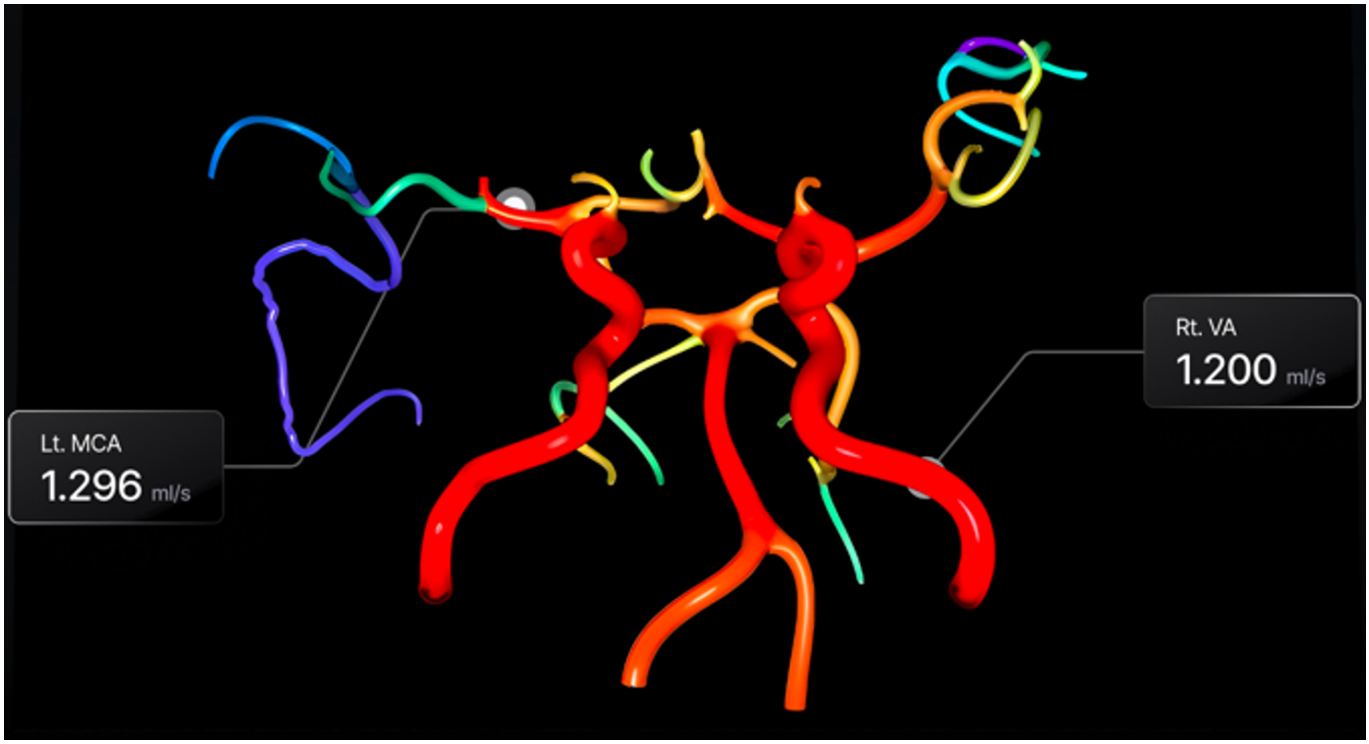
TECH OFFER

Cerebral Blood Flow Assessment Solution



KEY INFORMATION

TECHNOLOGY CATEGORY:
Healthcare - Telehealth, Medical Software & Imaging
Infocomm - Computer Simulation & Modeling
Healthcare - Diagnostics
Healthcare - Medical Devices

TECHNOLOGY READINESS LEVEL (TRL): TRL4
COUNTRY: SOUTH KOREA
ID NUMBER: TO175147

OVERVIEW

Stroke is the second leading cause of death worldwide and in Asia. 85% of stroke patients suffer from cerebral infarction, where blood clots accumulate in brain blood vessels and prevent blood from flowing smoothly. Accurate diagnosis is crucial, and while MRI (magnetic resonance imaging) and MRA (magnetic resonance angiography) scans are essential tools, they fall short by not providing vital blood flow data. This limitation can lead to challenges in both diagnosis and treatment planning.

The cerebral blood flow assessment solution provides detailed information about blood vessels and quantitative data on CBF (Cerebral Blood Flow) in a non-invasive way. It allows a precise and straightforward evaluation of cerebrovascular conditions, reducing the need for physicians to rely on invasive procedures and helping them optimize personalized treatment strategies for patients.

As the global population ages and the incidence of stroke increases, the demand for more healthcare solutions is also growing. The cerebral blood flow assessment solution provides quantitative flow data, allowing faster and more precise decision making to complement coventional methods of making treatment decisions based on basic medical imaging.

Ideal collaboration partners in the value chain include medical institutions, which provide imaging data and clinical context, and with medical device manufacturers that specialize in MR and CT imaging devices.

TECHNOLOGY FEATURES & SPECIFICATIONS

The cerebral blood flow assessments solution is offered in the form of AI software.

1) 3D Reconstruction: Based on medical imaging data (MR or CT scans), the software reconstructs detailed 3D models of brain tissue and blood vessels using AI algorithms. This enables precise visualization of the brain's structural anatomy.

2) Cerebral Blood Flow Analysis: The software calculates and analyzes cerebral blood flow data, including velocity and pressure. AI algorithms provide comprehensive insights into the hemodynamic characteristics of cerebral circulation.

These capabilities allow medical professionals to make more accurate diagnoses and develop precise surgical plans based on visualized and quantified cerebral blood flow data.

POTENTIAL APPLICATIONS

The solution can be deployed primarily in the medical and healthcare industry, specifically within the fields of neurosurgery, neurology, and radiology.

1) Diagnostic Imaging: It can be used to enhance diagnostic imaging by providing detailed 3D reconstructions of brain structures and blood vessels. This allows for more accurate diagnosis of cerebrovascular diseases, tumors, and other disorders.

2) Preoperative Planning: Neurosurgeons can use the solution to visualize and analyze cerebral blood flow dynamics, aiding in the planning and execution of neurosurgical procedures.

3) Post Management: Physicians can efficiently track and manage the patients' condition after the surgery.

MARKET TRENDS & OPPORTUNITIES

The global market for cerebrovascular diseases, including stroke, is both substantial and expanding. As of 2022, the market size for stroke management and cerebrovascular disease treatment was estimated at approximately $40 billion. This market encompasses a wide array of products and services, including diagnostic imaging, therapeutic interventions, and post-treatment management. Driven by an aging population, the rising prevalence of stroke, and ongoing technological advancements, the market is projected to grow at a CAGR of around 7% over the next five years.

UNIQUE VALUE PROPOSITION

The unique value proposition of this technology lies in its ability to effortlessly deliver detailed blood flow data that traditional medical imaging methods cannot provide. By integrating AI-powered 3D reconstruction with dynamic blood flow analysis, the

solution offers comprehensive insights and exceptional precision in diagnosing and managing cerebrovascular conditions. This represents a major leap forward compared to existing imaging technologies, which often fail to capture critical blood flow metrics.