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COMPLEMENTARY THERAPIES IN ASTHMATIC CHILDREN

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ABSTRACT

Better health is central to human happiness and well-being. It also makes an important contribution to economic progress, as healthy populations live longer, are more productive, and save more. Children need to be healthy to reach their full potential. Managing children with asthma is a real challenge in the new millennium. Clinical trials have shown that risks are reduced with effective complementary therapies and with regular medications. Therefore the present scenario demands for specific intervention to improve the pulmonary function among children with asthma. A wide range of treatments exists under the umbrella term of 'complementary therapy'. Each treatment has its own unique theory and practice, which makes it difficult to offer a blanket definition. Diseases and illness are viewed as mechanical break downs and generally these break downs and the symptoms that caused are treated. Complementary therapies aim to treat the entire person, not just the symptoms. Some of the complementary therapies are Acupuncture, Alexander technique, Aroma therapy, Bio feedback, Buteyko Technique, Chiropractic Technique, Homeopathy, Hydrotherapy, Massage, Naturopathy, Reiki, Salt Therapy, Yoga. These Complementary Therapies increases the efficiency of each breath, improves lung capacity, increases flow of oxygen to all parts of the body, improve abdomen and diaphragm control, increases relaxation and calmness by releasing tension.

Complementary and alternative medicine (CAM) is being increasingly used by consumers along with conventional medical care. The widespread use of CAM therapies has implications not only for research but also for the education of conventional health care professionals. Health care professionals need to be informed about CAM and knowledgeable enough to discuss with their patients about CAM therapies. Furthermore, advances in understanding and applying CAM that derive from basic or clinical research should be incorporated into the pre-professional and continuing education programs of all relevant health professionals.

KEY WORDS: Complementary Therapy, Asthma, Pulmonary Function, Alternative Medicine, Conventional Medical Care.
INTRODUCTION

“Healing is a matter of time, but it is sometimes also a matter of opportunity” - Hippocrates

Health service plays an important part in promoting the health and well-being of children. There are many ideas and opinions on what constitutes good health. The most wide-known idea on good health is physical fitness, emotional and psychological well-being. Good health is important for everyone, it is especially vital for children as they are still growing in the mental development stage. Protecting and promoting the health of children is an important goal. As children's early experiences are central to shaping their long term health and well-being, it is also critical to improve the health of the whole population and reducing inequalities in health over the longer term. Asthma is an illness of the respiratory system that causes swelling and narrowing of the airways. During asthma, the muscles surrounding the airways tighten and the airway passage lining swells. This tightening and swelling reduces the amount of air that can be exhaled or inhaled. During episodes of acute asthma, pulmonary function tests reveal an obstructive pattern. This includes a decrease in the rate of maximal expiratory air flow (a decrease in FEV1 and the FEV1/FVC ratio) due to the increased resistance, and a reduction in forced vital capacity (FVC) correlating with the level of hyperinflation of the lungs. Prevalence of Bronchial Asthma increased continuously since 1970, and now affects 4 to 7% of the people worldwide. The prevalence range in children is 4 to 32% and it increases the number of hospital emergency visits and admissions. 1 in 11 children has asthma in U.K. In U.S.A 7 million children have asthma. In India about 1 out of every 12 children has asthma. In India, rough estimate indicates a prevalence of 10-15% in 5-11 year old children By 1 year 26% of the children, By 1-5 years 51.4% of the children, By > 5 years 22.3% of the children are affected with asthma. It shows that 77% of asthma begins in children less than 5 Years. Almost 13 million school days are missed due to asthma. Asthma accounts for 3,537,000 doctor visits and 190,000 hospitalizations for children under 15 each year. Asthma imposes numerous economic burdens on families and communities, so economic expenses due to asthma and its treatment is increasing. Moreover, expenditures burden to asthmatic parents at the time of hospitalization, using drugs of asthma, loss of parents jobs and absence of children from school are important problems in our country. Managing children with asthma is a real challenge in the new millennium. Clinical trials have shown that risks are reduced with effective complementary therapies and with regular medications. Therefore the present scenario demands for specific intervention to improve the pulmonary function among children with asthma.

