasa* (~Respiratory channel) and *Tamaka swasa* is (~Bronchial asthma) resulted<sup>[14]</sup> that means there is *avarana* (~Covering) of *kapha* on *vata* so if a drug having properties to pacify *kapha* is very much useful in *Tamaka swasa* (~Bronchial asthma). In pharmacological properties, *Vasa* having *tikta rasa*, *laghu ruksha guna*, *seeta virya* and *katu vipaka*. As we know that asthma is an inflammatory disorder of the airways, which involves several inflammatory cells and multiple mediators that result in characteristic pathophysiological changes. Mast cell and eosinophils are two cells which take part in pathological changes in respiratory tract. Increased mast cell numbers in airway smooth muscle may be linked to airway hyper responsiveness, mucosal mast cells release bronchoconstrictor mediators (histamine, cysteinyl leukotrienes, prostaglandin D2). On modern parameters effectiveness of this extract is due to presence of alkaloid vasicine, vasicinone, deoxyvasicine, vasicol, adhatodinine, vasicinol having bronchodilator, antitussive properties. As per the disease concept of *Ayurveda* and its treatment in accordance with the

*Rasa, Guna, Virya, Vipaka* of *Vasa*, it can be inferred that *tikta rasa* having *laghu, ruksha guna* pacify *kapha* along with *katu vipaka*. In our study it seems that cases which were deteriorated may be due to *vatika* predominancy because *seeta virya* increase the *vata*.

From the above study it can be concluded that the drug *Vasa* proves to be one of the best drugs in the management of *Tamaka swasa*. It helps in relieving the symptoms of the *Tamaka swasa* (~Bronchial asthma) like breathlessness, dyspnoea etc. As the study was conducted only in a limited set of conditions, the results must to be evaluated in a large population to prove its efficacy.

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