



EFFECT OF 'OM' CHANTING IN ADDITION WITH CONVENTIONAL PHARMACOTHERAPY IN MILD TO MODERATE COPD PATIENTS: A PROSPECTIVE STUDY

Pulmonary Medicine

Dr Ritabrata Mitra*	Assistant Professor, Dept of Respiratory Medicine, IPGME&R, Kolkata *Corresponding Author
Dr.Shambo Samrat Samajdar	Department of Clinical and Experimental Pharmacology, School of Tropical Medicine, Kolkata
Dr.Shatavisa Mukherjee	Department of Clinical and Experimental Pharmacology, School of Tropical Medicine, Kolkata
Dr.Anushka Ghosh	Department of Clinical and Experimental Pharmacology, School of Tropical Medicine, Kolkata
Dr Manotosh Sutradhar	Assistant Professor, Dept of Critical Care Medicine, IPGME&R, Kolkata
Dr. Debarshi Jana	IPGMER and SSKM Hospital, Kolkata
Dr.Saibal Moitra	Senior Consultant, Department of Allergy and Immunology, Apollo Gleneagles Hospitals, Kolkata and Medical Director, Allergy and Asthma Treatment Centre, Kolkata
Dr.Santanu Kumar Tripathi	HOD & Professor, Department of Clinical and Experimental Pharmacology, School of Tropical Medicine, Kolkata

ABSTRACT

Background: Yogic breathing practices have been ancient measure ensuring beneficial physiological responses in healthy individuals. Amongst various yogic practices, OM chanting may prove to be an advantageous respiratory exercise for conditions like asthma, COPD etc. Combination of A, U (O) and M, i.e., OM is one of the fundamental symbols used in the yoga tradition, which symbolizes the three states of consciousness i.e., waking state, dream state and deep sleep respectively as per ancient Indian philosophy or metaphysics. The present prospective study probed the effect of OM chanting in improving pulmonary functions and/or perception change for shortness of breath in patients with mild to moderate Chronic Obstructive Pulmonary Disease. **Methodology:** This prospective study included 30 mild to moderate stable COPD patients who were randomly allocated to two different study arms- one receiving the conventional pharmacotherapy for COPD and the other group was subjected to protocolised OM chanting as an add-on to the conventional pharmacotherapy. Both the groups were assessed for pulse rate, SpO₂ and then subjected to 6 minute walk test (6MWT) and assessed for FEV₁ (Post bronchodilation), SpO₂, pulse rate at both baseline and at the end of 3 months. Anxiety was evaluated using State Trait Anxiety Inventory at both specified intervals. Results were statistically analysed. **Results:** Non-significant increase in FEV₁ % and decrease in pulse rate changes in 6 minute walk test were noted in OM chanting group. No changes in SpO₂ and 6 minute walk distance were noted in either group. Significant decrease in anxiety scores in both state anxiety and trait anxiety domains and decreased perception of shortness of breath were noted for those in OM chanting group. **Conclusion:** OM chanting in addition to conventional pharmacotherapy may be effective in decreasing perception of shortness of breath (as per visual analogue scale) in mild to moderate COPD, that can be explained by practice of slow deep breathing instead of rapid shallow breathing during this yogic breathing techniques thereby causing decrease in hyperinflation. However the effect may be more prominent on prolonged intervention, which mandates further research.

KEYWORDS

Protocolised OM Chanting, COPD, 6 Minute Walk Test, FEV₁, State Trait Anxiety Inventory

INTRODUCTION:

Yogic breathing practices produce different physiological responses in healthy individuals. Diverse forms of yogic breathing techniques involve abdominal breathing which uses the diaphragm and performs respiration with minimal effort, while chest breathing utilizes intercostal muscles. This helps in strengthening the respiratory musculature. With the regular practice of breath holding the individual's central and peripheral chemoreceptors gets adapted to the dysoxia, with stretch receptors of respiratory musculature being acclimatized to support the breath holding.[1]

Amongst various pranayamas in yogic practices, OM chanting may prove a beneficial respiratory exercise in conditions like COPD, bronchial asthma. Combination of A, U (O) and M, i.e., OM is one of the fundamental symbols used in the yoga tradition, which symbolizes the three states of consciousness i.e., waking state, dream state and deep sleep respectively.[2, 3] Literature states benefits of OM chanting as an exhalation exercise improving pulmonary functions in individuals with or without respiratory diseases, but no robust data exists supporting its inclusion in pulmonary rehabilitation programme. The present study probed the effect of OM chanting in improving pulmonary functions and/or any changes of perception of shortness of breath in patients with Chronic Obstructive Pulmonary

Disorders.