COMPLEMENTARY THERAPIES

Complementary therapy is known by many different terms, including alternative therapy, alternative medicine, holistic therapy and traditional medicine. A wide range of treatments exists under the umbrella term of 'complementary therapy'. Each treatment has its own unique theory and practice, which makes it difficult to offer a blanket definition. Perhaps a simple definition can be reached by comparing the philosophy of complementary therapies with that of modern (conventional) medicine. Historically, modern medicine evolved out of an assumption that the mind and body are separate. Complementary therapies aim to treat the entire person, not just the symptoms. Today, the gap between conventional medicine and complementary therapies is blurring. Many complementary therapies are as based on Anatomy, Physiology and Modern medicine, while modern medicine has widened its scope to include a more holistic approach to healthcare and has adopted therapies that originated in complementary medicine.

Some of the popular complementary therapies include
- Acupuncture
- Alexander technique
- Aromatherapy
- Biofeedback
- Buteyko
- Chiropractic technique
**REASONS FOR USING COMPLEMENTARY THERAPY**
- Achieving and maintaining good health
- As an aid to the performance of everyday tasks
- Dissatisfaction with conventional medical practices
- The desire to take charge of our own health and medical problems
- The increase in easy-to-access consumer health information, including health information on the internet
- Evidence of the benefits and safety of some complementary medicines and therapies
- Dissatisfaction with limited success rates or adverse side effects of prescribed medicines
- The desire to receive healthcare that treats the whole person and not just their symptoms.

**ACUPUNCTURE**
Acupuncture is an integral part of a 4,000-year-old philosophy of medicine that is known as Traditional Chinese Medicine (TCM). Acupuncture is a therapy that involves the stimulation of defined points on the body with the use of needles for therapeutic and preventive purposes. Other methods of stimulation of acupuncture points include pressure (acupressure), electric, and, more recently, the use of laser. The basic idea underlying acupuncture therapy is that disorders related to the flow of O₂, thought to be the energetic life force moving through the body along a network of channels or pathways called meridians in the concept of TCM, can be prevented or treated by stimulating the relevant points on the body surface. Acupuncture is a method of treatment that involves the insertion of needles at specific parts of the body. The practice is based on Chinese theories of the body’s natural balance of energies. Acupuncture can be helpful for people with asthma; it has been suggested that acupuncture may be effective for people whose asthma is triggered by allergy, but less effective for those whose asthma is exercise-induced. After acupuncture treatment, concentrations of immunoglobulins (sIgA and total IgA) in the saliva and nasal secretions of patients with allergic asthma were found to be significantly decreased. IgE levels in sera, as well as numbers of activated T-cells and eosinophils in the peripheral blood were also significantly decreased following acupuncture. These are all inflammatory mediators so a reduction shows that inflammation is being reduced.⁴

**AROMOTHERAPY**
Aromatherapy is the use of essential oils from plants for healing. Although the word “aroma” makes it sound as if the oils are inhaled, they can also be massaged into the skin or rarely taken by mouth. The “smell” receptors in the nose stimulate the parts of the brain (the amygdala and hippocampus) that serve as storehouses for emotions and memories. Breathe the essential oil molecules, it stimulate these parts of the brain and influence physical, emotional, and mental health. It stimulates the activity of brain cells in the amygdala similar to the way some sedative medications work. Molecules from essential oils may interact in the blood with hormones or enzymes. Aromatherapy is a caring, hands-on therapy which seeks to induce relaxation, increase energy and reduce the effects of stress while restoring the mind-body balance. Aromatherapy works on our sense of smell and by absorption into the bloodstream. About 15 per cent of the air which inhale goes to the roof of the nose, where olfactory receptors transport odors straight to a part of the brain called the limbic system. Aroma therapy using lavender oil showed lower Interleukin cytokine levels in the fluids of the lungs, which means that their immune systems were less stressed after breathing lavender oil, had fewer eosinophil cells (specialized white blood cells of the
immune system) in the fluids and the tissue of the lungs, had less mucus in the lungs.\textsuperscript{6}

**ALEXANDER TECHNIQUE**
The Alexander Technique is a form of physical therapy involving a series of movements designed to correct posture and bring the body into natural alignment and aid relaxation. The Alexander technique has been used by people with asthma, to try and improve breathing. The hands-on aspect of these treatment interventions (although primarily intended to be instructional) may elicit effects similar to massage by activation of peripheral sensory receptors, a mechanical release of Neuro humeral factors or direct stimulation of Golgi tendon organs. Postulated reasons for the improvement in pulmonary function included increased length of muscles of the torso derived from “inhibiting” slumping patterns in posture and increased strength or endurance in abdominal muscles from improved posture.\textsuperscript{7}

