

## EFFICACY OF NATUROPATHY AND YOGA IN BRONCHIAL ASTHMA – A SELF CONTROLLED MATCHED SCIENTIFIC STUDY

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**Abstract :** Asthma is one of the common psychosomatic illness influenced by many factors. Bronchodilators give temporary relief and have side effects. The present study is aimed at finding the efficacy of a non-pharmacological approach of naturopathy and Yoga in bronchial asthma. A total no of 37 patients (19 men, 18women) with mean age 35.06 yrs (men), 40.74yrs (women) admitted to INYS, Bangalore, for the period of 21 days.

The treatment included 1. Diet therapy 2. Nature cure treatment and 3. Yoga therapy. The various parameters including lung function test were measured on admission and once a week. Results showed the significant improvement in PEFR, VC, FVC, FEV<sub>1</sub>, FEV/FEC %, MVV, ESR and absolute eosinophil count. The patients reported a feeling of well being, freshness and comfortable breathing. Naturopathy and yoga helps in inducing positive health, alleviating the symptoms of disease by acting at physical and mental levels.

**Key words :** asthma

yoga

naturopathy

### INTRODUCTION

Bronchial Asthma has been recognized for more than 30 centuries (1). It affects about 5% of general population with female being affected more than males (2, 3, 4). Bronchial asthma is not a specific disease, but a syndrome that derives multiple precipitating mechanism and results in

airway hyperresponsiveness and airway obstruction (5). The important clinical feature of this syndrome includes episodic occurrence of dyspnea and wheezing. The morbidity and mortality from asthma appears to be increasing and it has been suggested that medications used to treat asthma are contributing to this trend (6, 7, 8, 9, 10). Hence the main aim of this study

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is to find out the efficacy of non-pharmacological treatment of bronchial asthma by naturopathy and yoga.

## METHODS

In this study 37 patients with established bronchial asthma as per clinical criteria of Crofton and Douglas (11) were included. Eighteen women and 19 men with mean age of  $35.06 \pm 2.10$  yrs and  $40.74 \pm 3.56$  yrs respectively were admitted to Institute of Naturopathy and Yogic Sciences (INYS), Bangalore. Patients suffering from associated ailments or those who had history of chronic infection like Tuberculosis, Cystic disease of the lung, Abscess, severe emphysema etc were excluded from the study after appropriate investigation.

The study has been conducted in two phases, control period and treatment period. The patients were studied on the first day and after 21 days of stay at home with drugs which they were taking, which was termed as control period. On 22nd day they were admitted to Institute of Naturopathy and Yogic Sciences for 21 days of treatment which was termed as treatment period. Hence each patient acts as a control for himself.

All the medications for the Asthma patients were stopped gradually within 2-3 days of admission. During 21 days of treatment, all the patients were given diet therapy, nature cure treatment and yoga therapy.

**Diet therapy:** Diet therapy (12) consists of 3 phases, eliminative phase, soothing phase, and constructive phase. During eliminative phase which is about 3 to 5 days. Patients were given lime juice with honey, tender coconut water and plenty of water. During soothing phase the fast is broken with seasonal fruit juice and fruits, salads and sprouts for 8 to 12 days depending upon patients. During constructive phase the patients were brought back to normal diet with few modification like avoiding milk and milk products.

**Nature cure treatment (13):** Patients were given nature cure treatment like chest pack for 45 min, hot foot and arm bath for 10-12 min, back message steam, and sauna bath for 30 min at regular intervals.

**Yoga therapy:** Yoga therapy (14) comprising of kriyas (Vastra dhauthi, Vamana dhauthi, Sutra nethi & Jalanethi) which is a traditional voluntary nose and stomach wash technique, done once daily, Pranayama which is a breath slowing technique performed about 20 min daily, Asanas (Bhujangasana, Matyasana, Dhanurasana, Ustrasana, Suryanamaskara and Shavasana) which is a modified physical posture, performed for 45 min daily.

For all the Bronchial Asthma patients lung function tests were assessed at 8 A.M at weekly intervals by using Fukuda Sangyo (Japan) Spiro analyser Model No ST-460. The following parameters were studied. Vital capacity (VC), Forced expiratory volume (FEV1), Maximum voluntary ventilation (MVV).

Peak expiratory flow rate (PEFR) recorded daily morning at 8' O Clock with a mini Wright's peak flow meter. The best of three readings were considered. Haematological investigation which includes WBC, Differential Count, absolute Eosinophil Count, Hb%, RBC Count, ESR, and biochemical investigation which includes glucose and lipid Profile were done on admission and on discharge.

