

## **A COMPARATIVE CLINICAL EFFECT OF SHATYADI CHURNA WITH AND WITHOUT PRANAYAMA IN THE MANAGEMENT OF CHILDHOOD ASTHMA (TAMAKA SHWASA)**

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### **Abstract**

The prevalence of Childhood Asthma has increased in developing countries like India from last many years. Symptoms suggestive of Childhood Asthma present with the prevalence of the disease are 18% in children under 16 years of age in South India. A better and effective therapy is the need of hour with good results, without many side effects and at same time within the reach of the masses. The present clinical trial was planned to study the effect of an Ayurvedic herbal formulation Shatyadi churna with and without Pranayama in the management of Childhood Asthma (Tamaka Shwasa). After reaching to the diagnosis, patients were randomly distributed to the three groups, viz. Group-A received Shatyadi churna with warm water, Group-B received the same with Pranayama and Group-C received the Placebo (Glucose in the dose of 2 gm in capsule form) with Pranayama. The duration of the trial was two months and the patients were examined after a gap of 15 days. The follow up period was of one month. The subjective and objective parameters were measured before and after treatment in each group. The result of the Shatyadi churna along with Pranayama was found to be highly significant in the study.

**Keywords:** Childhood Asthma; Shatyadi churna; Pranayama.

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## INTRODUCTION

Respiration is the first physical sign of life, is also a sign of consciousness. This unique indicator of life is affected in the disease Tamaka Shwasa (Bronchial Asthma). Tamaka Shwasa continues to be a distressing and alarming disease for the present world. In spite of multidimensional development in the medical science, it still remained a challenge which is unconquered. Tamaka Shwasa is a Yapya vyadhi (Difficult to treat), being paroxysmal in nature and it can prove fatal.<sup>[1]</sup> Tamaka Shwasa closely resembles to Bronchial Asthma, which is manifested by widespread narrowing of air passage and paroxysm of dyspnoea, cough and wheeze. It is also incurable in the opinion of modern medical science (Davidsons Principle and Practice of Medicine).<sup>[2]</sup> However, various formulations and prescriptions have been advocated to cure Tamaka Shwasa in Ayurvedic Samhitas (Classical Texts). Shatyadi churna is one of the effective medicines for this dreadful disease which is advocated in Yogaratnakara (1676 AD).<sup>[3]</sup>

The term Pranayama, fourth Anga of Astanga Yoga (8 levels of Yoga Technique), has been derived from the root words Prana and Ayama.<sup>[4]</sup> Together they mean expansion or prolongation of the life force. In the opinion of Maharishi Patanjali, Swasa and Praswasa are meant for inspiration and expiration respectively. The vital force of life i.e. Prana is manifested externally by breath. Breath is Sthoola (Visible) and Prana is Sukshama (Invisible). Thus Pranayama (Maharishi Patanjali, 200 BC.) is breath control at the physical or Sthoola level and simultaneously Prana is controlled at Sukshama or subtle level.<sup>[5]</sup> Hence a study was planned to evaluate the efficacy of Shatyadi churna with and without Pranayama procedures with the help of modern parameters.

## MATERIAL AND METHODS

After confirming the diagnosis by taking the history in detail, clinical examinations and laboratory investigations, 53 patients were selected from the O.P.D and I.P.D of Dept. of Kaya Chikitsa, ALN Rao Memorial Ayurvedic Medical College, Koppa and were enrolled in the series. The patients were randomly distributed in the three groups, out of which 48 patients (16 in each group) completed the trial duration of 8 weeks and 5 patients left the treatment in between the study.

**Group A** - Shatyadi churna was given in the dose of 2 gm (in capsule form) T.D.S with warm water.

**Group B** - The same Shatyadi churna was given and patients were made to perform 20 rounds of Pranayama (Nadi Shodhana Pranayama) in morning and 20 rounds in the evening.

**Group C** - Placebo (Glucose in the dose of 2 gm in capsule form) was given T.D.S with 20 rounds of Pranayama in the morning and 20 rounds in the evening.

### Tukey's Test

It is a single-step multiple comparison procedure and statistical test. It is used in conjunction with an ANOVA to find means that are significantly different from each other. Tukey's test compares the means of every treatment to the means of every other treatment; that is, it applies simultaneously to the set of all pair wise comparisons and identifies any difference between two means that is greater than the expected standard error.

### Inclusion criteria

1. Patients aged between 8-16 years.
2. Patients with classical symptoms of Tamaka Shwasa (Childhood Asthma).

3. Patients not taking any other medicine for Tamaka Shwasa.

### Exclusion criteria

1. Patients below 8 and above 16 years.
2. Patients having any systemic disorder (Cardiac Problem/Diabetes Mellitus).
3. Patients already under modern medication for Bronchial Asthma.

