

Sinus Arrhythmia

Rebecca E. Gompf, DVM, MS, DACVIM (Cardiology)

BASIC INFORMATION

Description

Dogs can have several different (yet normal) rhythms to their heartbeats. Cats, however, should always have a very regular heartbeat, just as people do. When the heart rate is very regular, there is no variation in the time between beats, and the rhythm originates in the usual place in the heart (sinus node), the rhythm is called a *sinus rhythm*. The heart rate can speed up with exercise or slow down with sleep, but the time between beats at a given rate does not vary.

The word *arrhythmia* refers to an irregular heartbeat. Dogs and cats with a sinus arrhythmia have times when their heart beats faster and times when it beats slower. In contrast to a normal sinus rhythm, there is a variation in the time between the heartbeats.

Causes

The most common cause of sinus arrhythmia in the dog is increased vagal tone. The vagus nerve supplies many different areas of the body and can be stimulated when a disease occurs in any of these body systems. The most common diseases that increase vagal tone are gastrointestinal, respiratory, neurologic, and eye diseases. Heart disease is a very uncommon cause of sinus arrhythmia in the dog.

When the vagal nerve is stimulated, it causes variation in the time between heartbeats. This variation in time may be associated with breathing, or it may have no distinct pattern. If no pattern is detected, it is difficult to tell whether the rhythm is a sinus arrhythmia or a more pathologic (serious or dangerous) arrhythmia. Not being able to differentiate between sinus arrhythmia and a pathologic arrhythmia is of concern to your pet's veterinarian.

Increased vagal tone can occur in cats from the same diseases as in dogs, but sinus arrhythmia caused by increased vagal tone is very uncommon in cats. Sinus arrhythmia in the cat usually indicates that an underlying heart disease is present.

Clinical Signs

Dogs with a sinus arrhythmia often have no clinical signs from the arrhythmia itself, but they may have signs of an underlying

disease. On physical examination, your veterinarian may detect a random pattern of heartbeats that indicates an abnormal rhythm and problems in one or more of the body systems that affect vagal tone.

Cats with a sinus arrhythmia may have signs of heart disease. They may be quieter than usual and lack the energy to exercise. Breathing may be faster and harder than usual. Some cats with heart disease also cough.

Diagnostic Tests

The only test that can tell a sinus arrhythmia from another, more pathologic rhythm is an electrocardiogram (ECG). The sinus arrhythmia is easily differentiated from other rhythms with this very simple test. If a sinus arrhythmia is detected on the ECG, further testing may or may not be indicated. Depending on the clinical signs, laboratory tests and chest and abdominal x-rays may be recommended, as well as an echocardiogram (heart ultrasound) in cats.

TREATMENT AND FOLLOW-UP

Treatment Options

Since a sinus arrhythmia causes no clinical problems in dogs, no treatment is required. The underlying problem causing the sinus arrhythmia may require treatment; however. In cats, no specific treatment is usually administered for the sinus arrhythmia, but therapy is started for the underlying heart disease.

Follow-up Care

Your dog or cat may need additional ECGs to monitor the sinus arrhythmia if it has a very erratic rhythm. Periodically repeating the ECG is the only way to make sure another, more pathologic rhythm is not present. Other follow-up visits, monitoring, and testing may be required, depending on the cause of the sinus arrhythmia or the underlying disease.

Prognosis

Prognosis is excellent in dogs, because a sinus arrhythmia causes no clinical problems. Prognosis in cats depends on the severity and type of underlying heart disease present.