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Visceral manipulation approach to correct the pattern of breathing in asthmatic patients: A controlled clinical trial

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Abstract
Objective: This study aim to evaluate the effectiveness of visceral manipulation in asthmatics patients, and find out whether the pattern of breathing will improve in asthmatic patients with manipulation technique.
Method: In this study we used data from 60 patients diagnosed with bronchial asthma. Subjects were randomized into two groups using the 1:1 ratio method. The first group control group and the second group visceral manipulation therapy. Study duration in our study was carried out for a period of 6 weeks. Outcome measure were performed at the beginning of the study, at 3 weeks, after 6 weeks by modified Borg dyspnea scale, AND MRC (medical research council dyspnea scale).
Result: The results are interpreted based on the calculated paired 't' test values which is greater then the table values will mean that the variation is grater between the pre and post readings, with in the given degrees of freedom and level of significance it is determined.
Conclusion: In this study is concluded that the efficacy of the pattern of breathing in asthmatic patient improved by visceral manipulation. So all the asthmatic patient may under go the visceral manipulation will improve the pattern of breathing.

Keywords: Bronchial asthma, visceral manipulation, asthmatics

Introduction

He prevalence of asthma has augmented continuously since the 1980s, and it now marks an estimated 5to 7% of people worldwide. More than 30 million people in the India are affected. Asthma is one of the most common chronic diseases of childhood which characterized by inflammation and narrowing of the airways. Symptoms of asthma include shortness of breath, cough, and wheezing, usually associated with conditions such as eczema and hay fever, affecting more than 5 million children; it occurs more frequently in boys before puberty and in girls after puberty.

Although it's increasing prevalence, still, there has been a recent decline in mortality. About 5 lakh deaths occur from asthma annually in the India.

The etiology of asthma is believed to be genetic because asthma considered as familial disorder and that is strong evidence. Environmental factors also play a major role with the inherited factors to increase the risk of asthma and to cause bronchospasm attacks. Childhood exposure to environment which has high levels of allergens, cigarette smoke, air pollution or respiratory viruses has increased chance to develop asthma, especially those children who has family history with asthma. The severity of the asthma acute attack is different from a patient to another, over time and the amount of exposure to inciting factors. Asthma has two major components. When the immune system becomes sensitised to an allergen, usually through exposure in childhood. The lungs became hyper reactive and this cause the muscles to contract making it very difficult to the patient to breath. The second component is inflammation, which makes the airway narrow, and swell and the cells produce more mucus. Asthma may be categorized as conventional asthma, occupational asthma, or exercise induced asthma. But the pathophysiology is the same; since the triggers and allergens are vary from a patient to another, each person react differently.

Asthma signs and symptoms may vary from a patient to another but the most common ones are:

1. Shortness of breath
2. Coughing

3. Chest tightness
4. Wheezing
5. Trouble of sleeping

And there are causes to the symptoms (triggers) such as

1. Viral infections
2. Allergens: dust mites, pet dander and pollen
3. Tobacco smoke

In asthmatics, a number of factors, including cigarette and other smoking, moulds, pollen, dust, animal dander, exercise, cold air, household and industrial products, air pollution, and infections, can cause severe symptoms. The increased asthma incidence in particular populations can be attributed to a combination and interaction of hereditary and environmental variables. These additional characteristics frequently contribute to disparities, with race or ethnicity being the factor that is most obvious when comparing groups.

The diagnosis of asthma is a clinical one as there is no standardized definition of the type, severity or frequency of symptoms. The prevalence of asthma places a heavy burden on general practitioners and hospital admissions. Although there are many shared features in the diagnosis of asthma in children and adults, the differential diagnosis, the natural history of wheezing illnesses, the ability to perform specific investigations, and their diagnostic value are all influenced by age.

Despite improved knowledge and therapeutic approaches, a sharp rise in childhood asthma prevalence, morbidity, and mortality has been observed in recent years. This necessitate for a deeper understanding of asthma pathophysiology for effective asthma management.

Breathing training may be most suitable for asthma sufferers who also have dysfunctional breathing. Prevalence of dysfunctional breathing in asthmatic subjects is reported as ranging from 29% to 64%, with a higher incidence in patients with difficult-to-treat asthma and poor asthma control. The presence of dysfunctional breathing is identified in various ways, by presence of hypocapnia at rest from clinical observation of unusual breathing patterns with disproportionate breathlessness and through observing breathing patterns during exercise challenge. These methods of identifying dysfunctional breathing all have limitations. It should also be noted that hypocapnia during acute asthma cannot be assumed to be indicative of dysfunctional breathing as it can be a normal response to acute airway obstruction.

