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Mobile Point-of-Care MRI Could Improve Stroke Care

According to the Centers for Disease Control and Prevention, a stroke occurs approximately every 40 seconds in the U.S., leading to a stroke-related death every three minutes and 14 seconds. To prevent this unfortunate outcome, the solution is time; faster treatment leads to quicker and improved outcomes.

However, there is a need for further measures to expedite acute stroke care delivery in the pre-hospital setting. To address this concern, a team of Medical University of South Carolina (MUSC) researchers partnered with Charleston County Emergency Medical Services (EMS) to equip an ambulance with a portable MRI.

This new technology could be a game changer for stroke care decision-making. Ultimately, a performing MRI in a telemedicine-equipped ambulance accelerates stroke response times and the decision-making process.

By obtaining the information in transit, the decision-making process occurs before reaching the hospital, thereby reducing the time to care and treatment.

As Dr. Jillian Harvey states, “The real benefit may come in rural areas where patients may be hours or further away from MRI”.

Fifty years ago, defibrillators weighed hundreds of pounds and it was rare to imagine they could be portable. Now, the MRI-equipped ambulance stands as a novel example of how technology has enabled the development of faster, lighter, smaller, and more portable solutions, ensuring swift delivery to the patient when it is needed most.

During the trial demonstration, the research team obtained imaging of a healthy volunteer using a portable MRI in one of its ambulances, driving slowly around a parking lot. The obtained diagnostic images were successfully transmitted to hospital radiologists for review.

Although the early results are promising, more works needs to be done to determine if diagnostic-quality images can be obtained when the ambulance is traveling at full speed.

The team, collaborating with the Clemson School of Engineering, aims to optimise the ergonomic fit of the MRI in the ambulance. With further advancements and clinical studies, it is hoped that stroke patients will receive optimal care, saving crucial time even before arriving at the hospital.

Source: Medical University of South Carolina

Image Credit: iStock

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