

Efficacy of Naturopathy and Yoga Treatment in Bronchial Asthma

S.N. Murthy, N.S.N. Rao

Jindal Institute for Nature Cure, Jindal Nagar, Bangalore, India

Abstract

Asthma is a chronic immune inflammatory disorder influenced by many factors. A noticeable factor in bronchial asthma patients is the functional deficiency of expiratory organs resulting in morbid accumulations and lowered vitality. The comprehensive approach of naturopathy and yoga is suggested to help in the overall improvement of both body and mind complex. The present study is aimed to evaluate the efficacy of a non-pharmacological approach of naturopathy and yoga in the management of bronchial asthma. During the period 2003-2006, a total number of 60 patients were treated for bronchial asthma as a part of research programme of the Jindal Institute for Nature Cure, Bangalore. Results of the study indicate that mean FVC values increased from 1.74 at admission to 1.82 at discharge. Patients showed an improvement in FEV₁ values also that increased from mean of 1.35 to 1.54. The mean ratio of FEV₁/FVC also increased from 75.78 to 78.17, but was statistically significant marginally ($P = 0.09$). The mean MVV% values increased marginally from 44.94 to 48.11 ($P = 0.06$). The mean PEFR values increased from 238.83 to 320.75, which was statistically highly significant. Follow up of the patients over a period of one year demonstrated that none of the above parameters changed significantly, indicating that the treatment provided through naturopathy was long lasting. On looking into the medication status other than naturopathy adopted by these patients, results were encouraging, as nearly two third of the patients did not have to use any other medication as observed at different time intervals during the period of one year. Further, the status of most of the parameters especially PEFR did not vary between those who resorted to some other medicines or otherwise at different periods during follow up.

Key words: Asthma, Naturopathy, Yoga, Pulmonary function test

INTRODUCTION

Asthma is a chronic immune-inflammatory disorder influenced by many factors. Studies suggest that indoor and environmental air pollution play important role in exacerbations in asthma. A noticeable factor

in bronchial asthma patients is that the functional deficiency of expiratory organs resulting in morbid accumulations and lowered vitality. By adoption of naturopathy treatment, the morbid accumulations are likely to be cleared which in turn enhances the function of the lungs. The practice of naturopathy treatment paves a way for a natural style of living which becomes a mandatory for perennial state of well being. The comprehensive approach of naturopathy and yoga is suggested to help in the overall improvement of both body and mind complex. Bhole (1982) has shown

Address for correspondence: N.S.N.RAO, Research Consultant, Jindal Institute for Nature Cure, Jindal Nagar, Bangalore 560 073
Fax: 080-28374806 Email : nsnr Rao@hotmail.com Tel : 080-28374804/05
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sufficient evidence about the efficacy of Yoga therapy in treating asthma patients and also in their rehabilitation¹. The scientific basis of yoga in the treatment of asthma has been proven by the study of Udupa and Singh². The present study is aimed to find out the efficacy of a non-pharmacological approach of naturopathy and yoga in the management of bronchial asthma.

MATERIAL AND METHODS

During the period 2003-2006, a total number of 60 patients were treated for bronchial asthma as a part of research programme of this Institute. Out of these, 15 were from the year 2003-04, 20 from 2004-05 and 25 were from 2005-06. The patients suffering from only bronchial asthma were recruited for the present study after a detailed clinical examination. Only those patients with established history of bronchial asthma satisfying the clinical criteria of Crofton and Douglas³ (1983) were included in the study. Those suffering from other ailments or with history of chronic infections like tuberculosis (TB), cystic diseases of lungs, lung abscess and severe emphysema were excluded from the study after appropriate investigations such as radiological, haematological and sputum test.

Assessment of asthma patients was made based on the following parameters at baseline and after the treatment:

- a. Forced Vital Capacity (FVC)
- b. Forced Expiratory Volume in 1st second. (FEV₁)
- c. Ratio of Forced Expiratory Volume in 1st second to forced vital capacity (FEV₁/FVC)
- d. Peak Expiratory Flow Rate -PEFR (litres / sec.)
- e. Maximum Voluntary Ventilation (MVV)

All the patients were also assessed both at the time of admission and at weekly intervals by using Spirometer (Kit Micro En Model No.C09011-02-99). Peak expiratory flow rate was recorded at morning and evening with a Mini Wright's peak Flow Meter and the best of the three efforts was recorded.