**BIOFEEDBACK**
Several different relaxation exercises are used in biofeedback therapy, including:

- Deep breathing
- Progressive muscle relaxation -- alternately tightening and then relaxing different muscle groups
- Guided imagery -- concentrating on a specific image (such as the color and texture of an orange) to focus the mind and make one feel more relaxed
- Mindfulness meditation -- focusing your thoughts and letting go of negative emotions

Biofeedback is a mind-body technique influence their autonomic nervous systems - the part of the body that controls involuntary physical functions such as blood pressure, heart rate, muscle tension, and brainwave frequency. Biofeedback increase heart rate variability (HRV), decrease the respiratory resistance and improves Spirometry performance in asthma patients.\textsuperscript{7}

**BUTEYKO**
The Buteyko method is based on the concept that "hidden" or undiagnosed hyperventilation which is the underlying cause of numerous medical conditions, including asthma. It is known that hyperventilation can lead to low carbon dioxide levels in the blood (or hypocapnea), which can subsequently lead to disturbances of the acid-base balance in the blood and lower tissue oxygen levels. These effects include widespread spasms of the muscle in the airways (bronchospasm), disturbance of cell energy production via the Krebs cycle, as well as disturbance of numerous vital homeostatic chemical reactions in the body. The Buteyko method is a purported method of "retraining" the body's breathing pattern to correct for the presumed chronic hyperventilation and hypocapnea, and thereby treat or cure the body of these medical problems. The main objective is "normalization" of breathing and the three core principles of Buteyko remain the same nasal breathing, reduced breathing and relaxation.

**Nasal Breathing**
The Buteyko method emphasizes the importance of nasal breathing, which protects the airways by humidifying, warming, and cleaning the air entering the lungs. A majority of asthmatics have problems while sleeping at night and this is thought by Buteyko practitioners to be linked with poor posture or unconscious mouth-breathing. By keeping the nose clear and encouraging nasal breathing during the day, night-time symptoms can also improve. Strictly nasal breathing during physical exercise is another key element of the Buteyko method.

**Reduced Breathing Exercises**
The core Buteyko exercises involve breath control; consciously reducing either breathing rate or breathing volume. Buteyko uses a measurement called the Control Pause (CP), defined as the amount of time that an individual can comfortably hold breath after a normal exhalation. According to Buteyko technique, with regular Buteyko reduced-breathing practice, asthmatics are expected to find that their CP gradually increases and their pulse rate decreases in parallel decreased asthma symptoms.

**Relaxation**
The first feeling of an asthma attack is unsettling and can result in a short period of rapid breathing. By controlling this initial over-breathing phase, asthmatics can prevent a "vicious circle of over-breathing" from
developing and spiralling into an asthma attack. This means that asthma attacks may be averted simply by breathing less.\(^8\)

**CHIROPRACTIC TECHNIQUE**

Chiropractic Spinal Manipulation, which chiropractors call "spinal adjustment" or "chiropractic adjustment", is the most common treatment used in chiropractic care. Spinal manipulation is a passive manual maneuver during which a three-joint complex is taken past the normal range of movement, but not so far as to dislocate or damage the joint. Its defining factor is a dynamic thrust, which is a sudden force that causes an audible release and attempts to increase a joint's range of motion. High-Velocity, Low-Amplitude Spinal Manipulation (HVLA-SM) thrusts have physiological effects that signal neural discharge from Para spinal muscle tissues, depending on duration and amplitude of the thrust. Clinical skill in employing HVLA-SM thrusts depends on the ability of the practitioner to handle the duration and magnitude of the load. More generally, Spinal Manipulative Therapy (SMT) describes techniques where the hands are used to manipulate, massage, mobilize, adjust, stimulate, apply traction to, or otherwise influence the spine and related tissues. Chiropractic care has been proposed to significantly reduce non-specific bronchial hyperactivity (n-BR) as well as patient rated asthma severity. Non-specific bronchial hyperactivity (n-BR) measures the resistance to breathing of the bronchial airways after histamine dihydrochloride challenge. Although objective evidence is slow emerging in regard to the effect of chiropractic care on respiratory function.\(^9\)

