WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 9, Issue 13, 953-966. Research Article ISSN 2277– 7105

A CLINICAL STUDY TO EVALUATE THE EFFICACY OF SAPTACHADAPUSHPADI YOGA IN THE MANAGEMENT OF TAMAKA SWASA (BRO`NCHIAL ASTHMA)

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Article Received on
02 Sept. 2020,

Revised on 23 Sept. 2020,
Accepted on 13 Oct. 2020

DOI: 10.20959/wjpr202013-19029

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ABSTRACT

Asthma is a common chronic disorder of the airways that is complex and characterized by variable and recurring symptoms, airflow obstruction, bronchial hyper responsiveness, and an underlying inflammation. Today due to modern life style, food habits and urbanization the prevalence of the disease is increasing with time. The strongest risk factors for developing asthma are a combination of genetic predisposition with enviromental exposure to inhaled substances and particles that may provoke allergic reactions or irritate the airways, such as indoor allergens like house dust mites in bedding, outdoor allergens like pollens, tobacco smoke, chemical irritants, air pollutants etc. The proposed study was undertaken to access the efficacy of Saptachadapushpadi yoga in the management of Tamaka swasa (Bronchial Asthma). The clinical trial was carried out from OPD and IPD of Govt. Ayurvedic Hospital Guwahati on total of 70 patients. The data obtained from the above treatment were then organized and summarized. Statistical analysis was carried out using appropriate statistical tools such as **arithmetic mean**, **percentage**, **standard deviation** and **z-test** of significance at the level.

KEYWORDS: Tamaka swasa, Bronchial asthma, Saptachadapushpadi yoga.

INTRODUCTION

Asthma as a heterogeneous disease, usually characterized by chronic airway inflammation. It is defined by the history of respiratory symptoms such as **wheeze, shortness of breath, chest tightness and cough** that vary over time and in intensity, together with variable expiratory airflow limitation.[1]

The strongest risk factors for developing asthma are a combination of genetic predisposition with enviromental exposure to inhaled substances and particles that may provoke allergic reactions or irritate the airways, such as indoor allergens like house dust mites in bedding, outdoor allergens like pollens, tobacco smoke, chemical irritants, air pollutants etc.[2]

WHO estimates that more than **339 million** people currently suffer from asthma globally in 2016. Over 80% of asthma-related deaths occur in lower-middle income countries. Treatment and effective management of asthma saves lives. 417,918 deaths due to asthma at the global level.[2] India estimated the prevalence rate of asthma at 2.05% between 2007 -2009, with an estimated burden of about 17.23 million in 2011.[3] Data about the economic burden in India are scant. The cost of Asthma treatment in a private healthcare facility in South India, where the annual cost of asthma treatment has been calculated to be 18,737 INR.[4]

Tamaka swasa is one type among 5 types of swasa. Tamaka swasa comprises of two words i.e. Tamaka and Swasa. The word tamaka is derived from dhatu 'Tamaka Glanou' which suggests choke, darkness, suffocated.[5] And word Swasa means existence of life through pranavayu. Thus, the nomenclature tamaka swasa clearly indicates the disease where difficult breathing associated with dizziness and blackening is present.

The signs, symptoms and etio-pathogenesis of bronchial asthma explained in modern science have a lot of similarities with the disease entity Tamaka Swasa. Both kapha and vata have been considered to be the chief doshas involved in the pathogenesis of the disease. According to Charaka when provoked vata by various etiological factors, enters into Pranavaha srota, it deranges the kapha in Ura and causes obstruction of pranavayu resulting Swasa roga.[6] Tamaka swasa is Yapya but sadya in initial phase.

Although asthma can't be cured, appropriate management can control the disease and enable people to enjoy the good quality of life. Short-term medications are used to relieve symptoms and people with persistent symptoms must take long-term medication daily to control the underlying inflammation and prevent symptoms and exacerbation.

The current treatment of Bronchial asthma by modern medicine is providing short term symptomatic improvement but does not provide any long term treatment to the patient. On other hand prolonged use of these medicines causes many side effects and their efficacy goes

on decreasing with their continuous use. There by possible palliative treatment is only with Ayurveda, which is much better and effective.

METHOD OF COLLECTION OF DATA

Sample size and grouping

- In clinical therapeutic trial of 70 patients were included in a clinical study meeting all the exclusion and inclusion criteria.
- A special case Performa was designed and duly filled with all the information of history taking, physical examination and investigations.
- The parameters of signs and symptoms were scored as mentioned in the Performa. The cases were thoroughly investigated as per modern parameters.

THERAPEUTIC STUDY

Selection of trial drug: Saptachadapushpadi yoga formulatation was taken from susruta samhita, uttara tantra swasa pratisedha chapter 51. It contained two plants namely Saptaparna pushpa and Pippali fruit.

