

A Clot Retrieval Electrode Catheter

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The following technology aims to re-vascularize or open an occluded artery in acute stroke and occluded vessels, which arise from other conditions. The technology utilizes a micro-catheter which is designed to deliver an electrode to the occlusion site and wire it to the clot by applying a positive pulse to the clot and consequently, building an attachment between the wire and the clot. The firm attachment between the wire and the clot enables the surgeon to pull the clot from the artery, minimizing the risk of clot fragmentation during the procedure.

The Clinical Need

An arterial occlusion with a clot leads to ischemia. In the case of ischemic stroke, the brain is damaged and neurological deficit arises, the severity dependent on the location of occlusion. The window to treat this occlusion and to prevent damage is short and on the order of 6-8 hours. Successful recanalization depends on the tools that the operator can use to reopen the vessel and reduce tissue damage. It is advantageous to use tools that avoid using strong blood thinners or thrombolysis; both of which can lead to secondary hemorrhage in the brain and increased damage. Due to the fact that not all clots require or respond to the same treatment, the need for a variety of thrombectomy methods is fueled.

The Potential Market

Stroke is the third leading cause of death and the major cause of disability in adults in the USA. In the USA, each year ~795,000 people experience stroke. According to the January 2009 report by Millennium Research Group (MRG) entitled "U.S. Markets for Plaque and Thrombus Management Devices 2009", the thrombectomy device market is expected to grow to more than \$875 million by 2013. This includes sales of both aspiration and mechanical devices.

Development Stage and Development Status-Summary

The electric signals administered through the electrodes were found to attach to the clot firmly, enabling the surgeon to pull the clot from the artery (much like other mechanical methods of thrombectomy). The technology was applied successfully In vitro and In vivo (swine, canine and rabbit). The animal experiments established feasibility and a great potential for the development of a clot retrieval catheter based on this technology. The treatment is based on low power electricity, it can be activated by a battery power supply, and In vivo safety tests related to the electrical risks indicated a positive potential to achieve the required human safety.

Goals and Benefits

Currently, there is not a retrieval device that can be applied in distal or small vessels. The present technology will enable the expansion of the frequency and efficacy of clot retrieval procedures, especially for small brain vessels.

Potential Commercial Uses

Occlusions removal in Acute stroke, Myocardial infarction, PAD-Peripheral Arterial Disease, Deep venous thrombosis, and Pulmonary emboli.

Research Team

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Patent Status

Patent Pending: USA, Europe, Israel.

Contact for Licensing and Investment Information

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