Review Article

Role of Yoga in Pregnancy with Asthma

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ABSTRACT

Asthma is a heterogeneous disease, usually characterized by chronic airway inflammation. It is defined by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, together with variable expiratory airflow limitation. Asthma is one of the most common chronic diseases worldwide with an estimated 300 million affected individuals. It is very common during pregnancy, it affects about 3-14% of the pregnancies. Pregnancy is a unique state of physiologic stress which demands physical, mental, and social adaptation. Researches in this field are very limited; therefore this review article will be helpful in updating the knowledge about disease and drugs that can help in satisfying the attending people, with an assurance that prenatal prognosis is not less than better as compared to pregnant women without asthma. Frequent monitoring of both mother and fetus to ensure symptom free pregnancy and a healthy baby is necessary. Yoga is one of the complementary medicines which are helpful in relaxing the muscles, releasing anxiety, improving blood circulation, respiration etc. Yoga uses a holistic approach to stress reduction and has been used to promote positive health for centuries. A regular practice of yogasanas, pranayama and meditation provide the relaxation and sound sleep in the pregnancy. It works as healing therapy to the mother and child too.

Keywords: Complementary, heterogeneous, holistic, meditation, pranayama, pregnancy

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INTRODUCTION

Asthma is a chronic airways disease characterized by reversible airway obstruction, allergic inflammation and airway hyper- responsiveness [1]. The incidence of asthma continues to rise worldwide, doubling over the last 10 years [2- 3]. Asthma is the most common condition affecting the lungs during pregnancy. Asthma affects between 3- 14 % of the pregnancies [4-7]. Many women worry about how the changes of pregnancy will affect their asthma and if asthma treatments will harm the baby. With appropriate asthma therapy, most women can breathe easily, have a normal pregnancy, and deliver a healthy baby. Overall, the risk of poorly controlled asthma is much greater than the risk of taking medications to control asthma [8].

Asthma therapy during pregnancy is most successful when a woman receives regular medical care and follows her treatment plan closely. The severity of asthma during pregnancy varies from one woman to another. Unfortunately, it is difficult to predict the course that asthma will follow in a woman's first pregnancy. During pregnancy, asthma worsens in about one-third of women, improves in one-third, and remains stable in one-third [9].

Asthmatic patients becoming pregnant may require medical intervention in more than 50% cases of severe asthma. Incidence of asthma in pregnant women is 3.7 to 8.4% before two decades [10-13]. The impact of pregnancy on asthma and vice versa can be observed as exacerbation or reduction or no change in symptoms in equally divided

number of patients in each group. Those showing improvement in symptoms of asthma may be related to escalated levels of circulating free cortisol, reduced bronchomotor tone and increased levels of serum concentrations of cyclic adenosine monophosphate. Those with worsening of asthma symptoms are possibly exposed to fetal antigens and due to altered cell-mediated immunity [14-15]. Asthma is common during pregnancy; however research is limited regarding the extent and timing of changes in asthma management associated with pregnancy [16].

Effect of Asthma on Pregnancy- Uncontrolled asthma may cause placental hypoxia due to reduced maternal oxygen. The placental adaptation response to this situation occurs in the form of increased capillary growth and branching, increased proliferation of trophoblast and tinning of placental barrier, that allows rapid oxygen transfer into the fetal circulation. Despite these placental compensatory efforts, intra uterine growth retardation is often observed in these pregnancies.

Adverse effects of asthma on pregnancy outcome may include low birth weight, preterm birth, very small or small for gestational age and other congenital anomalies. In addition, maternal asthma may precipitate increased hypertensive disorders in pregnancy, placenta praevia and more number of caesarean at the time of delivery.

Therapeutics- Both short and long acting β-2 agonists can safely be used during pregnancy in asthma patients, with causing adverse effects on pregnancy outcome or teratogenic effect. Inhaled corticosteroids, both short and long acting, have a safety profile as no adverse effects on alteration of placental or fetal development during pregnancy have been reported. Oral glucosteroids need preferably be avoided as low birth weight neonates at term have been reported with their use, no such reports of low birth weight or small for gestational age infants have been documented with use of inhaled corticosteroids in asthma patients during pregnancy.