Sample size: 70

Drug: Saptachadapushpadi Yoga

Dose: 2gm twice daily

Anupan: Lukewarm water

Duration of treatment: 2 months

The Results were noted after 2 months of treatment.

Data were collected and statistically analysed.

OBESERVATION AND RESULTS

Total 70 patients of Bronchial Asthma were enrolled for the present study.

Table no. 1: Response of the Treatment on Sign and Symptoms after 60 days in 70 cases of Bronchial Asthma.

Sl. No.	Sign & Symptoms	Number of Patients		Percentage of Relief
		BT	A T	
1	Dyspnoea	70	8	88.57%
2	Cough	70	12	82.86%
3	Rhonchi / Wheezing	70	10	85.71%
4	Tightness of Chest	64	8	78.00%
5	Rhinitis	30	6	80.00%
6	Hoarseness of voice	31	4	87.09%

7	Fever	15	0	100%
8	Insomnia	37	3	91.89%
9	Difficulty in expectoration	33	5	84.85%

Effect of Therapy on Signs & Symptoms – Remarkable relief was observed in the symptoms like **dyspnoea 88.57%, Cough 82.86%, Rhonchi/wheezing 85.71%.** Whereas the other associated symptoms such as **Tightness of chest** was relieved in **78.00%** of cases, **Rhinitis** was relieved in **80.00%** of cases, **Hoarseness of voice** in **87.09%** of cases, **fever** in **100%** of cases, **Insomnia** in **91.89%** of cases and **Difficulty in expectoration** in **84.85%.**

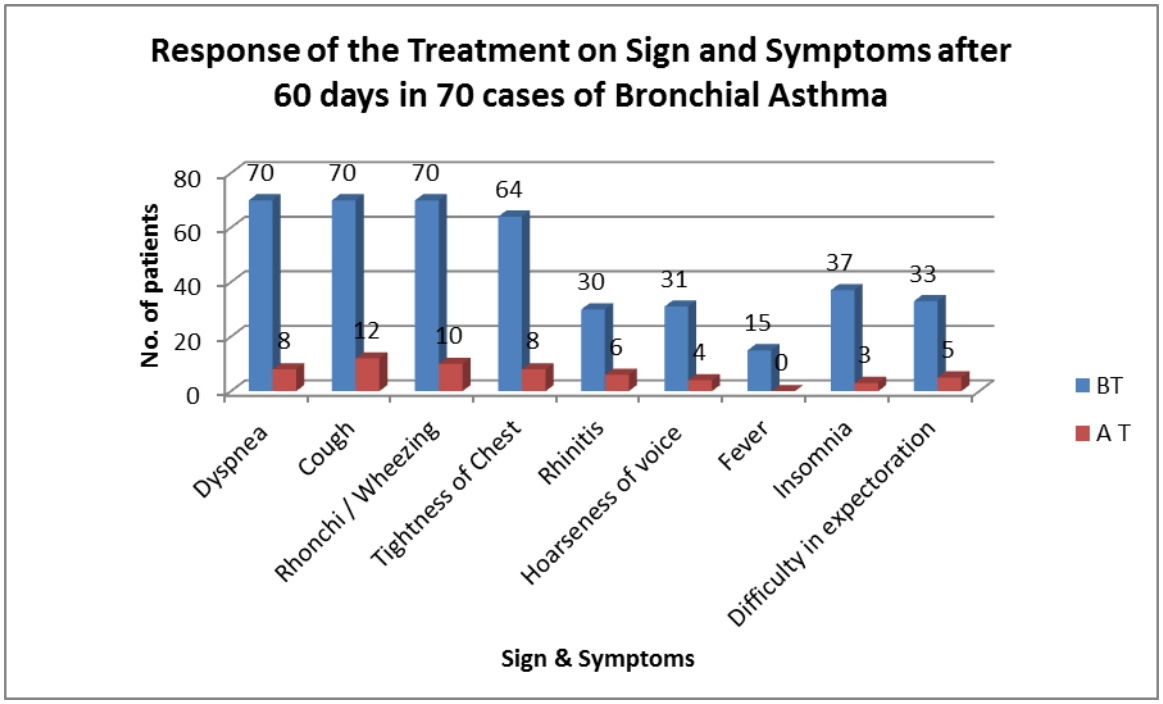

Fig. 1: Response of the Treatment on Sign and Symptoms after 60 days in 70 cases of Bronchial Asthma.

Table no. 2: Effect of Treatment on Dyspnoea before and after 60 days in 70 patients of Bronchial Asthma.

