Sleep Breathing Problems During Pregnancy

Mary Grace Bridges, MD, MPH and Serena Chen, MD Livingston, NJ

Many changes that occur during pregnancy can alter breathing function leading to problems during sleep, including worsening of sleep disordered breathing. Sleep disordered breathing is a condition categorized by frequent episodes of hypopnea (under breathing) and apnea (not breathing) during sleep. Sleep disordered breathing ranges in severity from snoring, its mildest and most common form, through to the most severe form in obstructive sleep apnea (OSA) syndrome. One of the most common symptoms of sleep-disordered breathing is snoring which is significantly increased during pregnancy.

Snoring is a sign of increased upper airway resistance and possible OSA. Obstructive sleep apnea occurs when there are repeated events of partial or complete upper airway collapse. This leads to apneas (interruption of airflow >10s) or hypopneas (decrease of airflow >10s) often leading to awakenings during sleep. OSA can also eventually lead to the progression of other chronic conditions such as high blood pressure and diabetes.

In pregnancy, respiratory physiology is changed by physical and hormonal conditions. Circulating estrogen and progesterone levels increase drastically during pregnancy. Some of these changes can either be protective and some may increase the risk of sleep-disordered breathing (SDB). Weight gain during pregnancy and elevation of the diaphragm due to the increasing size of the uterus can predispose women to SDB but sleeping on the side during pregnancy can be protective.

Openness of the upper airway plays a major role in the presence or severity of sleep disordered breathing. During pregnancy, the lining of the nose and pharanx becomes swollen because of over secretion of mucus. Additionally, the sizes of the upper airway are smaller during pregnancy. Some mechanical changes that occur include physical changes in the thoracic
cage. As the pregnancy progresses, the rib angle increases, the horizontal diameter of the chest expands and the chest circumference increases as well.

Often women with OSA will not know or recognize the symptoms and it is usually first noticed by their spouse or bed partner. The most common symptoms of OSA include:

Daytime sleepiness or fatigue

- Headaches
- Sudden awakening at night with the sensation of choking or gasping
- Night sweats
- Sexual dysfunction
- Decreased concentration and memory

Diagnosing obstructive sleep apnea involves an evaluation based on signs, symptoms, a physical exam and tests. A complete sleep history includes an evaluation of snoring, sleepiness severity, total sleep amount, nocturia, morning headaches and sleep fragmentation. Patients who are considered high risk should undergo a polysomnography or sleep study. A sleep study measures sleep cycles and stages by recording airflow, blood oxygen levels, body position, brain waves, electrical activity of muscles, eye movement, respiratory effort and rate, and heart rate.

Several options are available for treatment of OSA. There are medical, behavioral, and surgical options. Positive airway pressure (PAP) is the preferred treatment of OSA and involves splinting of the upper airway. It may be delivered via continuous (CPAP), bi-level (BPAP), or autotitrating (APAP) modes. Behavioral treatment options include weight loss, exercise, positional therapy and avoidance of sedatives before bedtime. Oral devices can also be used to improve upper airway patency by enlarging the upper airway. Although not as efficacious as PAP, oral devices may be indicated for use in patients with mild to moderate OSA who cannot tolerate PAP or
who do not respond to PAP and behavioral measures. Surgical treatment is another option for those patients in which other treatment modalities have failed.

References


Izci B et al. Sleep complaints, snoring and daytime sleepiness in pregnant and pre-eclamptic women. *Sleep Med*. 2005. 6, pp.163-169