Hence, update knowledge about the disease and drugs can help in satisfying the attending people, with an assurance that perinatal prognosis is not less than better as compared to pregnant women without asthma. Frequent monitoring of both mother and fetus to ensure symptom free pregnancy and a healthy baby is necessary.

In 68.4% of pregnancies among women with evidence of asthma ending in a delivery, a prescription was issued for a SABA. Prescriptions were issued for an ICS, LABA, or a combination product in 41.2%, 4.9% and 8.9% of pregnancies respectively. A further 0.1% who were not prescribed a SABA, ICS, or LABA-containing medicine received a prescription for an alternative asthma therapy (e.g. leukotriene receptor antagonist, antimuscarinic bronchodilator, theophylline, or cromoglicate) during pregnancy. Salbutamol was the most commonly prescribed SABA whilst salmeterol was the LABA that individuals had received the most. Over 80% of all prescriptions for the ICS-class were for beclometasone formulations, whereas Seretide® (fluticasone and salmeterol) was the most commonly prescribed combination product [16].

Asthma Exacerbations during Pregnancy- The percentage of pregnancies with at least one asthma exacerbation increased with the level of asthma treatment intensity. The percentage of pregnancies affected by at least one exacerbation was 1.0% in individuals whose asthma treatment intensity was classified as ‘mild’, 4.8% for ‘moderate’ and 8.0% in those classified as having ‘considerable to severe’ asthma [17].

The increases and decreases observed in the studies at some extent which indicate worsening and improvement of asthma activity and/or asthma control although it is accepted that some women may choose to stop taking their asthma medicines when they become aware they are pregnant and others may choose to become more compliant during pregnancy in an attempt to reduce the likelihood of an exacerbation of their asthma.

No significant associations between exacerbations during pregnancy and preterm delivery or pre-eclampsia were identified. Inhaled corticosteroid use may reduce the risk of exacerbations during pregnancy [17]. Pregnant women may be less likely to receive oral steroids for the emergency management of asthma. The

effective management and prevention of asthma exacerbations during pregnancy is important for the health of both the mother and fetus.

Yoga has been considered the best complementary and alternative medicine by the National Institutes of Health. None of the side effects of yoga are determined. A regular practice of yogasanas, pranayama and meditation provide the relaxation and sound sleep in the pregnancy. It works as healing therapy to the mother and child too. The word "yoga" comes from a Sanskrit root "yuj" which means union, or yoke, to join, and to direct and concentrate one's attention [18-21]. Regular practice of yoga promotes strength, endurance, flexibility and facilitates characteristics of friendliness, compassion, and greater self-control, while cultivating a sense of calmness and well-being [22]. Sustained practice also leads to important outcomes such as changes in life perspective, self-awareness, and an improved sense of energy to live life fully with genuine enjoyment [23].

Reduction in panic of anxiety element and cutting the vicious circle of aggravating bronchial obstruction possibly appears in relieving the acute episode of asthma through yogic exercise [23]. However, it would appear more logical that regular yoga practice would improve body resistance and reduce the gravity of attacks over a period of time. An integrated approach to yoga during pregnancy is safe. It improves birth weight, decreases preterm labor, and decreases IUGR either in isolation or associated with PIH, with no increased complications [24].

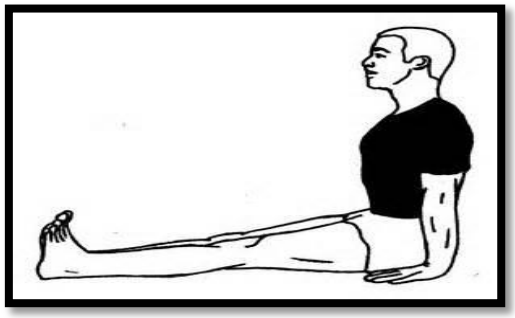
Pranayama is also known as 'yogic breathing' or 'controlled deep breathing'. *'Prana'* means energy in Sanskrit and *'ayama'* means distribution of energy. *Pranayama* included yogic breathing practices to achieve a slow rhythmic pattern of breathing. The instructions for this included (a) slow down the breath rate, (b) exhalation to be made longer than inhalation, and (c) develop an internal awareness. A prolonged easy, slow exhalation is the safest way to get mastery over the mind. Meditation, considered to be a part of yoga, (*antaranga* yoga) is a valuable tool to calm down uncontrollable surge of negative emotions.