Duration	Mean Value	S.D	S.E	z-value	p-value
Before Treatment	1.9	± 0.71	0.12	8.6	< 0.001
After Treatment	0.9	± 0.67			
BT - AT	1.0	± 0.04			

Effect of Treatment on Dyspnoea – Dyspnoea was calculated according to grading score and observed before and after treatment and the result obtained were highly significant. Before treatment mean of dyspnoea was **1.9** and S.D is **± 0.71**, while it is decreased to **0.9**

and S.D ± **0.67** at the completion of the treatment. The difference of mean value was **1.00** and S.D ± **0.04**, z-value is **8.6** with p-value < **0.001** i.e. highly significant.

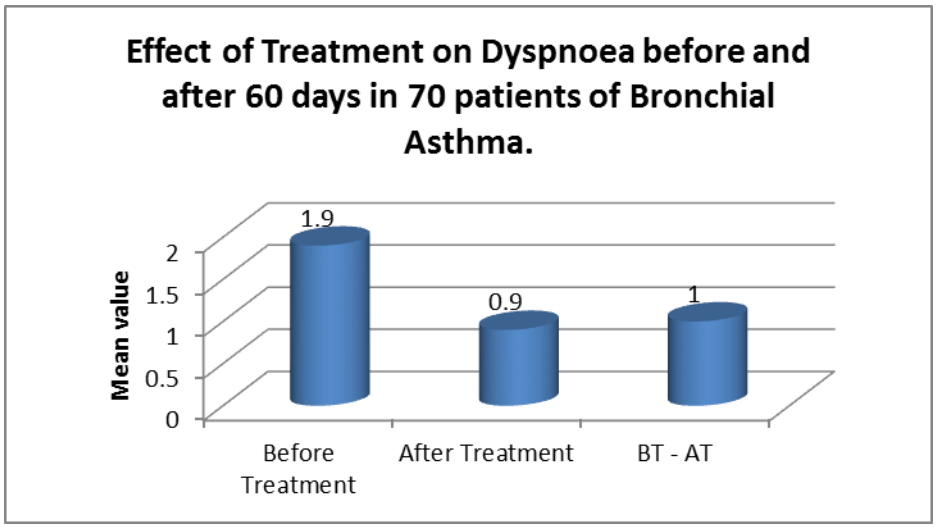

Fig. 2: Effect of Treatment on Dyspnoea before and after 60 days in 70 patients of Bronchial Asthma.

Table no. 3: Effect of Treatment on Cough before and after 60days in 70 patient of Bronchial Asthma.

Duration	Mean Value	S.D	S.E	z-value	p-value
Before Treatment	2	± 0.78	0.14	5.71	< 0.001
After Treatment	1.2	± 0.88			
BT - AT	0.8	± 0.1			

Effect of therapy on Cough-Cough was calculated according to grading score and observed before and after treatment, the result obtain were highly significant. Before treatment mean of cough was **2** and S.D ± **0**.78. At the completion of the treatment it was decreased to **1.2** and S.D ± 0.88. The mean difference is 0**.8** and S.D ± **0.1,** Z-value **5.71** with p-value < **0.001** i.e. highly significant.

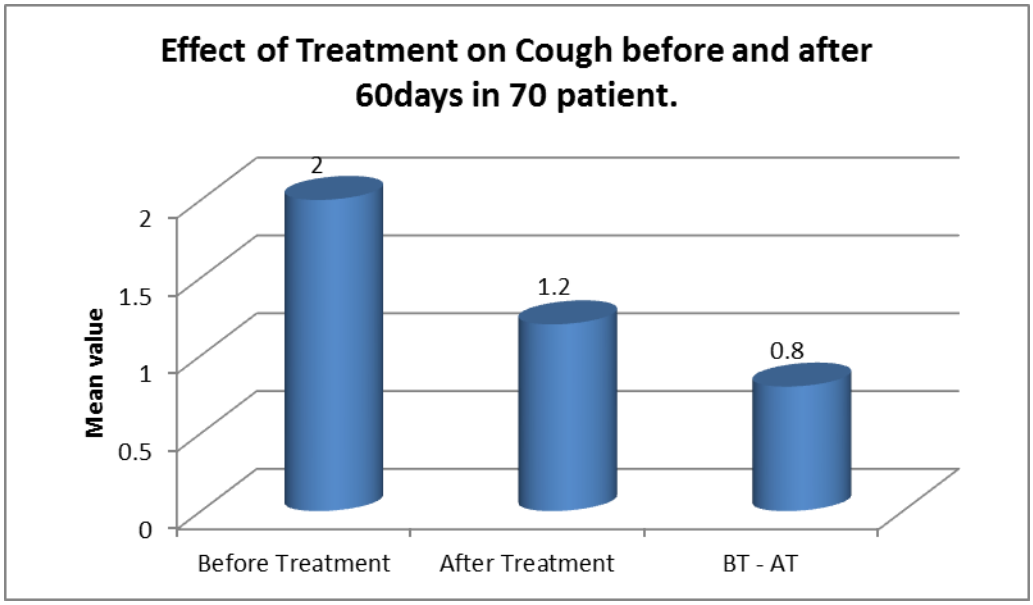

Fig. 3: Effect of Treatment on Cough before and after 60 days in 70 patient of Bronchial Asthma.