Medication Status: All the medicines (pharmacotherapy) were stopped within the second week of admission or the dosage was tapered as the patients started showing symptomatic improvement.

Treatment Procedures

Treatment procedures consisted of Nature cure therapy, Diet therapy and Yoga therapy. Details of these therapies are described below.

Nature cure therapy consisted of the following:

Chest pack : Chest packs were applied once or twice in the day depending upon the patients condition for 30 min. to 60 min., some times associated with fomentation in the upper back shoulder and chest muscles up to the lower ribs.

Hot foot and arm bath (temperature 40° - 42° C) was given for 12-15 min. and the frequency depended upon the condition of the patients. Similarly other modalities namely, *Massage to upper back, fomentation and chest pack, Asthma Bath, Oxygen Bath, Steam and Sauna Bath, Enema, Steam Inhalation and Drainage.* Massage was decided as per the condition of each patient.

The patients were treated in four steps depending upon the clinical features and persistent symptoms.

Diet therapy: Diet was prescribed based on the 3 phases of the treatment and 4 steps of the above mentioned asthma control regime. The variation of calories input in each patient was planned according to their condition. In general all the asthma patients were prescribed nutritionally calcium rich, non-acid and non-mucus generating food. Simple bland cooked food with frequent intake of water was prescribed during the severe attack and tulsi pudina tea with honey to relieve the chest congestion.

All foods which are traditionally known to increase the production of mucus are totally avoided and the foods which are allergic in individual cases were identified and avoided. The general observation of asthma patients revealed that animal milk is one of the triggering/ precipitating factors for wheezing, hence soya milk was given as better nutritional substitute in place of animal milk.

Yoga therapy: The yoga practices for patients consisted of Yogic kriyas, Yogasana, Pranayama and Yoganidra, divided into three week programme with a gradual gradation in severity of the practices. Entire treatment regimen was for a period of 21 days.

Follow up

At the time of discharge, the patients were given follow-up prescription and advised to continue on the constructive diet treatments, and yoga. They were advised to report for follow up, every month. During the follow up all the measurements which were taken on admission were recorded. However, the compliance for follow up was not complete.

Statistical analysis

Since all the patients initiated on treatment did not comply for follow up, number of patients available for assessment of therapy varied from month to month. Analysis on efficacy of therapy has been carried out at three monthly intervals starting from the discharge date. Only those cases whose spirometry parameter readings were available at these periods have been compared with the status at discharge.

Unpaired t-tests have been applied for the groups whose parameters were available at the discharge period and three monthly intervals. They have all been considered as independent groups at different intervals. Medication status during these intervals

have also been assessed to understand as to what proportion had to revert back to any other medication during the interval. $P < 0.01$ was considered statistically significant.

RESULTS

Among the total 60 cases, 24 were males and 36 females. Age groups of the patients varied from 18 years to 70 years with a mean age of 42 years and a majority of them were in 25 to 54 years of age. Duration of illness varied from 3 months to 63 years with a mean of 13 years. Of these, only 48 cases for whom follow up data was available for all parameters at discharge, were considered for analysis.

On comparing the values of the assessment parameters at admission with those at discharge, average values of FVC, FEV_1 , FEV_1/FVC , MVV %, PEFR showed statistically significant increase. The mean FVC values increased from 1.74 to 1.82 ($P = 0.06$). The mean FEV_1 values increased from 1.35 to 1.54 ($P < 0.01$). This increase is over 14% from the values noticed at admission. The mean ratio of FEV_1/FVC values increased from 75.78 to 78.17 ($P = 0.09$). The mean MVV% values increased from 44.94 to 48.11 ($P = 0.06$). The mean PEFR values increased from 238.83 to 320.75 ($P < 0.001$) (Table 1).