Materials and Methods:

A prospective study included 30 stable COPD patients; 15 receiving conventional pharmacotherapy for COPD (Group 1) and 15 advised protocolised OM chanting as an add on (Group 2). The study was well explained to all subjects and their written informed consent was obtained prior. The sample size was determined based on the number of subjects who volunteered to participate in the study. Those with mild to moderate stable COPD patients were included with prior informed consent. Subjects with the habits of tobacco chewing, smoking and alcoholism; those having established cardiovascular diseases or recent chest infections with last one month not exposed to any prior pulmonary rehabilitation programme; those already in practice of brisk walking and those diagnosed with depression and/or anxiety were excluded from the study.

Protocolised OM Chanting involved chanting 'OM' without distress and interruption – the vowel (O) part of the 'OM' for 5 seconds continuing into the consonant (M) part of the 'OM' for the next 10 seconds during expiration after reaching individuals' total lung capacity.[4]

Both the groups were assessed (at both baseline and at the end of 3 months) for changes in pulse rate, SpO2 rate, 6 minute walk test (6MWT) and FEV1 (post bronchodilation). Anxiety was evaluated using State Trait Anxiety Inventory at both specified intervals. Results were statistically analysed. A p value of less than 0.05 was considered statistically significant.

Results

The mean age of the participants was 62.31 ± 3.42 years. Male: Female ratio was 1.5:1. 40% subjects (n=12) were ex-smokers. 16.66% study subjects were exposed to biomass smoke.

Assessing the pulmonary functions, non-significant increase in FEV1 % and decrease in pulse rate changes was noted post 6 minute walk test in Group 2. (Table 1) No changes in SpO2 and 6 minute walk distance were noted in either group. (Table 2)

	Mean 6 Minute Walk Distance (in Metres)			Mean FEV1 (%)		
	Baseline	3 Months	P value	Baseline	3 Months	P value
GROUP 1	335.47 ± 6.85	335.47 ± 6.85	0.96	64.4 ± 4.03	65.67 ± 3.62	0.37
GROUP 2	331.73 ± 12.23	332.4 ± 11.96	0.88	65 ± 4.47	66.47 ± 3.81	0.34

	Mean Pulse Rate Changes			Mean SpO2 Changes		
	Baseline	3 Months	P value	Baseline	3 Months	P value
GROUP 1	9.13 ± 2.17	8.8 ± 2.21	0.68	1.67 ± 0.82	1.33 ± 0.72	0.24
GROUP 2	9.13 ± 3.54	7.73 ± 2.60	0.22	1.87 ± 0.74	1.67 ± 0.82	0.48

The anxiety status was assessed among the subjects using State Trait Anxiety Inventory at both baseline and end of the study. Significant increase in state anxiety scores was noted in Group 2. Increase in trait anxiety was noted in Group 2, though non-significant. (Table 3)

	State Anxiety			Trait Anxiety		
	Baseline	3 Months	P value	Baseline	3 Months	P value
GROUP 1	45.67 ± 6.22	44.67 ± 5.11	0.63	45.8 ± 4.26	45.06 ± 4.96	0.66
GROUP 2	44.07 ± 5.42	50.4 ± 4.99	0.002	43.47 ± 6.41	46.2 ± 4.91	0.2

