



A COMPARATIVE STUDY OF YOGIC AND AYURVEDIC INTERVENTION IN THE MANAGEMENT OF TAMAKA SHWASA.

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ABSTRACT

Abstract

Asthma is one of the commonest respiratory disease (as Jamnagar situated on sea coast has more moisture present in the air and polluting environment is increasing due to rapid industrial development i.e. industries using various chemicals/ pollutants, increases the incidences of Respiratory tract diseases) as well as a significant disease burden worldwide costing billions of dollars. The WHO estimates that there are between 15 and 20 million people with Asthma in India. The increase is likely to be particularly dramatic in India, which is projected to become the world's most populous nation by 2050. An absolute 2% increase in the prevalence of Asthma in India would result in an additional 20 million people with the disease. Anti-asthmatic drugs that are available in the market are expensive and have adverse effects. Thus, it is wise to look for an adjunct therapy to alleviate these problems. Therefore, the main aim of this study is to see the effect of Yoga on patterns of clinical features, peak expiratory flow rates and use of drugs in Asthmatic patients.

Yoga intervention group (Group A) showed 70.58% reduction in the use of emergency medicine while it was 68.09% in Ayurvedic conventional group (Group B). There was a 24.93% increment in the PEFr in the Group A while only 16.49% in the Group B. There was statistically significant reduction in frequency and duration of Asthma attacks in both the Groups. Yoga exercise among Asthmatic patients resulted in a decreased number of attacks and use of drugs. It also shows significant improvement in the peak expiratory flow rate in Yoga intervention Group. Further large scale study is recommended.

Keywords: Asthma, Yoga, Expiratory flow rate.

INTRODUCTION

Asthma is a chronic (long-term) lung disease that inflames and narrows the airways by spastic contraction of the smooth muscle in the bronchioles, which partially obstructs the bronchioles and causes recurring periods of wheezing, Chest tightness, shortness of breath, and coughing.ⁱ ⁱⁱ Though the prevalence and incidence of Asthma is difficult to assess with certainty because of lack of reliable population based figures which used uniform diagnostic criteria, however, it has been suggested that approximately 5% of adult and

7–10% of children in USA and Australia have the disorder.ⁱⁱⁱ According to the CDC (centre for disease control) report, 10–11 million persons had acute attacks in 1998, which results in 13.9 million outpatient visits, 2 million request for urgent care, and 423,000 hospitalizations, with a total cost of >6 Billion USD.^{iv} In Africa, it accounts for 2–10% of medical admissions^v The WHO estimates that there are between 15 and 20 million people with Asthma in India.^{vi} The increase is likely to be particularly dramatic in India, which is projected to become the world's most populous nation by 2050. An absolute 2% increase in the prevalence of Asthma in India

would result in an additional 20 million people with the disease.

Yoga, or its ancestor, first appeared somewhere around 5,000 years ago. Since then, it has gradually evolved in to the modern form. The word “Yoga” means union, joining or to link together as one whole according to Sanskrit language. Hath yoga is a physical method which uses the breath to link the various parts of the body and the mind and to allow them to behave as one functional unit which helps in the control of Asthma.^{vii viii}

It was found that one preliminary study of yoga therapy for Asthma on 46 patients data clearly shows a significant qualitative improvement in the severity and duration of attacks; attacks per week and decrease medication use.^{ix}

Significant symptomatic improvement after Yoga training for 9 months in patients with chronic severe airways obstruction was observed in Australia. A decade ago both short and long-term prospective studies in India showed clearly the beneficial effects of yoga in the management of

bronchial Asthma.^x A study showed significant effect within short time (13 days) of Yoga practice.^{xi}

Since Bronchial Asthma is an important cause of morbidity and mortality especially in resource limited areas where the long term use of multiple drugs is costly, it is wise to think alternative way to treat such an illness with better economic safety and avoid adverse effect of the drugs. The study therefore tries to look into the applicability of Yoga as an alternative approach in the treatment of Asthma.