Table no. 4: Effect of Treatment on Wheezing before and after 60 days in 70 patients of Bronchial Asthma.

Duration	Mean Value	S.D	S.E	z-value	p-value
Before Treatment	2	± 0.75	0.12	6.67	< 0.001
After Treatment	1.2	± 0.64			
BT - AT	0.8	± 0.11			

Effect of therapy on Wheezing- Rhonchi/ Wheezing was calculated according to grading score and observed before and after treatment and the result obtained were highly significant. Before treatment mean value was **2** and S.D was **± 0.75**. After the completion of the treatment it was decreased to **1.2** and S.D **± 0.64**. the difference of mean value was **0.8** with S.D **± 0.11** and z-value **6.67** with p-value **< 0.001** i.e. highly significant.

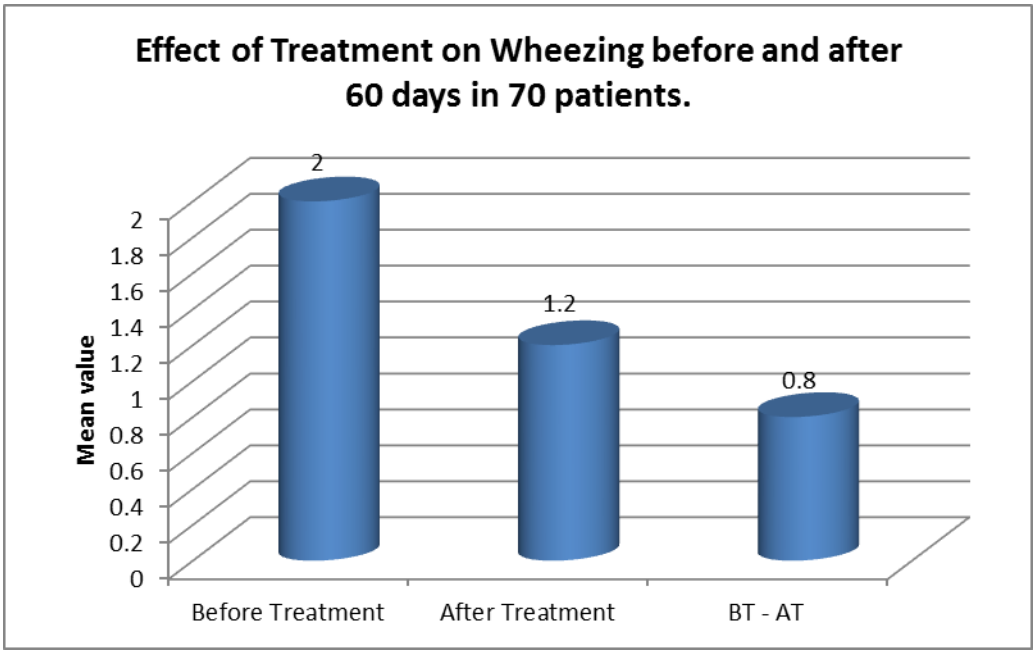

Fig. 4: Effect of Treatment on Wheezing before and after 60 days in 70 patients of Bronchial Asthma.

Table no. 5: Effect of Treatment on PEFR (Peak expiratory flow rate) before and after 60 days in 70 patients of Bronchial Asthma.

Duration	Mean Value	S.D	S.E	z-value	p-value
Before Treatment	185.43	± 70.09	11.44	4.26	< 0.001
After Treatment	234.14	± 65.13			
BT - AT	48.71	± 4.96			

Effect of therapy on PEFR was calculated according to observed before and after treatment and the result obtained were significant at **4.26** level of significance. Before treatment mean value of PEFR was **185.43** and S.D was **± 70.09**. After the completion of the treatment it was **234.14** and S.D **± 65.13**. The difference of mean value was **48.71** with S.D **± 4.96** and z-value **4.26** with p-value **< 0.001** i.e. highly significant.

