

Therapy™ Cool Path™ Ablation System

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Atrial fibrillation is a heart rhythm disorder that usually involves a rapid heart rate, in which the atriums are stimulated to contract in a very disorganized and abnormal manner. The four chambers of the heart are designed to contract in a very specific, coordinated way. An electrical impulse that signals your heart to contract in a synchronized way begins in the sinoatrial node, the heart's natural pacemaker.

The signal produced at the SA node travels through the two atriums then the signal passes through the atrioventricular node, and finally, through the ventricles. This path enables the chambers to contract in a coordinated fashion. However, defects in the SA node can cause arrhythmia or atrial fibrillation.

With atrial fibrillation, the atriums are stimulated quicker than normal and in irregular patterns. This makes the ventricles contract abnormally, leading to an irregular, commonly faster, heart rate. Though faster, the irregular pulse of the heart can lead to a lack of blood to the body.

The primary pathologic change that causes atrial fibrillation is atrial dilatation, abnormal growth near the SA node. Dilatation of the atria can be due to almost any abnormality of the heart that can cause a rise in the cardiac pressures. This includes heart diseases, hypertension and congestive heart failure.

Treatments for atrial fibrillation range from medicinal treatment to surgery. Drugs are used to keep the pulse down so that the heart has more regulated heart beats. Beta blockers, Calcium channel blockers and Digitalis all achieve this goal however with any medication come with side effects. In some cases atrial fibrillation can be cured with radiofrequency ablation. This is used to destroy abnormal tissue that causes a rapid heart beat to occur.

An ablation catheter for the heart has wires that run on the inside of the tube. The wires connect to an electrical system that allows the surgeon to view the heart's action

on a screen. A generator is also attached to the wire that delivers energy to the tip of the catheter. The RF energy generates heat that destroys the heart tissue responsible for causing an abnormal heart beat.

The Therapy™ Cool Path™ Ablation System is one of these ablation catheters and it differs in that it has a pump also attached that delivers fluids through the catheter to the ablation site to cool the tip of the catheter so that a larger amount of heart tissue can be destroyed. Since it will not over heat, healthy tissue will not be destroyed. This means that all of the problem causing tissue can be specifically targeted. The Ablation System is use in surgery as follows: the catheter is put into the femoral vein at the top of the leg. Next the catheter is then threaded through the vein into the chambers of the heart. Then the catheter end outside the body is connected to the electrical system that allows the physician to view the beating heart on a screen.

By watching the screen, the doctor can place the catheter in exactly the correct spot to treat the abnormal heart beats. Once the catheter is in place, the doctor turns on the energy from the generator to heat the heart tissue. This heat ablates a small part of the heart and eliminates the abnormal heart beat.

This method is most preferred and has a success rate of 93% in patients; however, there are instances in which this method can not be utilized. Infection in the blood or tumors on the inside of the heart prevent a save surgery. Thus the alternate methods must be used.

- <http://www.fda.gov/cdrh/mda/docs/P060019.html>
- <http://www.sjmprofessional.com/EN-US/ProductLibrary/Pages/Therapy-Cool-Path-Irrigated-Ablation-System.aspx>
- <http://www.sjm.com/procedures/procedure.aspx?name=Catheter+Ablation§ion=ExpectAfter>
- <http://www.americanheart.org/presenter.jhtml?identifier=4451>