

A clot retrieval electrode catheter (BGN)

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The present technology aims to re-vascularize or open an occluded artery in acute stroke and other conditions involved vessels occlusion. The technology apply a micro-catheter, designed to deliver an electrode wired to the clot at the occluded site 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, minimalizing the risk for clot fragmentation during the procedure.

The clinical Need

An arterial occlusion with clot leads to ischemia. In ischemic stroke this mechanism causes damage to the brain and hence neurological deficit according to the involved area. The window to treat this occlusion and to prevent damage is short is up to 6-8 hours. Successful recanalization depends on the tools that the operator can use that allow reopening of the vessel and that will reduce the damage to tissue. There is an advantage for tools that avoid using strong blood thinners or thrombolysis that can lead to secondary hemorrhage in the brain and a larger 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, 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 the 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 could 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 isn't any retrieval device that can be applied in distal, small vessels. The present technology will enable to enlarge the occasions and the efficacy of the 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.


Patent status

Priority date: 03.11.2008, current status: Patent pending in US, Europe, Israel

Contact for Licensing Information

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