Sick Sinus Syndrome

REFERENCE

WHAT IT IS

A disease of abnormal sinus node functioning, with resultant bradycardia and cardiac insufficiency

Symptoms come from decreased cardiac output and end-organ hypoperfusion from the rhythm abnormality

Commonly seen in the elderly, but sinus node dysfunction can affect all age groups

CAUSES

- Intrinsic: idiopathic degenerative fibrosis, ischemia, cardiomyopathies
- Intrinsic: infiltrative diseases — sarcoidosis, hemochromatosis
- Extrinsic: digoxin, beta-blockers, calcium channel blockers; autonomic dysfunction
- Extrinsic: hypothyroidism; electrolyte abnormalities such as hyperkalemia

CLINICAL & ECG FINDINGS

- Syncope, near-syncope, dizziness, fatigue, and palpitations
- ECG abnormalities are variable and intermittent
- Sinus bradycardia, sinus arrhythmia, sinoatrial exit block
- Sinus arrest — pause >3 seconds
- Atrial fibrillation with slow ventricular response; bradycardia-tachycardia syndrome

BRADY-TACHY SYNDROME

- Alternating bradycardia with paroxysmal tachycardia, often supraventricular in origin
- When the tachyarrhythmia stops, sinus recovery may be delayed — sinus pause or exit block
- If significant, that delayed recovery can itself cause syncope

Take Home Message:

A failing sinus node swings between too slow and too fast — expect syncope, pauses over 3 seconds, and brady-tachy swings.