Osteopathy was lot to offer people with respiratory problems, helping children and adults cope with effects of asthma and other chronic respiratory disorders, including hyperventilation syndrome, centres around understanding how the chest wall, respiratory muscles and reflex relationships interact to compromise respiratory function, these disorders also impact on general musculosketetal system efficiency and many biomechical problems can trace there roots to restrictions and tension within the respiratory system and associated tissues,

Visceral manipulation enhances motion and mobility of the visceral system by improving the structure and positions of the organ. - Barral Institute

Aim of the study

1. To evaluate the effectiveness of visceral manipulation in asthmatics patients.
2. To find out whether the pattern of breathing will improve in asthmatic patients with manipulation technique.

Method

In this study, we used data from 60 patients diagnosed with bronchial asthma. Subjects were randomized into two groups using the 1:1 ratio method. The first group control group and the second group visceral manipulation therapy.

Inclusion criteria of the study were patients who had based on assessment and diagnosed as mild to severe asthma, age between 15 to 40 years both male and female.

Exclusion criteria

Were those with Patients with cardio pulmonary pathology like cor pulmonale, left ventricular hypertrophy, Subjects with infective lung disease like TB, Subjects diagnosed as other obstructive lung disease like bronchiectasis, Patients with neurological and orthopedic problems, Patients with visual and auditory disorder, Pregnancy, Pace maker.

Study duration in our study was carried out for a period of 6 weeks. Outcome measure were performed at the beginning of the study, at 3 weeks, after 6 weeks by modified Borg dyspnea scale, AND MRC (medical research council dyspnea scale).

Before starting the treatment general cardio respiratory assessment was taken all the patients. In addition modified borg dyspnea scale and MRC dyspnea scale were also measured for all the patients, instructions were given to the patients about the treatment program, A regular periodical assessment was taken for all subject at every 3 week and after completion of 6 weeks final post treatment and both scale were measured and documented.

Procedure

Technique of visceral manipulation

1. Bronchi & pulmonary vessels Position of patients

Supine lying position Technique: The hand is placed with the palms contacting the inferior angles of the scapulae, just posterior to the mid-axillary lines. The left hand should be very slightly higher than the right, as the left bronchus has a slightly more oblique orientation than the right, due to the placement of the heart. Their contact is particularly good for functional/fascial unwinding releases along the bronchi and between the two lower lobes. It is also a very good contact for working with the motility of the lungs. Often the bronchi exhibit a spiral torsion running along their length. They also often feel contracted along their length. Felling into these patterns and allowing lateral expansion can be very effective in restoring normal bronchial compliance. This technique includes bilateral posterolateral contact of the lower lobes of the lungs, to evaluate all the lungs and the bronchi.

2. Upper Lobe Position of Patient

Sitting Technique: There are several optional to test out the lung in this position. One is to use a local 'listening' approach; another is to feel for general facial and connective tissue tensions within the lung tissue itself. Often is asthmatic cases. The posterior hand used the thinar eminence for this technique, and it is placed such that the superior angle of the scapula is nestled right into the centre of the palm. This should bring the thinar eminence medial to the border of the scapula but just lateral to the transverse

processes. As the vertebra should be avoided to ensure a good contact with the lung, the rest of the fingers can gently lie over the top of trapezius fibres. The fingers should not be held rigidly. The anterior hand is placed so that the palm and thenar eminence are covering those first three ribs. It is important to keep the anterior contact below the clavicle. Where the anterior are passes over the patient's shoulders, some additional support to the patient can be provided, by gently compressing the over lying arm against the shoulder girdle. The heel of the anterior hand should be lateral to the sternum, and be around the level of the chondrocostal articulation. Again, the fingers of the anterior hand should be relaxed and can rest over the pectoral tissues and anterior shoulder. The contact can be used to unwind and balance through the tissues, easing torsions and so reducing spasms, irritability and sensitization

3. Lower Lobe Position

Sitting Technique

In this technique only that section which is above the level of the diaphragm is being tested / treated). The posterior hand should remain above the inferior angle of the scapula to ensure that the lower lobe above of the scapula to ensure that the lower lobe above the level of the diaphragm is being evaluated. The anterior hand is placed quite laterally, so that the palm is just lateral to the midclavicular line and is at the level of the seventh and eight ribs. This ensures that it contacts the anterior margin of the lower lobe of the lung. If the hand contacts the chest below the level of the diaphragm, then the movement can pass through other organs such as the spleen or liver, as well as the sliver of lower lobe that passed down between the posterior diaphragm and the lower ribcage. The direction for mobilizing the lower lobe is slightly more oblique, compared to the direction for testing the upper lobe. The upper lobe is tested with the compression / movement occurring from back to front (from posterosuperiorly to anterioinferiorly). The lower lobe is tested with the compression/movement occurring from posterosupero-medial to anteroinferolateral.

