



Technology Status

Prototype development and initial experiments are being performed.

IP Status

Patent Pending

Primary Inventor(s)

Jenna Iuzzo,
Jesus A. Cabrera, MD, PhD
Innovation Fellows Alumni,
Medical Devices Center

Paul Iuzzo, PhD

Professor of Surgery; Integrative
Biology and Physiology; and the
Carlson School of Management

Contact

Kevin Anderson
Technology Marketing Manager
612.624-8290
andersks@umn.edu

Case Reference

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www.license.umn.edu

Neuromuscular Blocking Agents Monitoring Device

Neuromuscular blocking agents (NMBAs) are administered in tandem with anesthesia for surgery. While NMBA's provide many benefits, excessive muscular block can cause complications and prolong hospital stays. During the perioperative state, neuromuscular blockade is routinely measured to monitor the anesthetic depth of the patient.

Description of the Invention

A device to measure anesthesia-induced neuromuscular blockade during the perioperative state (pre-operative, operative, post-operative, and recovery) has been developed. The device, called the BlockAid Patch, combines two electrodes and one sensor into a single, disposable adhesive patch. The patch delivers stimuli to the targeted muscle group and outputs the muscle response as a percentage of muscular blockage.

Train-of-four Alternative

Neuromuscular blockade is usually determined using a qualitative method, known as the train-of-four (TOF). A trained nurse or physician administers electrical stimulus to a patient's muscle, visually observes the resulting muscle twitch, and then records their qualitative determination of the magnitude of the response. The qualitative measurement is time-consuming, cumbersome, and subjective because it depends on visual observation. Quantitative devices exist, but most require careful calibration and the setup time is even longer than TOF. These devices are also expensive and often inflexible, requiring placement on a specific muscle group.

The BlockAid Patch eliminates the complicated and time-consuming setup and calibration requirements of other methods, provides accurate measurements through quantitative data collection and analysis, and can be used to target different muscle groups. The simple interface is user-friendly. It is significantly less expensive than other quantitative devices.

Benefits

- Faster, more accurate, and less costly than existing methods
- Eliminates complicated calibration steps
- Uses objective data instead of subjective measurements
- Works on three different muscle groups
- Combines two electrodes into one adhesive patch