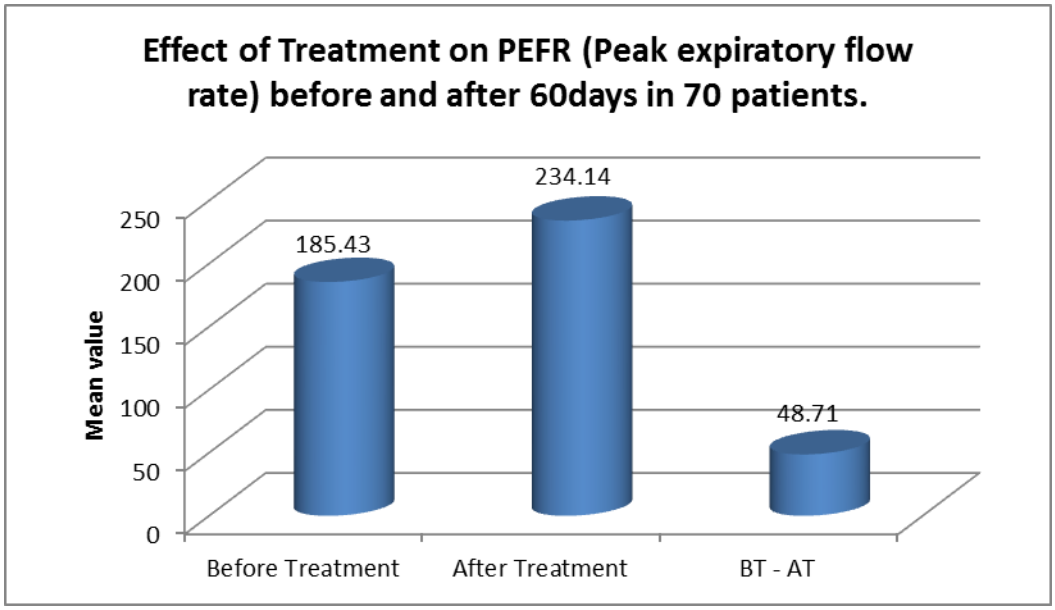

Fig. 5: Effect of Treatment on PEFR (Peak expiratory flow rate) before and after 60days in 70 patients of Bronchial Asthma.

Table no. 6: Effect of therapies on Breath Holding Time (BHT in sec.) before and after 60 days in 70 Patients of Bronchial Asthma.

Duration	Mean Value	S.D	S.E	z-value	p-value
Before Treatment	17.7	± 3.90	0.608	6.09	< 0.001
After Treatment	21.4	± 3.25			
BT - AT	3.7	± 0.65			

Effect of therapy on BHT- Breath holding time in sec was observed before and after treatment, the result obtain were highly significant. Before treatment mean of Breath holding time was **17.7** and S.D **± 3.90** At the completion of the treatment it was increases to **21.4** and S.D **±3.25** The mean difference is 3.7 and S.D **± 0.65** Z-value **6.09** with p-value **< 0.001** i.e. highly significant.

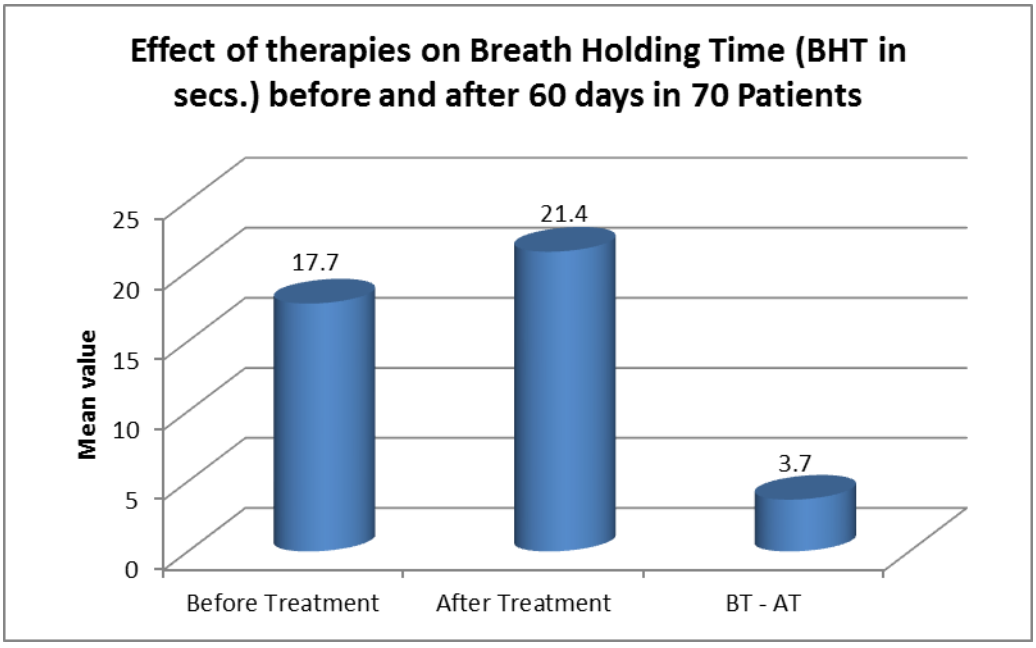

Fig. 6:- Effect of therapies on BHT in Sec. before and after 60 days in 70 Patients of Bronchial Asthma.