**HOMEOPATHY**

Homeopathy treats the person as a whole. It means that homeopathic treatment focuses on the patient as a person, as well as his pathological condition. The homeopathic medicines are selected after a full individualizing examination and case-analysis, which includes the medical history of the patient, physical and mental constitution etc. and can be used over a long period of time without adverse effects. Homeopathy is one of the most popular holistic systems of medicine. The selection of remedy is based upon the theory of individualization and symptoms similarity. This is the only way through which a state of complete health can be regained by removing all the sign and symptoms from which a patient is suffering. The aim of homeopathy is not only to treat asthma symptoms but to address its underlying cause and individual susceptibility of the patient, in an effort to cure asthma. The aim is to cure the patient and not just palliate the symptoms of asthma. For this, patient's current symptoms, past medical history and family history are taken into account. There are many homeopathic remedies which cover the symptoms of asthma and can be selected on the basis of cause, location, sensation, modalities and extension of the symptoms. Some important remedies are Aconite, Kali Carb, Thuja, Natrum Sulph, Belladonna, Ipecac, Aspidosperma, Blatta O, Kali Bi, Kali Phos, Sulphur, Lycopodium, Lachesis, Arsenic Album, Bryonia, Anti Tart, Medorrhinum and many other medicines.\(^10\)

**HYDROTHERAPY**

"Hydro" means water, "therapy" means cure. Water is essential to life not only as something to drink. It is either used in its pure form or with suggested amounts of substances dissolved in it. Water is used internally and externally not really "to cure" but to aid in managing. It increased blood flow, nutrient delivery to the cells, oxygen absorption, metabolism, and waste products being taken away from cells. Tissue tonicity will depend on the temperature causing stimulation, i.e. hot will decrease tissue tone. Lying supine, place a hot, wrung-out towel over the chest to relax bronchial muscles and inhale steam by adding a few drops of eucalyptus oil to a bowl of hot water; drape a towel over the head and lean over the bowl inhaing until respiration returns to normal.\(^10\)

**MASSAGE THERAPY**

Massage Therapy is an ideal treatment. Percussion, drainage of fluids through changes in posture, soft tissue manipulation and joint mobilizations, can give people much needed relief from their symptoms. Chronic lung disease can cause other problems such as decreased rib cage mobility and neck problems. Because other muscles, besides the primary respiratory...
muscles, are being used to breath, the muscles in the neck and elsewhere become overtaxed as they compensate for the lack of normal movement in the rib cage in order to get oxygen to the lungs.\textsuperscript{11} As well, people suffering from this disorder generally have high tension and stress levels. Massage therapy has been commonly used for respiratory diseases as part of their treatment. Patients with chronic obstructive pulmonary diseases (COPD), emphysema, bronchitis, asthma – where necessary breathing muscles are taxed and rib cage mobility is decreased, have benefited from manual therapy treatment to where there is improved forced vital capacity, respiratory rate and chest expansion.\textsuperscript{12}

\textbf{NATUROPATHY}

Naturopathic treatment of asthma involves using both herbal medicines and nutritional supplements that help to modulate the immune system and reduce the inflammatory response associated with asthmatic attacks. This type of treatment is very effective, and patients usually report that they can breathe easier, have more energy and that their sleep is also improved. Dietary changes can also help. Reducing dairy and sugars can help to reduce asthmatic symptoms, especially where there is chest tightness and congestion. Ensuring that to eat foods which are high in vitamin C and bio-flavonoids such as berries, kiwifruit, pineapple, capsicum, onions, goji berries, chilli, papaya and citrus fruit and peel. Naturopathic treatment of asthma is safe in children and babies, who respond very well to treatment within a short period of time.\textsuperscript{10}

\textbf{REIKI THERAPY}

It is a complementary therapy in which a trained practitioner places his or her hands on or above a specific body area and transfers what is called "universal life energy" to the patient. That energy, it is claimed, provides "strength, harmony, and balance" necessary to treat health disturbances. The therapy, derived from an ancient Buddhist practice, involves a total of 15 hand positions covering all the body systems. Reiki (pronounced "ray-kee") is a therapeutic technique in which healing energy is channeled, or conducted, through a practitioner's hands into the person receiving the treatment. It is believed that Reiki brings the body into emotional and spiritual balance, supporting the body's natural ability to heal itself. One of the greatest Reiki healing health benefits is stress reduction and relaxation, which triggers the body's natural healing abilities (immune system), aids in better sleep and improves and maintains health.\textsuperscript{13}

\textbf{SALT THERAPY}

Salt therapy, or 'halo therapy', is a pain-free alternative treatment that uses dry sodium chloride to help relieve respiratory problems. By sitting in the Salt Room for a prolonged period, low concentrations of salt are delivered to where it is most needed – deep in the lungs, where the salt then dissolves phlegm in the bronchial tubes and kills micro-organisms that cause infections. The phlegm, allergens, bacteria and any small impurities are later coughed up by the patient or leave the body through other natural metabolic ways. The treatment works to reduce the basis of inflammation by destroying bacteria and strengthening the immune system.

