



ASTHMA IN PREGNANCY

Asthma is a common pulmonary (lung) disorder and commonly concurs with and affects pregnancy. It is estimated that between 3% and 4% of the general population is affected by asthma. Approximately 1.0% of pregnancies are affected by asthma. In addition, 0.2% of pregnancies are complicated by the most severe form of asthma (status asthmaticus), which often requires intubation and ventilation (placement of a breathing tube). Annually, over 4000 deaths are attributable to asthma in the United States.

Q. WHAT IS ASTHMA?

A. Asthma is a pulmonary disorder characterized by airway obstruction. Due to some irritating stimulus, the bronchi (smooth muscle lined tubes that bring air from the trachea to the lungs) spasm and constrict. An associated increase in mucus secretion, causes fluid secretion and swelling around the bronchi. This leads to difficulty in breathing, which is improved when the allergic responses are corrected and oxygen is administered. Stimuli that can cause asthma attacks include chemical irritants, viral or bacterial infections, cold air, and exercise.

Q. WHAT ARE THE SYMPTOMS OF ASTHMA?

A. A typical asthma attack begins with a sudden onset of wheezing and difficulty breathing. Severity of asthma ranges from mild disease with mild wheezing that is relieved with medication, to severe obstructive disease with severe constriction of the bronchi and associated decreased oxygenation of the blood. The latter may lead to the need for mechanical ventilation with a breathing tube, or if left untreated, death.

The natural physiologic response to bronchial constriction is hyperventilation (an increase in respiratory rate). With a mild asthma attack, this is often enough to compensate for the decreased oxygen flow. As the asthma episode worsens and oxygenation continues to decrease, the patient may be unable to compensate. In this circumstance the patient often becomes weak, which may actually decrease the respiratory rate. Eventually, the patient may require breathing support with a ventilator. Physicians can measure levels of oxygen and carbon dioxide in blood (by obtaining a "blood gas") to determine the severity of the respiratory problems.

Q. HOW IS ASTHMA DIAGNOSED?

A. Asthma is usually diagnosed by clinical assessment. The three main symptoms are wheezing, shortness of breath, and coughing. In mild asthma, wheezing is usually noted at the end of respiration. As asthma becomes more severe, wheezing may be noted throughout respirations. If wheezing has been heavy and then stops,

this may mean the asthma has progressed to complete obstruction of the airways. Patients with asthma often have increased heart rates. They may appear to have significant difficulty breathing, with notable use of the muscles in the neck and chest in an attempt to try and support breathing. Pulmonary function tests may be performed in your physician's office or a pulmonary lab. A bronchoprovocation challenge (test where the patient is exposed to an irritant and pulmonary function is measured) may be performed to get a definitive diagnosis of asthma.

Q. HOW IS ASTHMA TREATED?

A. Treatment basically involves relief from the acute phase of asthma and subsequent long-term therapy. Management of an acute asthma attack initially involves intense monitoring in either the emergency room or in a hospital bed. The patient will receive intravenous fluids to help clear the excess mucus secretions. Supplemental oxygen is often provided by a large facemask. Blood oxygen levels will be monitored closely by pulse oximeter (a small meter placed on the finger to measure the percent of oxygen in the blood), as well as serial blood gas measurements that will be forwarded to the lab. Beta agonists are often prescribed for treatment of asthma. They are usually given in an inhaled form and cause smooth muscle dilation with subsequent relaxation of the bronchi.

Q. HOW DOES ASTHMA AFFECT PREGNANCY?

A. Asthma has a fairly unpredictable course during pregnancy. About 1/3 of women notice an improvement in their symptoms upon becoming pregnant, 1/3 notice a worsening that requires closer monitoring, and 1/3 notice no change in their asthma. Women with severe asthma are most likely to have worsening of their disorder during pregnancy. Studies have shown that women who undergo cesarean section are 18 times more likely to have an asthma attack following delivery.

The effects of asthma on pregnancy vary as well. Some studies have shown an increased incidence of preterm labor, fetuses that are small for gestational age, preeclampsia, and fetal/infant death. A woman who develops severe asthma during pregnancy may develop a need for mechanical ventilation.

Treatment of asthma during pregnancy is similar to treatment of asthma outside of pregnancy. Inhaled beta agonists (such as a Proventil inhaler or Albuterol inhaler) have become the mainstay for treatment of both acute and chronic asthma. Patients with mild asthma can use these products on an as needed basis. Patients with severe asthma may need to use them on a scheduled basis. Inhaled steroids are another option. Finally, cromolyn sodium is an agent that prevents some of the cells commonly involved in an allergic response from reacting (prevents degeneration of mast cells). If a patient does not respond to inhaled steroids, the physician may prescribe oral steroids. Due to the small dose of oral steroids used, no adverse effects on the fetus have been reported.

Women who experience an acute asthma attack during pregnancy should seek immediate medical attention. Initially, oxygen and inhaled beta agonists will be administered. The fetus will be constantly monitored. If there is no improvement, the patient will receive intravenous steroids. Although rare, if breathing continues to deteriorate, mechanical ventilation may be required.

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