Table no. 7: Effect of Treatment on Absolute Eosinophil Count before and after 60days in 70 patients of Bronchial Asthma.

Duration	Mean Value	S.D	S.E	z-value	p-value
Before Treatment	406.61	± 272.94	59.32	1.52	>0.05
After Treatment	347.29	± 180.60			
BT - AT	59.32	± 92.34			

Effect of therapy on Absolute Eosinophil Count- Mean was calculated according to observed value before and after treatment and the result obtained were insignificant. Before treatment mean value was **406.61** and S.D was **± 272**.94. After the completion of the treatment it was decreased to **347.29** and S.D **± 180.60**. The difference of mean value was **59.32** with S.D **± 92.34** and z-value **1.52** with p-value **>0.05** so, it is not significant.

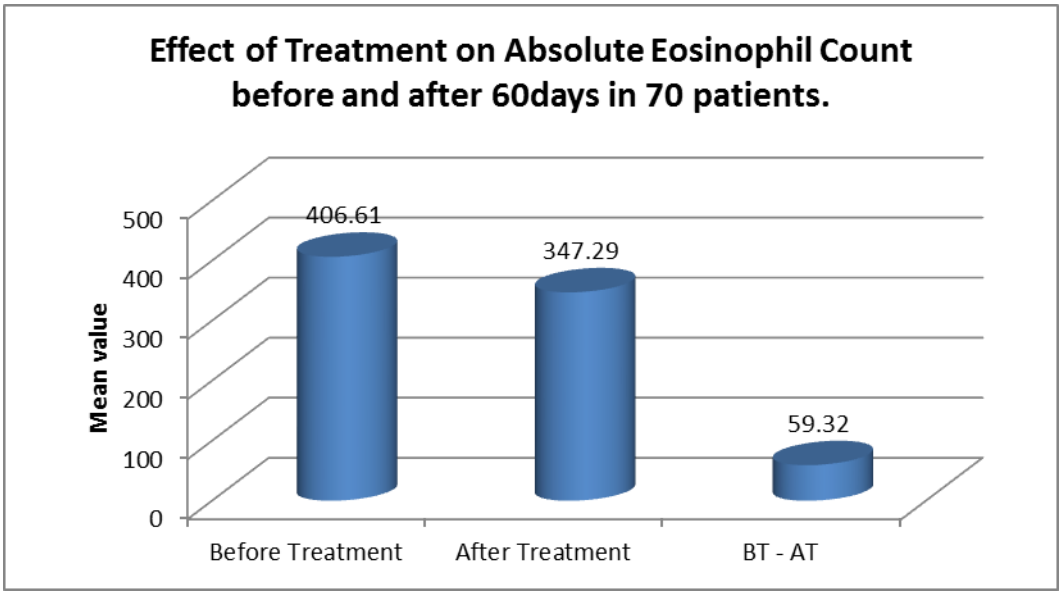

Fig. 7: Effect of Treatment on AEC before and after 60days in 70 patients of Bronchial Asthma.

Table no. 8: Effect of Treatment on Sr.IgE before and after 60 days in 70 patients of Bronchial Asthma.

Duration	Mean Value	S.D	S.E	z-value	p-value
Before Treatment	655.9	± 454.20	66.91	2.04	< 0.05
After Treatment	519.5	± 327.21			
BT - AT	136.4	± 126.99			

Effect of therapy on Sr.IgE -The mean value of **Sr.IgE** was calculated and observed before and after treatment and the result obtained were significant. Before treatment mean value was **655.9** and S.D was **±454.20**. After the completion of the treatment it was decreased to **519.5** and S.D **±327.21**. The difference of mean value was **136.4** with S.D **± 126.99** and z-value is **2.04** with p-value **< 0.05**. Therefore, it is significant.

