

Depth Sensor Improves Efficacy of Cardiac Ablation

Competitive Advantages

- ✓ Anticipate high demand from cardiac electrophysiology facilities.
- ✓ Ensures lesion depth is adequate to control arrhythmia
- ✓ Reduces need for repeat procedures.
- ✓ Prevents damage to surrounding tissues & introduces no additional risk.
- ✓ Incorporates easily into standard ablation procedure.

Cardiac arrhythmia is often treated with selective ablation of heart tissue. This blocks the heart's irregular electrical signals and restores normal rhythm.

In ablation, correct lesion depth is critical to a successful outcome. If too deep, the lesion can reach the lung, aorta, or esophagus and result in fatal complications. If too shallow, it may be inadequate to prevent arrhythmia.

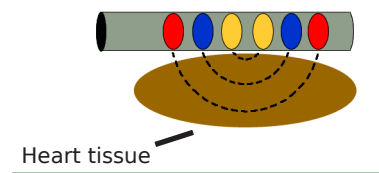
The Need for Feedback

A significant challenge to cardiologists performing ablation has been the inability to accurately judge the ablative energy required. This cannot be determined in advance, and the only attempted solution, electrical signal monitoring, has proven of limited value.

Measuring Lesion Depth

The technology proposed here is a catheter-mounted lesion depth sensor for use during the ablation procedure.

Electrode pairs measure signal amplitude



Pairs of electrodes are mounted along the sensor, sharing a midpoint and spaced with increasing distance from the interior to the exterior. Signal amplitude values are measured and fed to a processor, where differential values are calculated to determine signal attenuation. This provides an accurate measure of lesion depth.

With this tool, the cardiologist can adjust the energy and duration as the ablation proceeds. The result is a lesion that prevents arrhythmia but causes no damage to other structures.

Next Steps

After computer modelling, prototypes will be developed for animal testing.

Patent / Licensing Status

Patent pending. Exclusive rights available.

Learn More

Interview with Peter Spector
www.eplabdigest.com/articles/10-Minute-Interview-Peter-Spector-MD

Primary Investigator

Dr. Peter Spector
providers.fletcherallen.org/Default.asp?P=Y&PerPage=20&providerType=8&SpecID=61&Page=2&Sort=LastName&PageID=PHY001702

Case Manager

Todd Keiller
508/497-2497 (tel) 508/656-0733 (fax)
Todd.Keiller@uvm.edu
Given Building E201, Burlington, VT 05405