

The Medical Minute: Putting the freeze on abnormal heart beats

February 25 2009, By Mario D. Gonzalez

(PhysOrg.com) -- In some people, the heart has a tendency to race due to abnormal electrical signals that tell the heart muscle when to contract. Abnormal electrical activation of the heart with changes in the rate or regular pace is called arrhythmia. This may happen even though the heart is otherwise normal.

The problem may be a short circuit due to an abnormal electrical connection between the upper and lower chambers of the heart. This is called Wolff-Parkinson-White syndrome. In some people, the short circuit develops in the normal electrical connection located between the upper and lower chambers. This is called AV node re-entry. Still others are born with or develop an extra pacemaker that sometimes fires very rapidly, also called atrial tachycardia.

As we get older, the normal electrical activation in the heart's upper chambers may become chaotic, which results in an arrhythmia called atrial fibrillation. Atrial fibrillation results in a rapid and irregular rhythm that is associated with palpitation, shortness of breath and other symptoms. The most serious complication of this arrhythmia is stroke, which may occur in some people.

A patient who has suffered one or more heart attacks over the years may develop an arrhythmia that originates from the heart's main pumping chamber—the left ventricle. This arrhythmia is called ventricular tachycardia and can result in fainting and even sudden death.

Many of the abnormal electrical signals that result in arrhythmias can now be cured or improved with a procedure called catheter ablation. This procedure is done in an electrophysiology laboratory under sedation. Thin wires (catheters) are placed in veins in the groin and precisely advanced inside the heart.

First, specialized doctors (electrophysiologists) pinpoint the abnormal electrical connections or scar tissue that is causing the arrhythmia. Then the catheter delivers freezing temperatures, or in most cases heat, to these abnormal areas to destroy them, thus preventing the recurrence of the arrhythmia. The success of this procedure ranges from 65-95 percent, depending on the type of arrhythmia and the extent of the problem.

Once corrected, most patients can resume a normal life within days of the procedure. Penn State Hershey Heart and Vascular Institute has the most advanced equipment and experienced electrophysiologists who perform these procedures on a daily basis. To learn more, visit www.PennStateHershey.org/rhythm.

Mario D. Gonzalez is a professor of medicine at Penn State Hershey College of Medicine and program director of electrophysiology at the Penn State Hershey Heart and Vascular Institute.

Provided by Penn State

Citation: The Medical Minute: Putting the freeze on abnormal heart beats (2009, February 25) retrieved 30 April 2024 from <https://medicalxpress.com/news/2009-02-medical-minute-abnormal-heart.html>

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