Non-Confidential Description - PSU No. 3159
“A Nerve Stimulation Device and Method to Lower Blood Pressure”

Field of Invention/Keywords:
Cardiovascular Electrophysiology

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Background

Hypertension, or high blood pressure, remains among the most serious diseases contributing to morbidity and mortality in the US. Among all patients with hypertension, at least 10% suffer from resistant hypertension, which is pharmacologically intractable. In such cases, an alternative treatment is activation of the blood pressure lowering baroreflexes via electrical stimulation of the baroreceptor afferent nerves. Baroreflex stimulation technologies, however, have not yet become clinically practical. The existing devices use continuous stimulation and require costly periodic surgical replacement. Moreover, it is not clear whether the continuous baroreceptor stimulation pattern that these devices employ is ideal for reducing blood pressure and minimizing nerve damage.

Invention Description

This invention is a novel electrical stimulation method that has been shown in animal experiments to produce a baroreflex response with greatly reduced power consumption and no damage to the nerve. The stimulation method either can be incorporated into existing baroreflex stimulation devices, or may be the basis of a new device. The new method is safer and more comfortable than present methods. Furthermore, a device using the new method possibly could function without need of an implanted power source, which would reduce the overall cost and complexity of the therapy.

Advantages

- Effective (less susceptible to loss of efficacy due to nerve desensitization)
- Safe (less likely to damage the nerve than continuous patterns)
- Readily implemented using existing neurostimulator design approaches.
- Amenable to significant reduction in device size, cost and complexity.
- Amenable to elimination of implanted battery.

Status of the Invention

Available for licensing