### Assessment Criteria

#### Clinical Assessment

Patients were assessed on different parameters for obtaining the effect of the therapy. Some clinical signs and symptoms like Swasakruchata (Dyspnoea), Pratishyaya (Coryza), Gurgurukam (Wheezing sound), Aruchi (Anorexia), Kasa (cough), Kantodhvamsa (Hoarseness of Voice), Kaphanisteevanam (Difficulty in Expectorations), Asino Labhate saukhyam (Posture of relief), Krcchrat bhasitam (Difficulty in speech), and Peak expiratory flow rate were assessed before and after the treatment.

#### Laboratory Assessment

Blood- Hb, TLC, DLC, ESR

#### Trial Drug Review

Shatyadi churna has been described in Yogaratnakara (Shwasa chikitsa). The ingredients of the drug are shown on Table 1.

#### Source of drug

Shatyadi churna is prepared in the pharmaceutical division of A.L.N. Rao Memorial Ayurvedic Medical College, Koppa. All the drugs were taken in equal amount and pulverised and mixed well. Then the prepared drug was filled in capsules.

## RESULTS

To observe the effect of the trial drug, 10 major signs and symptoms were considered and the changes were assessed and calculated on 48 patients who completed the study period. The results obtained are shown in Table 3.

### Laboratory Investigations

#### a) Total Leucocyte Count (TLC)

No Significant changes after the trial of 8 weeks in all the three groups.

#### b) Differential Leucocyte Count (DLC)

##### Polymorphs

No Significant changes after the trial of 8 weeks in all the three groups.

##### Lymphocyte

No Significant changes after the trial of 8 weeks in all the three groups.

##### Eosinophils

All the three groups showed reduction in mean Eosinophil count with highest significance for group B. In group-A, t-value is 2.19( $p < 0.05$ ), in group-B, t-value is 2.69 ( $p < 0.01$ ) and in group-C, t-value is 2.3( $p < 0.05$ ).

#### c) Haemoglobin

All the three groups showed increase in mean Haemoglobin value with highest significance for group B. In group-A, t-value is 2.24( $p < 0.04$ ), in group-B, t-value is 2.20( $p < 0.04$ ) and in group-C, t-value is 2.23( $p < 0.05$ ).

**Table 1: Showing the ingredients of Shatyadi Churna**

Sl. No	Ingredients	Part used	Quantity
1	Shati ( <i>Hedychium spicatum</i> )	Stem	1.2 kg
2	Bharangi ( <i>Clerodendrum serratum</i> )	Root	1.2 kg
3	Vacha ( <i>Acorus calamus</i> )	Stem	1.2 kg
4	Shunthi ( <i>Zingiber officinale</i> )	Rhizome	1.2 kg
5	Pippali ( <i>Piper longum</i> )	Fruit	1.2 kg
6	Maricha ( <i>Piper nigrum</i> )	Fruit	1.2 kg
7	Haritaki ( <i>Terminalia chebula</i> )	Fruit	1.2 kg
8	Sauvarchala lavana (Unaqua Sodium chloride)	-	1.2 kg
9	Kataphala ( <i>Myrica esculenta</i> )	Bark	1.2 kg
10	Pushkaramula ( <i>Inula racemosa</i> )	Root	1.2 kg
11	Karkatashringi ( <i>Pistacia integerrima</i> )	Gall	1.2 kg

**Table 2: Showing the statistical values of Laboratory investigations**

Parameters	Group-A (Mean±SEM)		Group-B (Mean±SEM)		Group-C (Mean±SEM)	
	Before	After	Before	After	Before	After
Eosinophils	4.6±1.04	4.5±1.05	4.6±1.04	4.4±1.04	4.6±1.04	4.5±1.07
Hb	12.4±0.99	12.5±0.96	12.4±0.99	12.7±0.95	12.4±0.99	12.5±0.96
ESR	20.4±2.44	19.2±2.46	20.3±2.44	19.2±2.39	20.4±2.44	19.8±2.36

**Table 3: Statistical analysis of effect of therapy (ANOVA test)**

Sl.No.	Symptoms	Mean±SEM	p value
1.	Swasakrichrata	1.31±0.19	0.015
2.	Pratishyaya	1.56±0.20	<0.001
3.	Gurguruktvam	1.37±0.18	0.004
4.	Aruchi	1.41±0.16	0.011
5.	Kasa	1.37±0.18	0.006
6.	Kantodhvamsa	1.56±0.20	<0.001
7.	Kaphanishteevanam	1.56±0.20	<0.001
8.	Asino Labhate saukhyam	1.37±0.18	0.006
9.	Krechrat bhashitam	1.31±0.19	0.015
10.	PEFR	1.50±0.18	<0.001

