
Sick sinus syndrome

Definition

Sick sinus syndrome is a collection of heart rhythm disorders that include:

- Sinus bradycardia -- slow heart rates from the natural pacemaker of the heart
- Tachycardias -- fast heart rates
- Bradycardia-tachycardia -- alternating slow and fast heart rhythms

Alternative Names

Bradycardia-tachycardia syndrome; Sinus node dysfunction

Causes

Sick sinus syndrome is relatively uncommon. Sinus bradycardia occurs more often than the other types.

Tachycardias that start in the upper chambers of the heart are also common forms. These include atrial fibrillation, atrial flutter/tachycardia, and supraventricular tachycardia. A period of elevated heart rates is typically followed by very slow heart rates when the tachycardia ends.

Abnormal heart rhythms are often made worse by medications such as digitalis, calcium channel blockers, beta-blockers, and anti-arrhythmics. Disorders that cause scarring, degeneration, or damage to the conduction system of the heart can cause sick sinus syndrome.

Sick sinus syndrome usually occurs in people older than 50, in whom the cause is often a nonspecific, scar-like degeneration of the heart's conduction system.

In children, a common cause of sick sinus syndrome is heart surgery, especially on the upper chambers.

Coronary artery disease, high blood pressure, and aortic and mitral valve diseases may be associated with sick sinus syndrome, although those diseases may have nothing to do with the syndrome.

Symptoms

Usually, no symptoms occur. Symptoms that do occur are nonspecific and may mimic other disorders.

Symptoms may include:

- Chest pain or angina
- Confusion or other changes in mental status
- Fainting or near-fainting
- Fatigue
- Dizziness or light-headedness
- Sensation of feeling the heart beat (palpitations)
- Shortness of breath

Exams and Tests

The patient's heart rate may be very slow at any time. Blood pressure may be normal or low.

Sick sinus syndrome may cause symptoms of heart failure to occur or worsen. Sick sinus syndrome is diagnosed when the symptoms occur only during episodes of arrhythmia. However, this often is difficult to prove.

An ECG may show various abnormal heart rhythms related to this syndrome.

Holter monitoring is an effective tool for diagnosing sick sinus syndrome because of the episodic nature of the disorder. Extremely slow heart rate and prolonged pauses may be seen during Holter monitoring, along with episodes of atrial tachycardias.

An EPS (intracardiac electrophysiology study) is a very specific test for this disorder, although it is often unable to confirm the diagnosis. It is not often needed.

Exercise testing has not proven particularly effective as a screening tool.

Treatment

Treatment may not be necessary if you do not have any symptoms. Your doctor may review the medicines you take to make sure they are not making your condition worse. Do not stop taking any medication unless told to do so by your doctor.

A permanent implanted pacemaker may be needed if your symptoms are related to bradycardia (slow heart rate).

A fast heart rate (tachycardia) may be treated with medications. Sometimes a procedure called radiofrequency ablation is used to cure tachycardia.

Outlook (Prognosis)

The syndrome is progressive, which means it slowly gets worse.

The long-term outlook is excellent for those who have a permanent pacemaker implanted.

Possible Complications

- Angina
- Decreased exercised capacity
- Falls or injury caused by fainting
- Heart failure
- Inadequate heart pumping

When to Contact a Medical Professional

Call for an appointment with your health care provider if you experience spells of light-headedness, episodes of fainting, palpitations, or other symptoms.

Prevention

It may help to treat related disorders. You may need to avoid some medications, based on the guidance of your physician. Many times, the condition is not preventable.

References

Olgin JE, Zipes DP. In: Specific arrhythmias: diagnosis and treatment. In: Libby P, Bonow RO, Mann DL, Zipes DP, eds. *Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine*. 8th ed. St. Louis, Mo: WB Saunders; 2007:chap. 35.



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