Yoga in Pregnancy with Asthma-
Asanas

1. Dandasana

Method- Dandasana is the foundation of all seated asanas -- forward bends and twists. Sit with the legs outstretched straight in front. Engage the thigh muscles and flex the feet. The heels may come up off the floor. Make the spine long. Stack the shoulders directly on top of the hips.

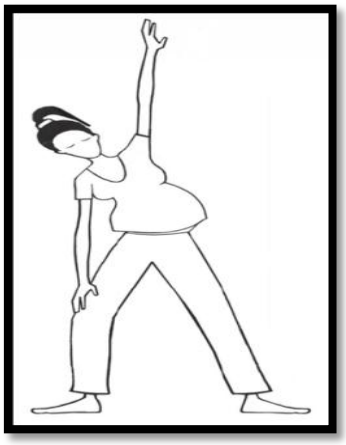
Benefits- Helps to improve posture, strengthens back muscles, lengthens and stretches the spine, helps to relieve complications related to the reproductive organs, stretches shoulders and chest, nourishes body's resistance to back and hip injuries, helps to calm brain cells, improve functionality of the digestive organs, creates body awareness, improves alignment of body and provides a mild stretch for hamstrings.



2. Trikonasana (Modified Triangle Pose)

Method- Stand with feet wide apart and arms extended at shoulder level parallel to the floor then stretch the left hand overhead and bend down to the right side and touch the knee. Look up towards left hand. Return to starting position and switch sides.

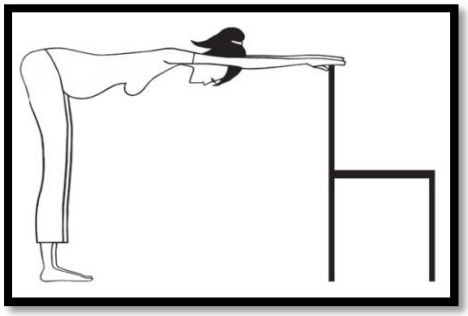
Benefits: This pose regulates the digestive system and massages internal organs like the liver.



3. Modified Forward Bending

Method- Stand straight in front of a chair. Lift both arms and reach towards the chair; press palms on the chair. Keep the back straight and bend from hips. Hold for few seconds and return to standing position.

Benefits- Helpful in releasing backache and spinal stress.

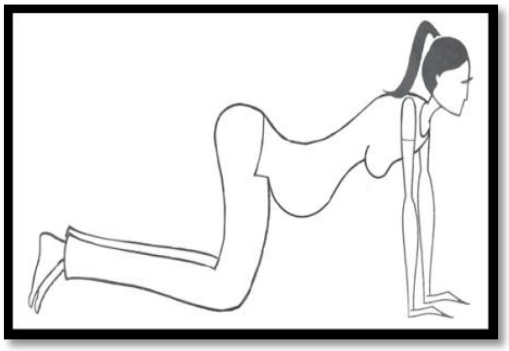


4. Cat-camel pose

Method- Get down on all fours (hands and feet) on your mat. Place the hands directly below the shoulders. Now lift backbone up towards the ceiling so that the lower back is concave. As do this the head will lift up naturally towards the ceiling.

Now round the back like the hump of a camel and roll the head towards chest. Make the movements as fluid as possible. Imitate a cat and then a camel. Arch the spine like a cat and then lift it up like the hump of a camel.

Benefit: Helpful in releasing spinal stress



5. Butterfly pose (Titliasana)

Method- Sit with legs outstretched on the mat. Bend the knees and bring feet in as close as possible, towards the body. Bring the soles of the feet together. Keep spine straight and gently move legs down and up, resembling the movement of a butterfly as it flaps its wings.