**Table 4: Pair wise Multiple Comparison Procedure (Tukey Test)**

Sl.No	Symptoms	Group 1 v/s Group 2	Group 1 v/s Group 3	Group 2 v/s Group 3
1.	Swasakrichrata	Yes	No	Yes
2.	Pratishyaya	Yes	No	Yes
3.	Gurguruktvam	Yes	No	Yes
4.	Aruchi	No	No	Yes
5.	Kasa	Yes	No	Yes
6.	Kantodhvamsa	Yes	Yes	Yes
7.	kaphanishteevanam	Yes	No	Yes
8.	Asino Labhate saukhyam	Yes	No	Yes
9.	Krechrat bhashitam	Yes	No	Yes
10.	PEFR	Yes	No	Yes

#### d) Erythrocyte Sedimentation Rate (ESR)

All the three groups showed reduction in mean ESR value with highest significance in group-B. In group-A, t-value is 4.66( $p < 0.001$ ), in group-B, t-value is 4.84( $p < 0.001$ ) and in group-C, t-value is 3.76( $p < 0.02$ ).

### DISCUSSION

Tamaka Shwasa is primarily a disease of Prana Vaha Srotas (Respiratory system) and is produced by vitiation of Vata and Kapha, in which vitiated Kapha obstructs the Prana Vaha Srotas causing hindrance in the path of Vayu, which then spreads in different directions, causing disorders of respiration. Acharya Charaka specifically mentioned the Samprapti (Pathogenesis) of Tamaka Swasa as Pratiloma Vayu.<sup>[6]</sup> As a result of airway obstruction due to Kapha involving the head and neck there will be increase in Sleshma secretion and produces Swasakrichrata (Dyspnoea), Kasa (cough), Gurguruktvam (wheezing sound).

Further, five types of Shwasa Roga namely Maha Shwasa, Urdhwa Shwasa, Chinna Shwasa, Kshudra Shwasa and Tamaka Shwasa have been described by the acharayas<sup>7</sup>. Tamaka Shwasa can lead to Pratamaka and Santamaka, if Pitta dosha also gets vitiated in these patients. These could be considered as further stages of Tamaka Shwasa. In Ayurvedic Texts various methods and formulations have been described in the management of Tamaka Shwasa. Two types of Chikitsa i.e. Shodhana and Shamana have been dealt in detail with description. In Ayurvedic Literature no description of Pranayama has been mentioned but involvement of Prana Vayu in various respiratory disorders has been described.

So, the present clinical trial was planned to study the effect of an indigenous compound, Shatyadi Churna with and without Pranayama

in the management of Childhood Asthma (Tamaka Shwasa). The duration of trial was 2 months and the patients were examined after a gap of 15 days and follow up period was of 1 month. On the basis of comparison of before and after trial in three groups following points have emerged:

- Six (37.5%) patients in Group-A, Nine (56.25%) patients in Group-B were cured and three (18.75%), 4 (25%) and four (25%) patients in Group-A, B and C respectively showed marked improvement.
- No toxicity or untoward side effects has been noted during the trial study.
- On the basis of Statistical test, it can be concluded that Pranayama has shown excellent improvement in PEFR of the patients of Group-B with maximum number of patients achieving a PEFR value between 90-100% of their normal predicted value according to height and age.
- The drug shown effectiveness in lowering the raised Eosinophils and ESR in the patients of Tamaka Shwasa.
- Statistically the result of Shatyadi churna with Pranayama (Group-B) was highly significant as compare to Shatyadi churna without Pranayama (Group-A) and the placebo with Pranayama (Group-C).

### Mode of Action

Pranayama may have psychophysiological benefits by increasing the patient's sense of control over stress and thus aids in reducing their autonomic arousal factors. Pranayama stabilizes autonomic equilibrium with a tendency towards parasympathetic dominance rather than stress-induced sympathetic dominance. The therapy readjusts the autonomic imbalance, controls the rate of breathing and relaxes the voluntary inspiratory and expiratory muscles, which results in decreased sympathetic reactivity.<sup>[8][9]</sup>



Pranayama increases respiratory efficiency, balances activity of opposing muscle groups and slows dynamic and static movements. It may be useful in patients of perennial bronchial asthma with mild to moderate symptoms.<sup>[10]</sup>

## CONCLUSION

The therapeutic effect of Shatyadi Churna with and without Pranayama was studied in 48 cases of Childhood Asthma (Tamaka Shwasa) in the present study. This compound is well accepted, well tolerated and easily available and does not have any side effect. Therapeutic efficacy of Trial drug along with Pranayama, on clinical and pathological investigations has shown highly significant improvement. The clinical study was a time bound study, so as to obtain a better result and satisfactory therapeutic response, the trial must be taken in large number of cases for a long duration of time and the follow up time period must be long. Therefore, the drug Shatyadi Churna along with Pranayama may prove a valuable contribution from Ayurveda and Yogashastra to the ailing humanity.

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