



Radiofrequency Ablation Using Independently Controlled Ground Pads

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Inventors: Fred Lee, Thomas Winter, Dieter Haemmerich, Lisa Sampson, S. Nahum Goldberg

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing an RF ablation system that disperses power and heat more effectively and prevents burns to the patient.

Overview

Radiofrequency (RF) tumor ablation involves the passing of an electrical current from a probe inserted into the tumor to a ground pad situated on the patient's skin. The high current density near the probe causes heating and ionic agitation within the tumor, eventually destroying, or ablating, it.

Unfortunately, the ground pad also heats up during this procedure and can burn the patient's skin, especially during prolonged ablations or when high-power generators are used to produce the current. To remedy this, RF ablation systems have been created that employ multiple ground pads to disperse the probe's exit current/power over a larger area. In practice, however, these systems can fail to prevent burns because even though several pads are in use, most of the power still disperses at the leading edge of the first pad.

The Invention

A team of researchers has now created a radiofrequency (RF) ablation system that rapidly switches power between several ground pads to disperse power and heat more effectively and prevent burns to the patient. Unlike current systems, this technology doesn't attempt to disperse power to all ground pads simultaneously. Instead, this system briefly disperses all of the probe's power first at ground pad 1, then at ground pad 2, and so on. As a result, the exiting power is evenly distributed among all the ground pads, preventing excessive heating of any one pad.

Applications

- RF ablation of tumors

Key Benefits

- Increases patient safety by greatly reducing the chance of ground pad burns during radiofrequency ablation procedures
- Provides a sophisticated system for sharing power between multiple ground pads that is independent of ground pad location; the electrical connection between pad and skin; the skin's ability in any one area to dissipate heat; and the relative resistance between the electrode and each ground pad
- Switching can occur between individual pads or groups of pads.
- Switching can take place according to a fixed schedule or in response to temperature or impedance feedback from each pad.
- Eliminates the need for precise placement of ground pads at equal resistive distances from the ablation site

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Additional Information

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WARF
Wisconsin Alumni Research Foundation

| info@warf.org | 608.960.9850

For More Information About the Inventors

- [Fred Lee](#)

Tech Fields

- [Radiation Therapy : Ablation](#)

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846

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