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AV Nodal Reentrant Tachycardia (Supraventricular Tachycardia SVT)

What is AV nodal reentrant tachycardia?

AV nodal reentrant Tachycardia (AVNRT) is a condition that can result in episodes of an extremely rapid heart rate (160 to 220 beats per minute).

For most people who experience AVNRT, the episodes are just a nuisance, not life threatening. For people with severe AVNRT (frequent, long-lasting episodes that don't respond to conservative therapy), treatment may be required.

What causes AV nodal reentrant tachycardia?

The heart is divided into four chambers (left and right ventricles, left and right atria). These chambers contract in a rhythm to pump blood through your body. Electrical signals control this rhythm. The signal for a heart chamber to contract starts in the sinus node, a collection of cells located between the superior vena cava and the right atrium. The signal normally travels through the atria (upper heart chambers) and causes them to contract. It then travels through the AV node and on to the ventricles (lower chambers of the heart) and causes them to contract.

Patients with AVNRT have two pathways that can transmit these electrical signals between the sinus node and the AV node. These two pathways can, under certain conditions, create an electrical "short circuit", causing the electrical signals to revolve in the circuit. The revolving signal causes the ventricles to pump. This creates the abnormally high heart rate seen in patients with this disorder.

Who is at risk?

AVNRT usually occurs in young people, but it can occur at any age. Risk factors include smoking, caffeine, drugs, and drinking alcohol.

What are the symptoms of AVNRT?

People with AVNRT report a sensation of "feeling their heart beat", known as palpitations. The heart beats very rapidly, between 160 and 220 beats per minute. People with AVNRT report chest tightness and shortness of breath, as

well as anxiety. AVNRT can affect blood pressure, which can cause lightheadedness and even blackout spells.

How is AVNRT diagnosed?

The doctor will examine you and listen to your heart with a stethoscope. The doctor may recommend an ECG (electrocardiogram) exam during an episode. These episodes of rapid heartbeat occur intermittently. Because of this, it is sometimes difficult to capture information about the episode. Your doctor may recommend the use of a Holter monitor (a portable device used to monitor your heartbeats over a period of time in your own home) to try to catch on of these episodes. Your doctor might also recommend an electrophysiology study, which is a study of your heart's electrical system. This test is performed in a hospital.

How is AVNRT treated?

A common method for interrupting an episode of AVNRT is a "Valsalva maneuver". A Valsalva maneuver is accomplished by holding your breath and straining or coughing, or bearing down as if you were having a bowel movement. This maneuver is often used by people who experience mild episodes.

Massage of the carotid artery (the artery in the neck) has been known to interrupt episodes, but it should be done carefully, as carotid massage can severely lower your heart rate. It should be avoided in older patients as the blood supply to the brain can be compromised.

Medications can be used to treat AVNRT episodes that don't respond to Valsalva maneuvers or carotid massage. You can discuss with your doctor the medications used and their appropriateness.

Patients with frequent or prolonged episodes may be candidates for ablation therapy. This is a procedure that interrupts the short circuit pathway. A small tube or catheter is passed into the heart through a vein in the leg. The catheter is directed to the area of the AV node causing the tachycardia, and radiofrequency waves cause a small burn in the area, which interrupts the circuit. Successfully done, this cures the problem.