Real-time Preeclampsia Monitoring and Detection Device

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Technology description

Detects Preeclampsia Early Warning Signs in Expecting Mothers to Minimize Mortality

Sensors on this device attach to a patient’ s body to monitor for physiological changes associated with preeclampsia symptoms. The device generates and reports derived data to healthcare professionals who can facilitate treatment and progress to delivery, which is the only cure for preeclampsia, even in preterm pregnancies. Left untreated, preeclampsia can rapidly and unexpectedly worsen to life-threatening hypertension, seizures, pulmonary edema and coagulation system effects. Preeclampsia is a major cause of maternal and neonatal morbidity and mortality around the world. The Preeclampsia Foundation reports approximately 76,000 maternal and 500,000 infant deaths per year due to preeclampsia, but no readily available non-invasive tests to diagnose preeclampsia currently exist.

Researchers at the University of Florida have developed a device to monitor expecting mothers for early warning signs of preeclampsia. Made from inexpensive and/or reusable materials, the device is portable and can be flexible, making it wearable as an armband, for instance. Data collected can be processed and displayed with an accompanying user interface.

Technology

The sensor device uses a pulse oximeter probe and at least one electrocardiogram lead and can be formed into a flexible wearable, such as a wrist band. The sensor communicates with a processor, which funnels data gathered by the sensor through algorithms into an interface that reports the likelihood of current or future preeclampsia. The sensor device is portable/wearable and can be produced from inexpensive and/or reusable sensor technologies. It provides an inexpensive, non-invasive system and method for predicting and/or diagnosing preeclampsia in a patient. It can operate as an early-warning prediction system, often detecting preeclampsia prior to development of conventional symptoms, facilitating treatment and/or delivery or transfer planning.

Application area

Early detection and diagnosis of preeclampsia

Advantages

Provides real-time monitoring and point-of-care prediction, eliminating any delay caused by the need for lab results
Identifies high-risk patients during prenatal visits, preventing development of the disease into its more severe form
Distinguishes between the symptoms of preeclampsia and hypertension, reducing the frequency of misdiagnosis
Requires no calibration or chemical testing and minimal maintenance, making it a low-cost and easy to use

Institution

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