MCIRCC
TRAUMATIC BRAIN INJURY

2017 Massey TBI Grand Challenge Award Winner (Traumatic Brain Injury)

Cerebrovascular Blood Volume Assessment Using Brain Bioimpedance

AWARD AMOUNT: $130,565

THE TEAM

EMERGENCY MEDICINE

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Co-Investigator

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Co-Investigator

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NEUROLOGICAL SURGERY

THE PROBLEM

Early monitoring of intracranial pressure (ICP) and cerebrovascular autoregulation (CAR) is crucial to preventing secondary injury to the brain.

- Current monitoring techniques need specialists
- Invasive methods can lead to infection
- No continuous readings

A non-invasive tool that uses the eye as a window to the brain to monitor and treat TBI

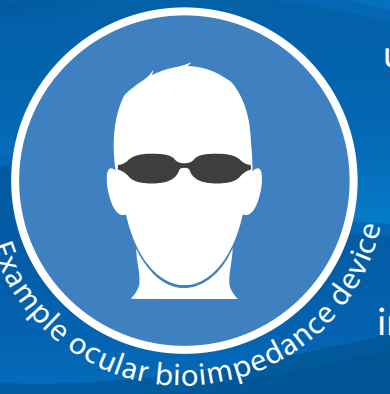
THE SOLUTION

A wearable eyelid sensor that uses ocular bioimpedance to assess ICP and CAR to help perform TBI diagnosis and treatment.

- Non-invasive, automated technology
- Does not require experienced operator
- Can be used through all echelons of care

THE TECHNOLOGY

Ocular bioimpedance (small electrical currents applied to the eye) tracks changes in cerebral blood flow to predict cerebrovascular autoregulation impairments, while ultrasound images of the eye using automated image analysis enables a non-invasive estimation of intracranial pressure.



Example ocular bioimpedance device