Novel Respiratory Monitoring with Ultrasound

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The Wisconsin Alumni Research Foundation (WARF) is further developing a device that employs ultrasound signaling, paired with machine learning, to provide early alerts to respiratory compromise and/or failure during sedation.

Overview

Despite technological advancements, morbidity and mortality rates remain high in patients under sedation, often due to delayed detection of early respiratory compromise and/or failure.

The Invention

UW–Madison researchers have developed a respiratory monitoring device utilizing doppler ultrasound signals acquired from the patient's airway and comparing them to baseline parameters, often via a machine learning algorithm. When a threshold change is detected, an alarm is provided to indicate respiratory compromise and/or failure, which can include early airway compromise, airway failure and/or airway obstruction.

Applications

- Non-invasive Doppler Ultrasound device to monitor airflow changes in a patient's airway during a medical procedure or as a general patient monitoring tool

Key Benefits

- Prompts timely airway rescue and reduces the morbidity and mortality rates associated with undetected respiratory compromise and/or failure
- May be performed before, during or following a procedure
- May indicate the underlying cause of respiratory compromise and/or failure
- Advantageous for both clinical and outpatient settings and research and teaching applications
- May one day complement pulse oximetry, which can often be several minutes late in warning about the onset of oxygen deprivation

Stage of Development

A prototype has been developed.

Additional Information

For More Information About the Inventors

- Guelay Bilen-Rosas
- Humberto Rosas

Publications

- Read a profile of the technology.

Tech Fields

- Medical Imaging : Other diagnostic imaging

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846