DISCUSSION

COPD is a state that is characterised by the progressive expiratory airflow limitation, associated with an abnormal inflammatory response of the lung to noxious particles or gases. Though preventable and treatable, the disease possesses significant extra-pulmonary effects contributing to its severity in individual patients.[5] The disease has been associated with both inspiratory and expiratory muscle wasting which may contribute to dyspnea. Enhancing the respiratory muscle strength with physical training as a part of a comprehensive pulmonary rehabilitation programme has helped in alleviating the respiratory distress of such patients. Most of this training involved breathing against pressure loads, better known as endurance training. Sub-clinical cardiovascular autonomic neuropathy has been known to occur in patients of COPD with basic pathophysiology hinting at chronic hypoxia and inflammation. Thus such patients are under a constant physiological stress which needs to be alleviated for improved quality of life. [6]

Yogic breathing exercises are slow and non-distressing measures modifying autonomic functions in healthy individuals. As a part of it, vedic chanting might also lead to clinical improvement by bringing the sympathetic and parasympathetic nervous system into harmony, allowing broncho-dilatation and minimization of air trapping by correcting abnormal breathing patterns & manipulating muscle tone of respiratory muscles. The slow and deep breathing form decreases dead space ventilation, refreshing the air throughout lungs and inducing a generalized decrease in the excitatory pathways, thus regulating respiratory systems. During this breathing lung inflates to the

maximum which stimulates pulmonary stretch receptors, decreasing the tracheo-bronchial smooth muscle tone and air resistance thus improving pulmonary function. During regular training, long duration inspiration and expiration would lead to acclimatization of central and peripheral chemoreceptors, increasing the synchronization between the lung tissue and the cortex. Continuous pranayama training causes increases breath holding time. With pranayama practice one can step-up the oxygen intake up to 5 times and also increase tissue oxygenation.[7] Another possible explanation for the role of yogic breathing in improvement of lung function measures could be based on the frictional stress from air flowing through narrowed airways damaging the airway mucosa causing airway inflammation and obstruction. The slow and gentle breathing exercises may reverse the process by reducing the frictional stress, and thereby stabilizing the mast cell degranulation.[8, 9] The deep inspiration, air retention and slow expiration as practiced in OM chanting may thus increase the overall lung capacity and gradually improves the ventilatory functioning of lungs. Due to the proper working of these organs, vital energy flows to maintain the normal homeostasis of the body and thus it helps in prevention, control and rehabilitation of many respiratory diseases. The present study indicates that the regular practice of OM chanting helps in improving pulmonary functions and/or any changes of perception of shortness of breath in patients with Chronic Obstructive Pulmonary Disorders.

The present study observed non-significant increase in FEV1 % and decrease in pulse rate changes post 6 minute walk test in OM chanting group. No changes in SpO2 and 6 minute walk distance were noted in either group. Significant increase in state anxiety scores was noted in OM chanting group. Increase in trait anxiety was noted in Group 2. Reduction in anxiety is important for COPD management. By reducing anxiety, OM chanting may provide better outcomes in COPD patients. A study on neurohemodynamic correlates of "OM" chanting showed limbic deactivation and similar observations were recorded in vagal nerve stimulation used in the treatment of depression, which is common in COPD, bronchial asthma and can affect the quality of sleep, quality-of-life and diseases condition.[4] Anxiety is an important comorbidity in COPD. Slow and deep breathing forms have a de-stressing effect on the mind of the individual.[10] Easy pranayama practices mainly vedic chanting can be done by irrespective of age and sex. However, our study had certain limitations. There was no attempt to determine the sample size based on previous effect sizes, which exists as a major limitation of this study. The study was of a short duration one and should involve larger sample size to generalize the result in future.

CONCLUSION:

Integration of philosophy and medical science can provide optimum health. OM Chanting can be this bridge between philosophy and medical science. The slow breathing technique of OM chanting may be useful to promote sympathovagal balance, to improve autonomic functions, and to modify the sympathovagal imbalance, which is common in patient with COPD. OM chanting as a part of comprehensive pulmonary rehabilitation programme in addition to conventional pharmacotherapy may be effective in improving the pulmonary function in COPD patients. However the effect may be more prominent on prolonged intervention, which mandates further research.

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