UNIVERSITY OF MINNESOTA
Driven to Discover℠

Syncope Warnings with Minimally Invasive Medical Device for Monitoring Blood Flow

Monitoring Blood Flow and Predicting Syncope with Minimally Invasive Medical Device

Technology No. z07166

IP Status: Issued US Patent; **Application #:** 11/127,055

Medical Device for Warning Patients of Fainting or Syncope

A minimally invasive medical device detects the onset of syncope, warns patients of oncoming episodes and records data to enable clinicians to assess the underlying cause of the disease and determine an appropriate treatment course. Syncope is a common form of fainting that involves a loss of consciousness. The device uses impedance electrodes implanted near an artery outside of the heart, such as the subclavian artery. The impedance between the electrodes gives a reading that correlates to the blood flow through the artery and tissue perfusion. By coupling this measurement with EKG data from the electrodes, the device can warn a patient before the onset of syncope or fainting, preventing collapse and injury. Since syncopal episodes occur unpredictably, and in most cases occur very infrequently, this device is well suited for monitoring patients to provide a better diagnosis of the cause of their fainting spells.

MN-IP Try and Buy

Try

- Trial period of 6 to 12 months. $5000/6 months.
- Fee waived if MN operating company or if sponsoring $50,000+ in research.

Buy

- Exclusive license for a $20,000 conversion payment.
- No patent expenses.
- 1.5% royalty after $1 million in product sales. 1.0% for MN companies.

Predicting Syncopal Episodes using Blood Flow Measurement

Currently, medical devices used to diagnose patients with fainting or syncopal episodes rely on EKGs to predict the syncopal episode. The method is limited because it can only predict cases of fainting that coincide with proportional changes in heart rate and misses a class of syncope that involves only local changes in tissue perfusion. The new device detects the onset of syncope or fainting, warns the patient of an oncoming episode, and records vital data to enable the clinician to assess the underlying cause of the disease and determine an appropriate treatment course. This device is especially vital to elderly patients who suffer from fainting because syncopal episodes in these patients often results in serious injury.

BENEFITS OF MEASURING BLOOD FLOW BY IMPEDANCE TO PREDICT THE ONSET OF FAINTING AND SYNCOPE:

- Minimally invasive fully implanted device is able to warn a patient at the onset of fainting
- Impedance between electrodes allows for instantaneous measurement of tissue perfusion
- Improves accuracy of determining when and to what degree therapy should be administered to treat inadequate tissue perfusion that results in syncope
- Provides real time detection of any discrepancies between blood flow and cardiac response
- Medical device allows for noninvasive evaluation of the patient and the cause of syncope
- Provides information to clinicians that is valuable in determining treatment options

Researchers: David G. Benditt, MD Professor, Cardiovascular Division, Medical School
Robert P. Patterson, PhD Professor Emeritus, Physical Medicine and Rehabilitation

https://license.umn.edu/product/syncope-warnings-with-minimally-invasive-medical-device-for-monitoring-blood-flow