On comparing the parameters at different quarterly periods of with those which were attained at discharge, it was observed that most of the parameters showed

Table 1. Comparison of various parameters at admission and discharge to evaluate efficacy of treatment at different time intervals in terms of lung function tests

Parameters of assessment	Period of observation	N	Mean	SD	Mean difference	t-value	P value
FVC	At admission	48	1.74	0.66			
	At discharge	48	1.82	0.74	+ 0.08	1.913	0.06
FEV_1	At admission	48	1.35	0.60			
	At discharge	48	1.54	0.96	+ 0.19	2.324	0.02
FEV_1/FVC %	At admission	48	75.78	13.33			
	At discharge	48	78.17	13.21	+ 2.39	-1.735	0.09
MVV %	At admission	48	44.94	20.39			
	At discharge	48	48.11	21.65	+ 3.17	-1.924	0.06
PEFR	At admission	48	238.83	95.63			
	At discharge	48	320.75	109.11	+ 81.92	-9.638	0.0001

Table 2. Comparison of various parameters at quarterly intervals

	Period of Observation	N	Mean	SD	Mean difference	t-value	P value
FEV₁	Discharge	15	2.44	0.75			
	3 months	15	1.94	0.69	0.50	1.980	0.07
	Discharge	20	1.97	0.87			
	6 months	20	2.07	0.78	0.10	1.234	0.23
	Discharge	17	1.97	0.85			
	9 months	17	2.07	0.87	0.10	0.988	0.34
	Discharge	12	1.93	0.73			
	12 months	12	1.88	0.69	0.05	0.560	0.59
FVC	Discharge	15	1.55	0.64			
	3 months	15	1.48	0.59	0.07	1.3	0.21
	Discharge	20	1.54	0.75			
	6 months	20	1.52	0.65	0.02	0.3	0.77
	Discharge	17	1.51	0.73			
	9 months	17	1.52	0.69	0.01	0.179	0.86
	Discharge	11	1.40	0.54			
	12 months	11	1.29	0.431	0.11	2.19	0.05
FEV₁/FVC	Discharge	15	78.40	12.41			
	3 months	15	76.64	9.08	1.79	0.77	0.46
	Discharge	20	76.5	12.65			
	6 months	20	74.3	12.63	2.20	0.87	0.39
	Discharge	18	75.25	12.11			
	9 months	18	74.00	11.56	1.25	0.57	0.58
	Discharge	10	76.11	13.94			
	12 months	10	75.93	17.58	0.18	0.1	0.93
PEFR	Discharge	41	326.95	113.17			
	3 months	41	314.39	112.09	12.56	1.32	0.20
	Discharge	38	315.92	115.44			
	6 months	38	310.26	110.68	5.66	0.47	0.65
	Discharge	38	319.34	113.4			
	9 months	38	306.31	108.96	13.03	1.28	0.21
	Discharge	29	305.68	105.49			
	12 months	29	291.37	100.98	14.31	1.48	0.15
MVV	Discharge	15	51.47	22.14			
	3 months	15	46.51	20.35	4.96	1.82	0.09
	Discharge	19	53.84	24.92			
	6 months	19	52.23	22.13	1.61	0.46	0.65
	Discharge	17	50.84	25.51			
	9 months	17	51.39	23.48	0.55	-0.117	0.91
	Discharge	11	48.46	21.02			
	12 months	11	43.98	14.43	4.48	1.22	0.25

(Note: Sample size varied at different periods of follow up and hence the parameter values are different at different periods)

minor fluctuations which were not statistically significant at different intervals except for FEV_1 which increased at 12 months, indicating the patients maintained their status of improvement throughout the follow up period even during the most prone season, which was the second quarter of the study period (Table 2).

Medication Status

At the time of admission, only 5 cases (8.3%) were without any medicine, while 14 (23.3%) were on inhalers, 17 (28.3%) were on steroids and the rest 24 were on combination therapy (40.0%). At three months interval, 38 (63.3%) were without any medicine while at six months, 68.3% were not using any medicine. At nine months, 60.0% were not using any medicine and at 12 months, 68.3% were not using any medicine. These results indicate that remission of cases was not very high during one year of follow up.

At three months follow up there was no statistically significant difference in the various parameters between those who did not resort to any medication and who resorted for some other medication ($P > 0.05$). However, at six months there was a slight rise in FEV_1 , FEV_1/FVC ratio with former group as compared to those who resorted to any other medication ($P 0.02$ to 0.04). This may be attributed to most prone season for the disease. At nine months follow up only MVV was higher with former group ($P > 0.04$), while at 12 months follow up only FEV_1/FVC ratio and MVV were higher with the former group ($P < 0.04$ and < 0.003 , respectively).