Material and Methods

The study was conducted at the Swasthavrutta department of Gujarat Ayurved University in Jamnagar town, Gujarat. A clinical trial, controlled prospective study was conducted by randomly dividing patients into intervention (Yoga intervention) group and control (Ayurvedic conventional) group. Yoga exercise was given every day for 60 minutes for 16 weeks by a yoga trainer.

The training included;

INTEGRATED YOGA PRACTICE- This was made to practice by the patient at the centre for 60 mins for 4Weeks before the starting Ayurvedic Regimen and later advised to continue for the next 12 Weeks along with Ayurvedic Regimen. This included the following practices:	60.0 mins
1. PRAYER	5.0 mins
2. STRENGTHENING EXERCISES (sakti vikasaka suksma vyayama)	10 min
Greeva Shakti Vikasaka Prathama, Dwitiya, Trutiya	5 rounds
Vakshasthala Shakti Vikasaka Prathama, Dwitiya	5 rounds
Udara Shakti Vikasaka Prathama, Dwitiya, Trutiya	5 rounds
3. YOGASANAS	30.0 mins
STANDING ASANAS:	10 mins
Tadasana, Urdhvahastottanasana, Ardha Chakrasana, Katichakrasana	
PRONE ASANAS	5.0 mins
Bhujangasana Dhanurasana	
SITTING ASANAS	10 mins
Ushtrasana Shashankasana Uttanamundukasana Gomukhasana Ardha Matsyendrasana / Vakrasana Kapalabhati	
SUPINE ASANAS	5.0 mins
Uttanpadasana Ardhalasana Viparitarani / Halasana Setubandhasarvangasana Matsyasana Shavasana	
4. PRANAYAMA	15 mins
Nadi Shodhana Ujaayi Bhramari Aumkara Dharana	
5. SHUDDHI KRIYA: (to be done once in a week)	
Kunjla Sutra Neti Kapalabhati	

62 patients diagnosed to have asthma and being supported in Swasthavrutta department of Gujarat Ayurved University in Jamnagar town, Gujarat who volunteered to take part in the study participated.

Inclusion criteria:

- Belonging to age group 24 – 60 years.
- Having the sign and symptoms of Bronchial Asthma (Tamaka Shwasa) as given below:
 - Shwasa Kashtata – Breathlessness
 - Kasa - Coughing
 - Parshvashula - Pain in flanks
 - Ghurghurakam - Wheezing
 - Feeling of Chest tightness/ compression
 - Uncomplicated cases of Bronchial Asthma.
 - Chronicity less than 10 years.
 - Willing and able to participate as well as understanding and affirming to sign a written

consent for the treatment schedule of the concerned study.

Exclusion criteria:

Patient falling under the following criteria will be excluded from the study:

- Age below 24 years and above 60 years.
- Patients who are having Thrombosis, Stroke, and other severe abnormalities like Cardiac disease, Renal disorders, AIDS, Endocrine disorders like Diabetes Mellitus, Thyroidism etc.
- Other complicated respiratory disease i.e. Swine Flue, Tuberculosis, COPD etc. and having any organic lesion such as tumour or any anatomical defect in the airways will be excluded from the study.

Observation and Results-

62 patients who fulfil the inclusion criteria and signed the consent randomly categorized as yoga and control group.

Table 1: Socio-demographic characteristics of Asthmatic patients.

Socio – Demographic Features		Frequency	
		Group A	Group B
Sex	Male	18	12
	Female	14	18
Age	21-30	05	01
	31-40	10	03
	41-50	07	12
	51-60	10	14
Occupation	Labour	01	08
	Service	09	05
	Business	09	01
	House wife	13	16

Table 2: Mean changes in the subjective and objective Parameter before and after the Yoga exercise in Asthmatic patients.

