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MACHINE LEARNING TO RATE ATAXIC BREATHING SEVERITY

DIAGNOSTICS

Algorithm that monitors for ataxic breathing events to determine risk of opioid-induced respiratory depression.

TECHNOLOGY TYPE

Software

STAGE OF DEVELOPMENT

- Verified the algorithm to monitor the severity of ataxic breathing when compared to manual analysis.

- Working towards applying the algorithm to a dataset of hospitalized patients taking opioids.

IP PROTECTION

Provisional patent filed.

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TECHNOLOGY SUMMARY

Opioid-induced respiratory depression is traditionally recognized by assessment of respiratory rate, arterial oxygen saturation, end-tidal CO₂, and mental status. Although an irregular or ataxic breathing pattern is widely recognized as a manifestation of opioid effects, the presence of ataxic breathing is not routinely monitored or scored. A major obstacle to widespread monitoring for ataxic breathing is the necessity for manual, offline analysis.

University of Utah researchers have developed a machine learning algorithm that enables real-time, quantitative monitoring of patients' breathing patterns. This algorithm determines the severity of ataxic breathing events and has been verified to classify those events in a manner consistent with manual analysis. Accordingly, the algorithm should enable detection of opioid-induced respiratory depression events and determine their severity.

FEATURES AND BENEFITS

- Could obviate the need for manual monitoring for ataxic breathing.
- Could enable real-time detection of opioid-induced respiratory depression.

RECENT PUBLICATIONS

Ermer, S., Farney, R., & Brewer, L. (2019, January 11). *Rating the Severity of Opioid-Induced Ataxic Breathing in Healthy Humans*. STA 2019 Excellence in Technology Award Presentation. [Link to publication.](#)

INVENTOR PROFILE

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