The most important parameters like PEFR did not vary between the groups indicating that those who did not resort to any medication maintained their improvement attained through naturopathy and yoga treatment.

DISCUSSION

Naturopathy approach is basically holistic rather than compartmental. Alternative system of medicine believe that all diseases are caused due to accumulation of toxins or morbid matter in the body and negative vibrations in the mind. It lowers vitality and accumulation of waste /morbid matter causing

acute/chronic disorders. Entire therapeutic plan in naturopathy is executed in three phases in each patient to restore the health. The first phase is known as eliminative phase, in which the treatment and diet are planned to eliminate the toxins. The second and third phases are soothing and constructive in which the body's metabolic activity is regulated after reliving the toxins and rectifying the symptoms.

Bronchial asthma is a immune inflammatory disorder, characterized by airway hyper responsiveness associated with bronchospasm, oedema of mucus membrane and airway obstruction³. The symptoms are episodic or chronic wheezing, cough and feeling of tightness in the chest as a result of broncho-constriction. A common noticeable factor in bronchial asthma patients is that the functional efficiency of one or more excretory organs will be low because of morbid accumulations and lowered vitality. In cases of asthma, the process of oxygenation and circulation will be erratic due to congested bronchi. In the present study, naturopathy treatment provided to the patients aimed at improving these factors.

The forced vital capacity, the largest amount of air that can be expired after maximal inspiratory effort is frequently measured clinically as an index of pulmonary function. This gives useful information about the strength of the respiratory muscles and other aspects of pulmonary functions. In the present study, patients showed a moderate increase in the mean FVC values which increased from 1.74 at admission to 1.82 at discharge ($P = 0.06$), i.e. post treatment.

The fraction of vital capacity expired during the first second of a forced expiration (FEV_1) timed vital capacity gives additional information. The vital capacity may be normal, but FEV_1 reduces in asthma in which airway resistance is increased because of bronchial constriction. The patients in the present study after naturopathy showed an improvement in FEV_1 values, that increased from mean of 1.35 to 1.54, which was statistically significant ($P < 0.01$). This is an increase of 14% from the values noticed at admission. Any increase of over 12% is considered to be significant increase in airflow reversibility⁴. The mean ratio of FEV_1/FVC also increased from 75.78 to 78.17, that was marginally significant ($P = 0.09$). MVV is largest volume of air that can be moved into

or out of the lungs in one minute by voluntary effort. The mean MVV% values increased marginally from 44.94 to 48.11 ($P=0.06$).

When ventilation increases, the extent of lung deflation is also increased by active contraction of expiratory muscles, which increases intra-thoracic value. The volume expelled by an active expiratory effect after passive expiration. The expiratory reserve volume and the air left in the lungs after the maximal effect is the residual volume. After the treatment, the mean PEFR values for our patients increased from 238.83 to 320.75, which was highly significant ($P<0.001$). Similar results were reported by Sathyaprabha et al⁵ and Manjunath and Shirley⁶ in their studies.

Follow up of the patients over a period of one year in the present study, demonstrated that none of the above parameters changed significantly, indicating that the treatment provided through naturopathy was long lasting. On looking into the medication status other than naturopathy adopted by these patients, results were encouraging, as nearly two third of the patients did not have to use any other medication as observed at different intervals during the period of one year.

At the time of admission, only 5 cases (8.3%) were without any medicine and at discharge, 48 (80.0%) out of 60 cases were without any medication. Of those who were without medicine at discharge, at three months interval, 62.5% did not require any medicine, while 68.3% patients at six months, 68.8%, at nine months and 60.0% at one year were without any pharmacotherapy. The results indicate that remission of cases was not high during one year period. Further,

the status of most of the parameters especially PEFR did not vary between those who resorted to some other medicine or otherwise at different periods of follow up.

In conclusion, the present study demonstrated that the treatment provided through naturopathy had a significant effect on the improvement in symptoms / drug requirement and lung function in cases of bronchial asthma. The status attained at discharge was maintained and a significant proportion of patients treated did not resort to further medication for one year period.

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