

Radiofrequency ablation in the treatment of Wolfe Parkinson White syndrome.

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March 29, 2004

Wolfe-Parkinson-White syndrome is a condition in which an extra nerve pathway acts as a feedback loop between the atria and ventricles. This feedback overrides the normal delaying action of the atrioventricular node and produces a rapid heart rate characterized by a wide QRS complex when viewed on an electrocardiogram. The two main treatments for this condition are a drug regimen, which must be followed throughout the patient's lifetime, and destruction of the aberrant pathway through a process called radiofrequency ablation.

Radiofrequency ablation is a process of destroying tissue by heating it with electromagnetic radiation in the radio frequency range. This is accomplished by inserting a catheter into the patient's body and placing its conductive tip in or against the tissues that are to be destroyed and transmitting radio waves between this catheter and grounding pads that are placed on the patient's skin. This excitation heats and destroys the proximal tissues, which will eventually be replaced by scar tissue. The procedure is relatively painless and is performed as outpatient surgery.

The equipment required to perform the ablation consists of a signal generator, an electrode which is the focal point of the tissue destruction, and grounding pads which draw the energy from the electrode and allow it to travel through the target tissue.

In the treatment of Wolfe-Parkinson-White it is necessary to place the electrode inside the patient's heart. This is done by inserting a cardiac catheter into the patient's femoral artery and snaking it through the aorta and into the ventricles in a procedure similar to that required for angiography or balloon angioplasty. This can be done without stopping the heart and with the patient conscious and alert. The insertion of the catheter into the femoral artery is generally reported to be the most painful part of the procedure.

Radio ablation is also used in the treatment of breast and liver cancers. The tissues of these organs are much more tolerant to heat than the tumor tissues, so the process destroys the tumors and only a thin layer of surrounding cells. Because of the larger volumes of tissues which need to be destroyed in these cases the catheters used are often multi-tipped, with numerous electrode wires that can be extended from the tip of the electrode's shaft to form a shape similar to an open umbrella. Due to the specificity of the treatment (it destroys only those cells and tissues directly surrounding the catheter tip) it is used only for tumors that have been refractory to chemotherapy and other radiation treatments.

<http://www.emedicinehealth.com/articles/11051-6.asp>

<http://www.informedparent.com/articles/teplate.php?article=wolffsyndrome>

http://rf-ablation.engr.wisc.edu/start_heart.html