

SONAS®

Portable, battery-powered ultrasound device for brain diagnostics – Example: Stroke

SONAS® is a portable, battery-powered ultrasound device developed by San Diego based BURL Concepts, Inc. to support early brain diagnostics, such as in the prehospital environment. A global unmet need is early stroke detection. Electrocardiography (ECG) is well established for early detection of heart attacks. For early stroke detection, there is no comparable device. Every minute stroke treatment is delayed, 2,000,000 brain cells die irreversibly. “Time is Brain!”

It is critical to have immediate information whether a patient might suffer from a major stroke or not. This information which should be available right at the site of emergency, which might be in an ambulance or at the bedside. Neuro-interventional procedures, for example, which are recommended by the American Heart & Stroke Association for major embolic strokes, can only be performed in specialized centers. Hence, to gain knowledge whether a patient might suffer from a major stroke at the earliest time point possible is of great importance to admit the patient to the right hospital.

ULTRASOUND TECHNOLOGY

In comparison to commercially available diagnostic ultrasound systems the SONAS® device is a low energy device. Different from conventional diagnostic ultrasound, SONAS® is not an imaging system.

MICROBUBBLES

SONAS® works in combination with commercially available ultrasound contrast agents, so called ‘Microbubbles’, which are administered intravenously. Microbubbles are currently not FDA approved for its specific use in combination with SONAS® for the purpose of stroke detection.



SIGNAL GENERATION

Low energy, low frequency ultrasound pulses are transmitted non-invasively through the skull causing the circulating microbubbles to respond with the emission of certain frequencies, so called ‘Harmonic Frequencies’. These frequencies are detected by SONAS®.

ADVANCED SIGNAL PROCESSING

Utilizing advanced transducer and analog receiver designs, combined with advanced signal detection capabilities, the SONAS® device measures and compares blood supply to both brain hemispheres independently.

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