Mean changes	Group A	P Value	Group B	P Value
Shwasakashtata- Frequency	01.66	< 0.001	01.37	< 0.001
Shwasakashtata -duration of attack	01.89	< 0.001	01.27	< 0.001
No. of emergency medicine taken	01.28	< 0.001	01.33	< 0.001
Kasa (Coughing)	01.04	< 0.001	00.92	< 0.001
Kapha Sthivanam (Expectoration)	01.09	< 0.001	00.86	< 0.001
Ghurghurkam (Wheezing)	01.34	< 0.001	01.31	< 0.001
Asino Labhate Saukhyam	01.65	< 0.001	01.39	< 0.001
Pinasa(Rhinitis)	01.04	< 0.001	00.68	< 0.001
Chest tightness	01.37	< 0.001	01.24	< 0.001

Parshvashula (Pain in flanks)	01.26	< 0.001	01.00	< 0.001
Lalate Sweda (Perspiration on fore head)	01.68	< 0.001	01.00	< 0.001
Bhrama (Giddiness)	01.00	< 0.010	00.94	< 0.001
PEFR	00.52	<0.050	00.28	>0.050
(SpO ₂) by Pulse Oximetry	01.07	<0.001	00.50	<0.010
Absolute Eosinophil Count	87.84	<0.001	88.63	<0.001
Chest expansion at the level of nipple	02.85	<0.001	01.63	<0.001
ACQ(Asthma control Questionnaire)	06.56	<0.001	06.70	<0.001

Most of the subjects in the yoga group, showed a decreased number of day attacks per week and night attacks per month as compared to the control group ($P < 0.05$). Mean change in the PEFR was 0.52 in the yoga group whereas 0.28 in the control group which was statistically significant ($P < 0.05$) and statistically insignificant ($P > 0.05$) respectively. Mean change in the ACQ was 6.56 in the yoga group whereas 6.70 in the control group which was statistically significant ($P < 0.001$). Similar pattern was also observed in the mean change of pulse Oximetry, Chest expansion, Absolute Eosinophil Count and other symptoms among the two groups ($P < 0.001$).

Discussion

This study showed a reduction in asthma attacks in the yoga group which is comparable to the previous research work.^{xii} The decrease in the number of attacks resulted in the reduction of use of asthma drugs which is comparable to the previous study where it showed decrement in the use of oral asthma medications for the acute attacks. The improvement in peak expiratory flow rate in this study is also comparable to the previous studies.

This explains the effect of yoga in the relief of asthma attack and improving the quality of life. The responsiveness of air ways is noticeably increased in asthma patients so that they develop broncho-constrictions for smaller amount of physicochemical stimuli than the healthy ones. There is a complex interplay of several factors: inherent responsiveness of smooth muscles, abnormality in autonomic nervous control and breakdown in airway defences may promote bronchial hyper reactivity. So, reducing the hyper-responsiveness of the patients will benefit them to have good outcome in the control of their asthma. The other way is the psychological effect on asthma progression, though the mechanism is complex and not well understood; still psychological factors affect about half of all patients. This was the focus

pointed to be improved by the yoga exercise and shown improvement at different studies.

In the observations of 62 patients of Tamaka Shwasa, maximum no of patients i.e., 38.70% were belonging to the age group of 51-60 years, 51.61% were of female sex. 24.19 % patients were primary educated, 22.58 % patients were graduate. 46.77 % patients were 46.77 housewives. 20.96 % patients were addicted to tobacco chewing and 04.83% addicted for Alcohol.

Maximum, 64.51% of patients were taking Madhura Rasa dominant diet; each of 82.25% showed the etiological factor as Raja and mental disturbance, 100% patients were addicted to tea. 58.06% were having Krura Koshtha, 30.64 % of the patients reported disturbed sleep.

Aggravating factors - 80.64 % of the patients reported increased in symptoms due to Shita Aahara-Vihara. 82.25% reported Raja as aggravating factor. 61.29 % reported increased frequency of attacks during rainy season. In 70.96 % of patients, asthma attack was observed in early morning.

Ushna Aahara-Vihara was reported as relieving factor in 80.64% of the patients.

Other observations chronicity of the disease in 69.35 % of the patients was between 5-10 years. 67.74 % of the patients were reported gradual Onset, 45% were Sthula Samhanana.

Cardinal Symptoms:

All the 62 patients complained Shwasakashtata. Ghurghurakam was found in 96.77 % of the patients. 87.09 % noticed Asinolabhate Saukhyam. 83.87% reported with Kasa, Kaphastheevana was found in 77.41%. 72.58 % of the patients had Lalate Sweda. Pinasa was complained by 67.74%. 61.29% presented with Parshvagraha.

