

DEFINITION

1. **Sick sinus syndrome** is an impairment of either sinus node activity or of conduction of the sinus node impulse to the atria, resulting in bradycardia, sinoatrial block or sinus arrest.
2. In many cases, the bradycardia is complicated by paroxysms of supraventricular tachycardia (including atrial flutter and atrial fibrillation).

CLINICAL MANIFESTATIONS

3. Sick sinus syndrome is usually symptomatic, the symptoms varying with the type and duration of the rhythm disturbance. Faintness, palpitations, near syncope or syncope may occur. Exertional fatigue and dyspnoea result from the failure of physiological increases in heart rate. The frequency of rhythm disturbance is very variable, ranging from many times a day to intervals of several months.
4. The common ECG abnormalities, often switching from one to another, include:
 - Chronic or paroxysmal sinus arrest
 - Sinus bradycardia
 - Sinus exit block
 - Paroxysmal atrial tachycardia, flutter or fibrillation
 - Atrioventricular block, usually in older patients.
5. Patients with sick sinus syndrome are at risk of systemic emboli, probably related to prolonged periods of sinus arrest. The risk of this complication is greater in cases where atrial fibrillation becomes established.
6. Uncomplicated sick sinus syndrome is not life threatening so treatment, although relieving symptoms, does not influence the prognosis.
7. Drug treatment alone is rarely satisfactory because of the opposite requirements of the two phases of the tachycardia-bradycardia syndrome so electrical pacing, with drugs to control any tachycardia, tends to be the treatment of choice. Treatment with drugs alone is easier if atrial fibrillation becomes established.
8. Sinus bradycardia and sinoatrial block during sleep are physiological and are not evidence of the sick sinus syndrome if found during the nocturnal hours of a 24 hour ECG recording.

AETIOLOGY

9. Sick sinus syndrome may affect patients of all ages, but it occurs most often in the elderly.
10. The most common cause is idiopathic fibrotic degeneration of the sinus node which, in 20% of cases, is associated with idiopathic bundle branch fibrosis.
11. Other causes include coronary artery disease (particularly involving the right coronary artery), cardiomyopathy, myocarditis, congenital heart disease, surgery involving the atria, hypothermia and amyloidosis. In these cases, the aetiology is that of the underlying condition.
12. Sick sinus syndrome is aggravated by the use of cardioactive drugs including beta-adrenergic blockers, calcium channel blockers, digoxin, quinidine and amiodarone. Antiarrhythmic drugs may also precipitate the latent disorder.

CONCLUSION

13. **Sick Sinus Syndrome** is an impairment of either sinus node activity or of conduction of the sinus node impulse to the atria. Most cases are idiopathic, although the condition may occur as an integral part of other heart disorders.

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July 2001