

## Central Sleep Apnea

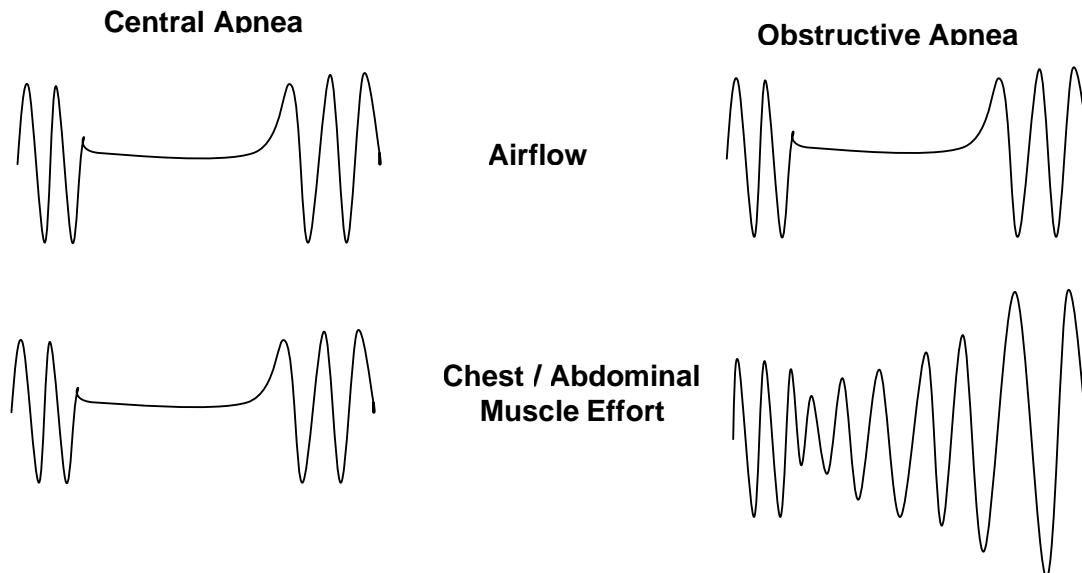
SDA Fact Sheet - AMS23

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An apnea is a temporary cessation of breathing. When measured in a complex sleep study (polysomnography) there are rules by which abnormal breathing events are classified. These use airflow and breathing effort as measured by movement of the chest and abdomen. When there is no airflow but there is effort to breathe, the apnea is called "Obstructive". When there is no airflow but no respiratory effort the apnea is called "Central". Mixed apneas start with no effort but effort develops during the course of the apnea.

When the majority of the abnormal breathing events are of the central pattern, the patient is said to have central sleep apnea. About 10% of patients with sleep disordered breathing have central sleep apnea (CSA).

As with obstructive sleep apnea (OSA) there are repeated interruptions to breathing during sleep, with daytime sleepiness. Insomnia or difficulty sleeping may also be reported. Loud snoring is not such a common feature as in OSA.



### Causes of Central Sleep Apnea

1. The brain may be slow to recognise or not respond to changes in oxygen and carbon dioxide levels when breathing decreases. This can occur in patients with longstanding obstructive sleep apnea due to dulling of the breathing reflexes. Heart failure may also cause central sleep apnea by causing a pattern of overbreathing followed by underbreathing or apnea due to slow circulation disturbing the normal reflex pathways. Other causes in this pattern of CSA include some medications (particularly narcotics) or strokes affecting the breathing centres in the midbrain.
2. Weakness of the diaphragm such as in neuromuscular disorders eg polio, or excessive stiffness and deformity of the chest wall may cause inadequate breathing (also called hypoventilation). In addition to the symptoms of disturbed sleep, there may be symptoms of carbon dioxide retention such as morning headache or confusion.

### Assessment of Central Sleep Apnea

Requires a thorough evaluation of all the possible causes and also a sleep study.

## **What can be done about Central Sleep Apnea?**

1. Medications – medications such as narcotics which may cause CSA may need to be reduced or stopped if possible. There are some medications which stimulate breathing which may be trialled.
2. Nasal CPAP may be effective.
3. Home ventilation is sometimes very successful, particularly in the neuromuscular weakness/chest wall conditions which cause hypoventilation.
4. If heart failure is present, this should be treated with medications, sometimes with the addition of oxygen therapy at night. There is also a new type of auto/ventilator which has been specifically designed for the treatment of CSA due to heart failure which may also need to be trialled if other treatments have not worked.
5. A diaphragm pacemaker is occasionally recommended (has been used in spinal cord injury patients or in congenital hypoventilation syndrome).

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