Automated Extracranial Internal Carotid Artery (ICA) Ultrasound Sensor for TBI

AWARD AMOUNT: $115,695

THE TEAM

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THE PROBLEM

Ischemia is the most common and devastating secondary insult to TBI patients, occurring when there is low blood flow to the brain. Currently, there is no way to non-invasively measure cerebral blood flow (CBF).

Invasive devices risk further complications
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Systolic blood pressure measures are often unreliable
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Sounds an alert if blood flow falls below goal threshold
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THE TECHNICAL APPROACH

An ultrasound sensor is placed on the external ICA, located on the neck, to non-invasively measure ICA flow volume, which serves as a surrogate marker for overall CBF.

Noninvasive, continuous measurement
✓
Sensor is easily applied to patient's neck
✓
Sounds an alert if blood flow falls below goal threshold
✓

THE SOLUTION

An ultrasound platform capable of measuring cerebral blood flow to prevent ischemia

The ultrasound sensor wirelessly transmits data to a server that calculates the ICA blood flow. When processed by an algorithm, ICA blood flow can be used to continuously monitor CBF.

If blood flow to the brain falls below a clinician-selected goal, the system sounds an alarm signaling the patient is at risk for ischemia.

Sensor sends data to transmitter

THE TECHNOLOGY