Benefits: Enhances flexibility of hip joints, ensures good blood supply to legs, and relieves sciatica pain, crams, and numbness of legs.

6. Prvatasana

The body assumes the shape of a hill in this Asana hence it is named Parvatasana. This Asana has come through tradition. Its reference is not found in old texts but the tradition is very old.

Method- Sit in Vajraasana, raise the hands towards sky and keep palms facing each other. Catch hold the fist of one hand with the other hand and stretch the hands upward as the body raised. After maintaining it for some time, loosen the hands and then practice it again.

Benefits- This makes spine flexible and massages the internal organs, Visceroptosis and pain in backbone is removed. It is beneficial in constipation and removes seminal weakness.

7. Shavasana

Lying supine on the ground like a corpse is Savasana. Savasana wards off fatigue and brings mental repose. This Asana is supposed to be selaxative Asana. This is very useful in removing the fatigue created due to the practice of other Asanas.

Method- Lie flat on the back, feet comfortably apart, arms and hands extended about 6" away from the body, palms facing upwards with half-folded fingers. Close your eyes and gently relax your feet, keeping

them completely still. Then relax your knees, chest and the arms. Keep both your hands still to achieve a relaxed position. Concentrate next on the head. Move it gently to the side, let it rest and keep it free of all thoughts. Then concentrate the mind on rhythmic breathing. Breathing should be as slow and as effortless as possible. Thus, all parts of the body are loosened to create a state of complete relaxation, which should be maintained for 10 to 15 minutes.

Benefits- This asana is practiced soon after the practice of other asanas, through this, fatigue is removed. Beneficial in high blood pressure, and cardiac diseases and for the people suffering from neurosis and fear complexes.

Pranayama-

1. Nadishodhan (Anulome- Vilome)- Sit in any comfortable posture: Padmasana, Siddhasana or Sukhasana, Vajrasana. Make the breathing normal. Close the right nostril with right thumb and fill in the breath through the left nostril. When the breath has been filled inside, close the left nostril with third finger and stay in this state of Antrik Kumbhaka for a few seconds. Then lift the thumb from the right nostril and exhale slowly, keeping the left nostril closed. Repeat the process by inhaling through the left nostril and exhaling through the right nostril.

Benefits- It reduces the calmness and tranquility. Purification of cells and brain take place, body gets extra oxygen. Hypertension is reduced. Body becomes mentally and physically healthy.

2. Kapalbhati- Sit in any comfortable asana and try to throw the breath out through nose with force. Don't make any effort to inhale. In the beginning, do it for 15-20 times then increase the number gradually according to the capacity.

Benefits- It provides rest to the mind and increases the power of concentration through removal of impurities.

Meditation- "Soham" means "He I am" or "I am He", "I am Brahman." "Sah" means "He." "Aham" means "I." This is the greatest of all Mantras.

Procedure- Sit in a suitable posture facing north, close the eyes and focus on mind at the tip of the nose. Inhale slowly chanting "SO" mentally. Retain the breath for 5 seconds then exhale the breath slowly chanting "HAM" mentally. Repeat "SO" and "HAM" breathing meditation for 10 to 20 minutes daily in the morning and evening.

Benefits- It purifies and calms the mind. Tranquility of the mind is attained. It eliminates fatigue and stress and so improves physical fitness and relaxation. It is beneficial to psychiatric, mental illness, insomnia and hypertensive persons. It improves the lung function in healthy and asthmatic persons.

CONCLUSION

Yoga is one of the complementary medicines which have a great impact on the human body. The main finding of this review suggests that the practice of yoga can be helpful in pregnancy with asthma. Global Initiative for Asthma Management (GINA) has also considered breathing technique (Beutyko) as an adjuvant therapy for the better management of Asthma. This review provides some evidence that yoga may be an effective tool in the management of asthma and can be practiced as an adjuvant therapy to standard medical therapy for better outcomes.

CONFLICT OF INTEREST

(If present, give more details): None

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