#### Data analysis

Mean and Standard Deviation values were evaluated for all measured parameters. The significance of mean difference in the value was analysed using students paired 't' test.

### RESULTS

The results presented in Table I which shows the general Vital data of Bronchial asthma patients. The male patients were

TABLE I: Physical characteristics and duration of illness of patients.

Parameter	Male (n = 19)	Female (n = 18)
AGE (yrs)	40.7±13.5	35.0±12.1
Duration of illness (yrs)	14.3±11.7	9.5±5.4
Height (cms)	167.0±6.3	154.0±6.1
Weight (kgs)		
On admission	61.3±14.4	57.4±13.8
On discharge	56.8±12.8*	53.4±12.1*

\*P<0.001

older than female patients and they had longer duration of illness. There was significant reduction in body weight in both male and female patients. The results of Lung function tests in patients have been presented in Table II and III respectively. There was no significant change between base line values (control value) and on admission values. There was significant improvement (P<0.001) in vital capacity, Forced vital capacity, FEV/FVC (%), maximum voluntary ventilation at the time of discharge.

TABLE II: Lung function test (male = 19).

Parameter	Base line (A)	On admission (B)	On discharge (C)	P value (A&B)	P value (B & C)
VC (L)	2.97±0.52	3.00±0.52	4.03±0.47	NS	P<0.001
FVC (L)	3.06±0.46	3.07±0.55	4.16±0.48	NS	P<0.001
FEV1(L)	2.31±0.42	2.37±0.41	3.71±0.49	NS	P<0.001
FEV1/FVC (%)	75.27±5.64	76.78±5.20	89.29±7.72	NS	P<0.001
MV V (L/min)	57.10±11.17	57.89±11.04	75.30±9.08	NS	P<0.001
TV(L)	0.45±0.08	0.45±0.09	0.63±0.09	NS	P<0.001

VC - Vital Capacity;  
FEV1 - Forced expiratory volume in 1<sup>st</sup> sec;  
TV - Tidal volume.

FVC - Forced vital capacity;  
MVV - Maximal voluntary ventilation;

TABLE III: Lung function test female (n=18)

Parameter	Base line (A)	On admission (B)	On discharge (C)	P value (A&B)	P value (B & C)
VC (L)	2.78±0.84	2.75±0.85	3.50±1.15	NS	P<0.001
FVC (L)	2.84±0.89	2.85±0.88	3.65±1.08	NS	P<0.001
FEV1 (L)	2.04±0.58	2.08±0.59	3.14±1.00	NS	P<0.001
FEV1/FVC (%)	72.87±16.43	73.65±6.67	85.91±9.89	NS	P<0.001
MV V (L/min)	59.68±8.45	59.56±8.77	71.15±10.56	NS	P<0.001
TV (L)	0.43±0.07	0.42±0.07	0.56±0.07	NS	P<0.001

VC - Vital Capacity;  
FEV1 - Forced expiratory volume in 1<sup>st</sup> sec;  
TV - Tidal volume.

FVC - Forced vital capacity;  
MVV - Maximal voluntary ventilation;

PEFR was measured on base line and at weekly interval during their 21 days stay. The measured mean values are presented in Table IV. There was no significant change in PEFR values between baseline and on admission value, and on admission to first week value in female patients. There was

significant (P<0.05) change in PEFR values in 2<sup>nd</sup> week and highly significant (P<0.001) change in 3<sup>rd</sup> week values in female patients. There was no significant change in PEFR values between base line and admission values in male patients, whereas there was highly significant (P<0.001) increase in PEFR values between on admission to 1<sup>st</sup> week and week 2<sup>nd</sup> to week 3<sup>rd</sup> in male patients.

TABLE IV: Peak expiratory flow rate (L/min).

Parameter	Male (n = 19)	Female (n = 18)
Base line	254.1±96.3	197.0±87.5
On admission	258.7±97.7	199.8±90.1
Week1	316.6±48.8**	206.0±104.5
Week2	341.1±160.2**	227.5±106.1*
Week3	371.4±152.4**	238.1±108.6***

\*P<0.05; \*\*P<0.01; \*\*\*P<0.001.

The results of hematological profile presented in Table V show the significant reduction in ESR and absolute eosinophil count at the time of discharge (P<0.001).

