JOYCE MASSEY TBI INNOVATION FUND
2015 TBI Funded Research Projects

Funding was awarded based on the potential to impact the way TBI is diagnosed and treated during the initial “golden hours” of care.

NON-INVASIVE ASSESSMENT OF INTRACRANIAL PRESSURE

THE NEED

INVASIVE DEVICES

INFECTION & BLEEDING
INCREASED COST
SPECIALIZED MEDICAL EXPERTISE

Requires specialized equipment
Limited resources and time

THE TEAM

Venkatakrishna Rajajee, MBBS
Neurological Surgery
Kevin Ward, MD
Emergency Medicine
M. Hakam Tiba, MD
Emergency Medicine
Barry Belmont, MS
Biomedical Engineering

THE TECHNOLOGY

OCCULAR IMPEDENCE & ELECTRICAL IMPEDANCE TOMOGRAPHY
REAL-TIME VISUALIZATION OF OPTIC NERVE SHEATH (EYE-BRAIN CONNECTION)

USES ultrasound and impedance measurements of the eye to rapidly and non-invasively assess intracranial pressure in TBI patients during the early stages of care

COMPARATIVE ADVANTAGE

NON-INVASIVE
Assesses ICP and blood volume using ultrasound and impedance measurements of the eye, at the patient bedside.

AUTOMATED PRECISION
Computer image analysis algorithm removes human error.

REAL-TIME STREAMING DATA
Ocular impedance can both image and produce functional information for ICP and cerebral blood volume continuously and in real-time.

SPEED & ACCURACY
Fully-automated system provides faster and more accurate diagnosis.

PROJECT MILESTONES

Human & animal IRB approval
Human & animal impedance data collection
Start computational modeling
Start data interpretation
Code & evaluate data for ICP/cerebral blood volume assessment

Human & animal IRB approval
Initial algorithm testing using human ONS images
Refine algorithm for image analysis
Compare automated analysis to visual analysis results
Algorithm ready for beta testing

COMMERCIALIZATION ROADMAP

CLASS II DEVICE
510(k) premarket notification

LICENSE
TECHNOLOGY

POTENTIAL PARTNERS
Medical device companies