\textbf{Salt Therapy is clinically proven:}

\begin{itemize}
  \item To clear mucus from the airways thus removing airflow obstruction
  \item To enhance muco ciliary clearance mechanism in both asthmatic and healthy subjects
  \item To balance airway-surface liquid
  \item To provide anti-inflammatory and bactericidal effects
  \item To reduce bronchial hyper responsiveness
  \item To improve lung function
  \item To help clear unwanted inhaled particles from lungs
\end{itemize}

Salt therapy helps to treat all four major processes acting on the bronchi: inflammation, excessive mucus, spasm (bronchospasm), and hyper reactivity. In most patients, after the course of Salt therapy, airways become normal and symptoms disappear.\textsuperscript{14}

\textbf{YOGA (PRANAYAMA) THERAPY}

Breathing in a yogic way can lessen a child's hyperactivity, relax muscles and open the windpipe. Pranayama means the expansion of life force through breath control. Prana=life force. Yama=control, or discipline. Ayam = expansion. Asthma comes from the Greek word panting. In a Pranayama practice various
breathing techniques are utilized that induce and enhance relaxation, concentration (Dharana), and meditation (Dhyana). Pranayama is about making the unconscious act of breathing. It is essential to breathe properly in order to make this process more efficient and to balance the oxygen, carbon dioxide and other soluble gas levels in the blood. Since few of us are immune to the constant stresses and strains of modern life, most of us tend to take short shallow breaths, using only a half to two thirds of our lung capacity. Anatomically, the breathing techniques improve the strength of the diaphragm and the capacity of the lungs to improve the efficiency of the respiratory system, helping to increase fitness and increase the amount of oxygen entering the blood stream per breath. This oxygen helps to provide essential energy for muscle and brain function resulting in:

- Increased efficiency of each breath
- Increased lung capacity
- Increased flow of oxygen to all parts of the body
- Increase concentration, creativity and cognitive brain functions
- Increase relaxation and calmness by releasing tension
- Improved mind and body control, helping control emotions and relieve tension
- Improved abdominal and diaphragm control and strength.

**DRAWBACKS IN COMPLEMENTARY THERAPIES**

In most cases complementary alternative medicine does not heal instantly. Alternative medicine is not about popping pills, suppressing symptoms (although sometimes that is part of it). Addressing only physical imbalances without addressing issues of the mind and spirit only bring about partial benefits at best. A skilled person can only perform this complementary therapies. As this therapies consume lot of time, asthmatic children and their caretakers cannot undergo this therapy regularly, so they will not attain positive outcome.

**CONCLUSION**

Although individuals are using Complementary and Alternative Medical (CAM) therapies to help manage their asthma, there is no clear direction in the current guidelines for the use of CAM in asthma. This literature review undertakes to determine the current science regarding the use of CAM in asthma management. The 15 final studies were grouped within three categories: mind-body and relaxation, manual therapies, and diet and reviewed for statistical and clinical significance, suggesting some CAM therapies have shown minimally significant improvements in pulmonary function (relaxation) and immune function (relaxation and acupuncture) in selected asthmatic population. There is insufficient evidence to support the use of some of the CAM therapies like Chiropractic technique, Alexander technique, Aroma therapy, Hydrotherapy for patients with asthma. There is a need to conduct adequately-sized RCTs that examine the effects of manual therapies on clinically relevant outcomes. Further, research has demonstrated the clinical effectiveness of many CAM interventions and recent studies have shown that CAM is cost-effective. The widespread use of CAM therapies has implications not only for research but also for the education of conventional health care professionals. Health care professionals need to be informed about CAM and knowledgeable enough to discuss with their patients about CAM therapies. Although the content and organization of an individual educational program on CAM will vary from institution to institution, it is important for the health care professional schools to incorporate sufficient information about CAM into their curricula to enable licensed health care professionals to competently advise their patients about CAM. Furthermore, advances in understanding and applying CAM that derive from basic or clinical research should be incorporated into the pre-professional and continuing education programs of all relevant health professionals.
REFERENCE