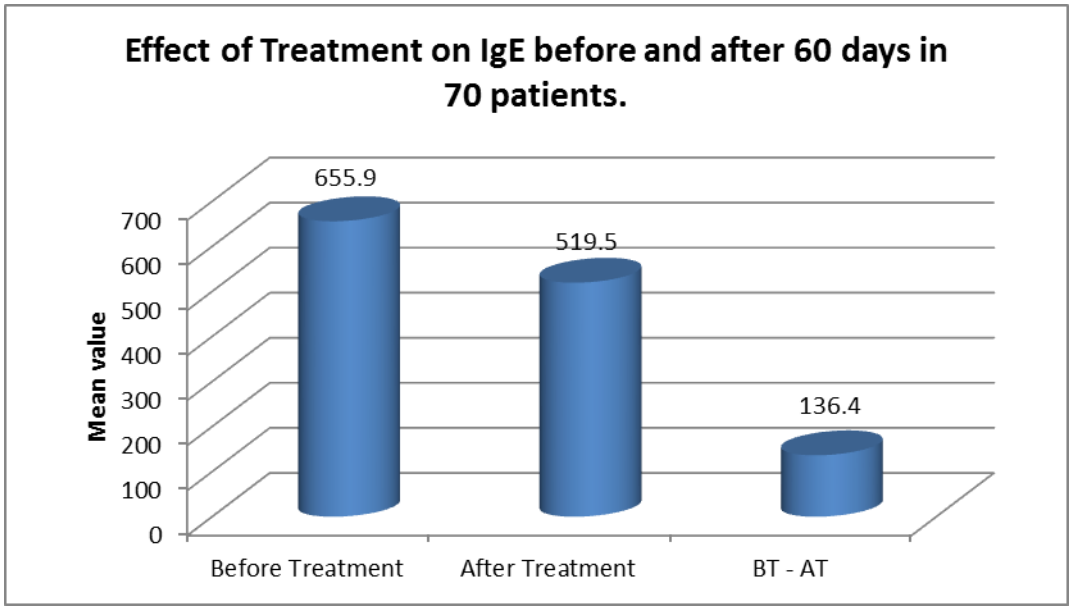

Fig. 8: Effect of Treatment on Sr.IgE before and after 60 days in 70 patients of Bronchial Asthma.

Table no. 9: Effect of Treatment on Erythrocyte Sedimentation Rate before and after 60 days in 70 patient of Bronchial Asthma.

Duration	Mean Value	S.D	S.E	z-value	p-value
Before Treatment	19.1	± 7.53	1.27	4.41	< 0.001
After Treatment	13.5	± 5.68			
BT - AT	5.6	± 1.85			

Effect of therapy on ESR -The mean value of Erythrocyte Sedimentation Rate was calculated and observed before and after treatment and the result obtained were highly significant. Before treatment mean value was 19.1 and S.D was **±7.53** After the completion of the treatment it was decreased to **13.5** and S.D **± 5.68**. The difference of mean value was **5.6** with S.D **± 1.85** and z-value **4.41** with p-value **< 0.001** i.e. highly significant.

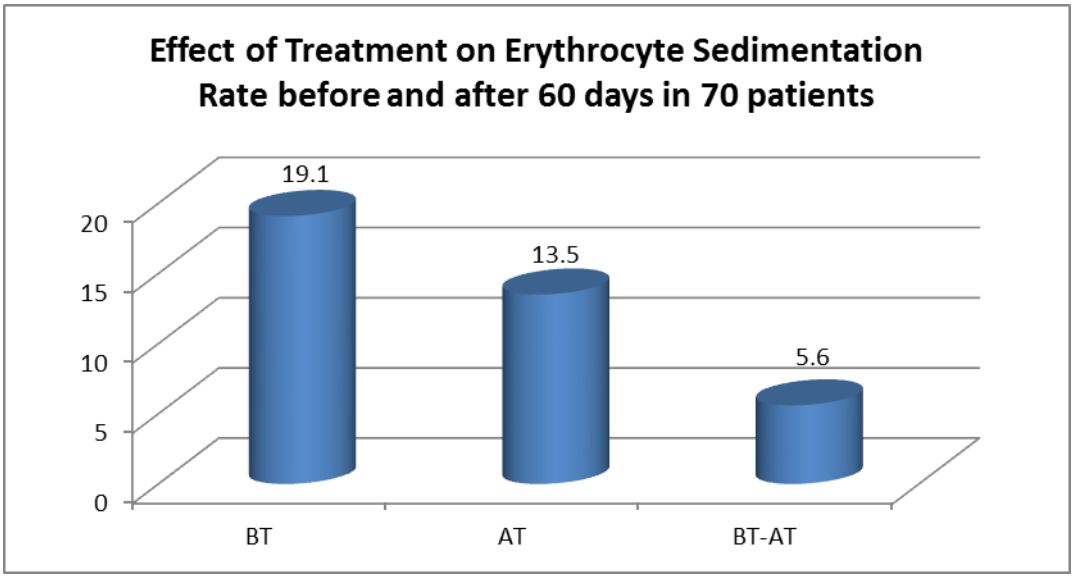

Fig. 9: Effect of Treatment on ESR before and after 60 days in 70 patient of Bronchial Asthma.