TABLE V: Haematological profile.

Parameter	Male (n=19)		Female (n=18)	
	on adm	on dis	on adm	on dis
Hb	14.6±1.7	14.0±1.7	12.9±0.	12.6±0.8
WBC	7563±1400	7647±628	7838±544	7422±564
RBC	4.95±0.7	4.74±0.6	4.28±0.32	4.19±0.28
ESR	8.05±3.9	3.63±1.6**	9.22±9.03	4.33±1.46**
AEC	563±291	328±67**	469±138	305±87**

\*\*P<0.01

Hb - Haemoglobin gm %;  
RBC - Red blood cell/ cu.mm;  
AEC Absolute Eosinophil count / cu.mm.

WBC - White blood cell/cu mm;  
ESR - Erythrocyte sedimentation rate (mm/hr);

## DISCUSSION

Bronchial asthma is a psychosomatic disorder which is characterized by airway hyper responsiveness (5, 15) associated with bronchospasm, oedema of mucous membrane and bronchial obstruction. As the pharmacological treatment to asthma has got its own disadvantage (6, 7, 8), an effort is made to explore an alternative non-pharmacological treatment of bronchial asthma by Nature cure and Yoga.

In our study there were 19 males and 18 females. All patients were using bronchodilator at the time of admission. Three males and two females were on oral steroids at the time of admission. All medication was gradually stopped within 2 to 3 days of admission. All subjects were given 3 modalities of treatment namely diet therapy, nature cure treatment and yoga therapy. The diet therapy eliminates toxins and clears digestive tract. It is believed most of the diseases are caused due to accumulation of toxins and morbid matter in the body.

Nature cure is a complete revolution in the art and science of living. It is a practical realisation and application of all that is good in natural science. The treatment approach is basically holistic rather than compartmental. Nature cure treatment includes chest pack, hot foot and arm bath, massage and fomentation to back. It relieves congestion of lungs, decreases pulmonary mucus membrane irritation and increases the depth of respiration.

Goyeche et al claimed that the psychosomatic imbalance is present in most of the patients suffering from asthma (16).

Yoga therapy gives relaxation to mind and body. Many studies have confirmed evidence of the beneficial effect of yoga in bronchial asthma (17, 18, 19). Practice of Yoga reduces the emotional disturbances there by modifying the airway resistance (20) resulting in easy breathing and well being of the patients.

Pranayama (21), which is a part of yoga therapy is a yogic exercise in respiration. It is defined in the yoga sutras of patanjali as the sciences of cleansing, balancing and gaining control over the prana in the human systems. It has been documented in etiology of asthma emotional stress could increase the levels of vagal tone (22) there by increasing efferent vagal discharge and broncho constriction. Khanan (23) have demonstrated increased sympathetic activity in bronchial asthma. Crisan have showed a significant reduction in anxiety after practice of pranayama (24). Pranayama, with its calming effects on mind, can reduce and release emotional stresses.

The Yogic kriya, which is an important aspect of yoga therapy, brings about cleansing of inner tracts, and desensitization of the nerve ending. It has been documented that inflammatory mediators such as air pollution activate sensory nerve endings in the airways causing cough, chest tightness and broncho constriction (25, 26).

We have documented that with the practice of nature cure treatment and yoga therapy there was improvement in both subjective and objective scores. There was significant improvement in all parameters of lung function tests. In female asthmatic,

there was no significant change PEFr in first week's value. The important physiological reason for this could be that, five patients had menstrual cycle during first week of their 21 days treatment and they were not allowed to perform the pranayama and also to have some of water treatments. In animals, estradiol has been shown to increase acetylcholine concentration, cholinesterase activity (27), mucus secretion (28) and prostaglandin production (29).

Rubio et al (30) evaluated the concentration of progesterone and estradiol in asthmatic and normal females. They reported that at least one of the hormone level was out of the normal range in 80% of asthmatic females. They concluded that 'bronchial asthma is associated in a high proportion with abnormalities in production or metabolisms of sex steroid hormones in women during reproductive life'. In our study all female patients were in reproductive age. Hence this could be another physiological basis for difference in response between male and female patient's PEFr values.

It is well documented that eosinophil plays an important role in pathogenesis of asthma (31) our results have shown highly significant reduction in absolute eosinophil count there by decreasing pathogenesis of asthma.

In conclusion, we have documented significant improvement in both objective and subjective sense of well being in asthma patients with drug less therapy of naturopathy and yoga.

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