Result: The results are interpreted based on the calculated paired 't' test values which is greater then the table values will mean that the variation is grater between the pre and post readings, with in the given degrees of freedom and level of significance it is determined.

Table 1: shows test mean difference and standard deviation

Test	Mean Difference	Standard Deviation
Borg scale	2.65	0.65
MRC	2.35	1

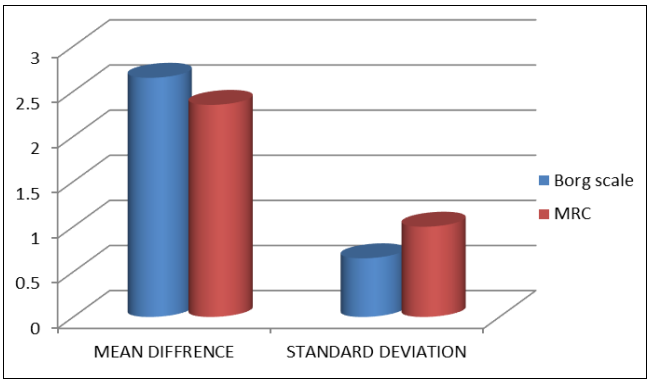

Fig 1: Shows Borg scale, MRC, mean difference and standard deviation

Table 2: Shows Test, Table Value, Calculated t Value and P value

Test	Table Value	Calculated t Value	P value
Borg scale	2.05	14	0.005
MRC	2.10	12	0.005

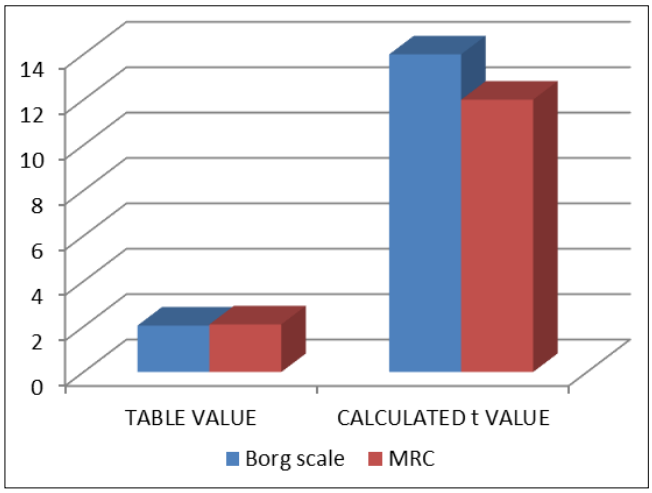

Fig 2: Shows Borg scale, MRC, Table Value and Calculated t Value

Discussion

The study conducted on 60 individuals selected from the patient of various hospital is Udaipur, Rajasthan who all are asthmatic patient by between 15 to 40 years, all the subjects underwent the pre assessment of both scale and pulmonary assessment of the individuals also were taken. All the subjects were informed about the visceral manipulation procedure, the procedure for manipulation have been described in details in the methodology. The duration of programme was 6 weeks at the end of the study, the post test measurement were recorded and was statistically analysed. The measurement used in statistical analysis was paired 't' test to find out the difference between pre and post test. The results obtained had clearly indicated there is an improvement in the pattern of the asthma patient after manipulation programme.

Limitation of the study

The study was conducted on small sample size, Environment factors might also have influenced the study. The study was conducted over a small period. The study was conducted on asthma patient alone

Recommendation

The study must be extended to a large number of subjects over a longer period of time. The study can be extended to the obstructive disease of pulmonary system also Pattern of breathing is important for the entire patient have the pulmonary disease, so the patient should concentrate to the visceral manipulation

Conclusion

In this study is concluded that the efficacy of the pattern of breathing in asthmatic patient improved by visceral manipulation. So all the asthmatic patient may under go the visceral manipulation will improve the pattern of breathing and also improve the functional capacity of the daily living of peoples who work under various environments.

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