DISCUSSION

As we know that there is no biomarker for the diagnosing of Asthma. Basically, diagnosis is made on the basis of clinical features, pathological changes.

The observation and result report of the 70 patients are being discussed here under:

- **Response of the Treatment on Sign and Symptoms:** Remarkable relief was observed in the symptoms like **dyspnoea 88.57%, Cough 82.86%, Rhonchi / wheezing 85.71%.** Whereas the other associated symptoms such as **Tightness of chest** was relieved in **78.00%** of cases, **Rhinitis** was relieved in **80.00%** of cases, **Hoarseness of voice** in **87.09%** of cases, **fever** in **100%** of cases, **Insomnia** in **91.89%** of cases and **Difficulty in expectoration** in **84.85%**
- **Effect of Treatment on Dyspnoea:** Dyspnoea was calculated according to grading score and observed before and after treatment and the result obtained were highly significant. Before treatment mean of dyspnoea was **1.9** and S.D is **± 0.71**, while it is decreased to **0.9** and S.D **± 0.67** at the completion of the treatment. The difference of mean value was **1.00** and S.D **± 0.04**. z-value is **8.6** with p-value **< 0.001** i.e. highly significant.
- **Effect of therapy on Cough:** Cough was calculated according to grading score and observed before and after treatment, the result obtain were highly significant. Before treatment mean of cough was **2** and S.D **± 0**.78 At the completion of the treatment it was decreased to **1.2** and S.D **± 0**.88 The mean difference is 0**.8** and S.D **± 0.1;** Z-value **5.71** with p-value **< 0.001** i.e. highly significant.

- **Effect of therapy on Wheezing:** Rhonchi/ Wheezing was calculated according to grading score and observed before and after treatment and the result obtained were highly significant. Before treatment mean value was **2** and S.D was **± 0.75**. After the completion of the treatment it was decreased to **1.2**and S.D **± 0.64**. the difference of mean value was **0.8** with S.D **± 0.11** and z-value **6.67** with p-value **< 0.001** i.e. highly significant.
- **Effect of therapy on PEFR:** It was calculated according to observed value before and after treatment and the result obtained were highly significant at **4.26%** level of significance. Before treatment mean value of PEFR was **185.43** and S.D was **± 70.09**. After the completion of the treatment it was **234.14** and S.D **± 65.13**. The difference of mean value was **48.71** with S.D **± 4.96** and z-value **4.26** with p-value **< 0.001** i.e. highly significant.
- **Effect of therapy on BHT:** Breath holding time in sec was observed before and after treatment, the result obtained were highly significant. Before treatment mean of Breath holding time was **17.7** and S.D **± 3.90** At the completion of the treatment it was increases to **21.4** and S.D **±3.25** The mean difference is **3.7** and S.D **± 0.65** Z-value **6.09** with p-value **< 0.001** i.e. highly significant.
- **Effect of therapy on Absolute Eosinophil Count:** Mean was calculated according to observed value before and after treatment and the result obtained were insignificant. Before treatment mean value was **406.61** and S.D was **± 272**.94. After the completion of the treatment it was decreased to **347.29** and S.D **± 180.60**. The difference of mean value was **59.32** with S.D **± 92.34** and z-value **1.52** with p-value **>0.05** i.e. not significant.
- **Effect of therapy on Sr.IgE:** The mean value of **Sr.IgE** was calculated and observed before and after treatment and the result obtained were significant. Before treatment mean value was **655.9** and S.D was **± 454.20**. After the completion of the treatment it was decreased to **519.5** and S.D **± 327.21**. The difference of mean value was **136.4** with S.D **± 126.99** and z-value is **2.04** with p-value **< 0.05** i.e. significant.
- **Effect of therapy on ESR** -The mean value of Erythrocyte Sedimentation Rate was calculated and observed before and after treatment and the result obtained were highly significant. Before treatment mean value was 19.1 and S.D was **±7.53.** After the completion of the treatment it was decreased to **13.5** and S.D **± 5.68**. The difference of mean value was **5.6** with S.D **± 1.85** and z-value **4.41** with p-value **< 0.001** i.e. highly significant.

CONLUSION

- The compound form of saptachadapushpadi yoga showed very encouraging response in the patients of bronchial Asthma. Most of the cases responded significant reduction in the severity of sign and symptoms.
- Hence it may be concluded that clinically it is effective on airflow obstruction and airway hyper-responsiveness because of it's bronchodilator, anti-inflammatory, anti-allergic, expectoration and anti-asthmatic property. Thus it can be said that it is an ideal and safe preparation in the management of Bronchial asthma.
- No adverse effect was observed during the trial period

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