Effect of therapy:

Duration of Shwasakashtata -In the Yoga group (Group A) Shwasakashtata was relieved up to 76.38 %, in the (Group B) Shwasakashtata was relieved up to 58.46 % both the groups showed statistically highly significant. But in the percentage

Group A shows better relief in comparison to Group B.

▪ **Frequency of Shwasakashtata-** 73.52 % reduction was in Group A, 57.75% was in Group B both the groups showed statistically highly significant. But in the percentage Group A shows better relief in comparison to Group B.

▪ **Reduction in taking no of emergency medicine** -70.58 % in Group A and in Group B it was 68.09 % .Both the Groups showed statistically highly significant result.

▪ **Pinasa-** 51.02 % relief was found in Group A and 42.50 % relief in Group B. Both the Groups showed statistically highly significant result.

▪ **Kaphashtheevana** - 50% relief were observed in Group A while 47.02 % were relieved by Group B. Both the Groups showed statistically highly significant result,

▪ **Cough**-72.97% relief was observed in Group A, 51 % relief Group B. Both the Groups showed statistically highly significant result.

▪ **Ghurghuraka-** 64.81 % relief was observed in Group A, 60 %, relief Group B. Both the Groups showed statistically highly significant result. In percentage GroupA shows better relief in comparison to Group B.

▪ **Orthopnea (Asino Labhate Saukhyam)** - 80.00 % relief in Group A showed statistically highly significant, 69.64 % relief in Group B showed statistically highly significant result. In percentage Group A shows better relief in comparison to Group B.

▪ **Parshvashula-** 82.60 % relief was obtained in Group A, while it was 56.41 % in Group B. Both the Groups showed statistically highly significant result.

▪ **Lalate Sweda-** 90.24% relief was found in Group A, while it was 60.60 % in Group B. Both the Groups showed statistically highly significant result. In percentage Group A shows better relief in comparison to Group B.

▪ **Result on PEFr** - was increased 24.93 % in Group A which was statistically significant. In Group B- PEFr was increased by 16.49 % which was statistically insignificant.

▪ **Result on AEC** - AEC was reduced in Group A by 24.72 % which was statistically highly significant. In Group B AEC was reduced by 23.57 which were statistically significant.

▪ **Results on Oxyhemoglobin saturation (SpO₂) by Pulse Oximetry:**

Oxyhemoglobin saturation is increased in Group A by 01.12 % which was statistically highly significant. In Group B- Oxyhemoglobin saturation was

increased by 0.51 % which was statistically highly significant.

▪ **Results on chest expansion**

Chest expansion is increased in Group A by 76.79%, 70.95% 58.77% at the level of Axilla, Nipple and Xiphoid respectively. This was statistically highly significant. In Group B Chest expansion was increased 31.88 %, 41.88 % and 47.09% at the level of Axilla, Nipple and Xiphoid respectively. This was statistically highly significant. In percentage Group A shows better relief in comparison to Group B.

In comparative study between Yogic interventional group and Ayurvedic conventional group:

▪ The statistical analysis showed that, Group A, gave better result in Shwasakashtata-Duration of attack, Lalate Sweda and Pulse Oximetry in comparison to Group-B.

▪ Obtained difference between the two groups in Shwasakashtata-Duration of attack, Lalate Sweda and Pulse Oximetry found statistically, significant (P<0.05), significant (P<0.01) and highly significant (P<0.001) respectively. Difference in rest symptoms and investigation like PEFr, A C Q, Abs. E. Count., Spirometry between both the groups was statistically insignificant (P>0.05).

▪ In conclusion, this study showed that Yoga decreased the number asthma attacks, use of drugs and improvement in the peak flow rate. We recommend conducting large scale study on the effect of yoga on Asthma.

Acknowledgement- The study was approved by scientific committee of ACYER and the ethical committee of University and according to the guidelines of MDNIY some changes are being incorporated. Participants were given information about the study objective, voluntary participation and told to their treatment. They were also told about the activities that are going to be practiced and were also informed as they can withdraw from participation at any stage. Those who signed the consent form participated in the study.

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