Biventricular pacing offers new option to some chronic heart failure patients

Mayo Clinic physicians are using biventricular pacemakers to help some patients whose only previous alternatives were extensive medications or a heart transplant.

Most pacemakers use leads only on the right side of the heart. Many people with a cardiomyopathy have slowed conduction of electrical impulses to the left ventricle of the heart, which impairs the heart’s ability to pump blood in a coordinated way. Recent studies have shown that stimulating the heart in such a way to avoid the delayed electrical impulses may help the heart beat more efficiently.

Biventricular pacemakers stimulate the right and the left ventricles in a coordinated fashion. Placing a lead directly in the left ventricle increases the risk of blood clots, so the lead is placed in a vein on the surface of the left ventricle, a coronary vein, instead of in the chamber. In addition to the leads that stimulate the right and left ventricles, a third lead is placed in the right atrium.

Some people with a cardiomyopathy also are at greater risk for a rhythm disturbance such as ventricular tachycardia or ventricular defibrillation. These rhythms are often treated with an implantable cardioverter defibrillator or ICD. The FDA has now approved devices that combine biventricular stimulation with ICD therapy.

Narcolepsy more common in men, most commonly originates in second decade of life

A Mayo Clinic study reports that narcolepsy, a sleep disorder, is more common in men and originates most frequently when patients are between 10 and 20 years old.

The study, which appeared in the March 15 edition of the journal Sleep, also found that narcolepsy without cataplexy is an important subgroup, warranting further study.

The records-linkage system of the Rochester Epidemiology Project was utilized to ascertain all patients with narcolepsy seen in Olmsted County, Minn., between 1960 and 1989. It was the first rigorous community-based epidemiologic study of the disorder in North America.

The incidence rate per 100,000 persons per year was 1.37 (1.72 for men and 1.05 for women). The incidence rate was highest in people in their 20s, followed in descending order by those in their 30s and then those below 10 years of age and those in their 40s. The prevalence on Jan. 1, 1985, was 56.3 per 100,000 persons. Thus, in a population of one million people, one might expect to find 560 narcoleptics and predict that 14 new patients will develop the disease each year. Approximately 36 percent of prevalence cases did not have cataplexy, a higher percentage than found in non-community-based studies.
Mayo Clinic researchers find epinephrine test useful for detecting long QT syndrome

Long QT syndrome is a genetic condition that affects the heart’s electrical system where the electrical recharging process (measured by the QT interval on the ECG) is longer than normal. Usually, patients have no problem with this condition, but certain triggers like swimming, intense physical exertion or being suddenly startled or frightened can set it off, causing fainting spells, seizures or even death from ventricular fibrillation.

Genomic medicine has helped Mayo Clinic researchers find a renewed use for a test once deemed unreliable in detecting long QT syndrome (LQTS). Researchers at Mayo Clinic’s Long QT Clinic discovered a unique response among certain patients with inherited LQTS when epinephrine was infused into their bodies, while being monitored with a 12-lead electrocardiogram. In the past when the genetic sub-types of LQTS were a mystery, the response to epinephrine was scattered and not definitive.

Long QT syndrome is the first genetically defined type of arrhythmia to be understood at the molecular level.

The study in the May issue of Mayo Clinic Proceedings identifies a specific response in people with type 1-LQTS (LQT1) compared with other genotypes of LQTS. LQTS affects about 1 in 5,000 people. Researchers at Mayo Clinic’s Long QT Clinic will continue to look for tests to detect other sub-types of LQTS.

---

CLINICAL TIP

Individuals suspected of having long QT syndrome should get an epinephrine QT stress test because the prolonged QT interval may not be present on the standard 12-lead electrocardiogram.

---

The QT interval measured from the start of the Q wave to the end of the T wave reflects the amount of time spent electrically recharging (repolarization) in preparation for the next beat.

![Normal QT Interval](image1)

![Prolonged QT Interval](image2)

---

If you have a question about Dialogue, or know of a physician who would like to be added to the mailing list, please call 507-284-9258.