Devices and Methods for Monitoring Respiration of a Tracheostomy Patient

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ABSTRACT

Researchers at the University of California, Davis have developed a small device that attaches directly to the hub of a tracheostomy tube and enables the monitoring of respiratory function in tracheostomy patients during sleep studies.

FULL DESCRIPTION

Tracheostomy is a surgical procedure that may be performed by creating an opening on the anterior side of a patient's neck, bypassing the upper airway and providing direct access to the trachea. Tracheostomy patients may encounter sleep disorders similar to non-tracheostomy patients. Non-tracheostomy patients encountering sleep disorders may be subjects of a sleep study, for example polysomnography. During a sleep study, a non-tracheostomy patient's respiratory function may be monitored using a nasal cannula inserted into the patient's nostrils. However, since tracheostomy patients have limited or no respiratory airflow through the nostrils, a nasal cannula cannot be used to monitor respiratory function. Accordingly, there has been a need to find a way to monitor the respiratory function of tracheostomy patients during sleep studies.

To address this need, researchers at UC Davis have developed a heat moisture exchanger (HME) system that attaches directly to the hub of a tracheostomy tube and enables the collection of data during a polysomnogram. The device allows for end-tidal carbon dioxide and inhalation/exhalation airflow measurements, and can be used to deliver supplemental oxygen. This device also allows access for suctioning of airway secretions, and provides other benefits of HMEs.

APPLICATIONS

- Sleep studies such as polysomnograms, for patients who have undergone tracheostomy.

FEATURES/BENEFITS

- Accurately monitor respiratory function in tracheostomy patients if tracheostomy tube is uncapped and while patients are asleep.
- Able to monitor a tracheostomy patient's airways while simultaneously collect accurate data of respiratory status and end-tidal CO^2.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20250082882	03/13/2025	2021-647

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OTHER INFORMATION

KEYWORDS

End-Tidal CO2,

Obstructive Sleep Apnea,

Tracheostomy,

Polysomnography, Sleep

Medicine, Medical Device,

Respiratory

CATEGORIZED AS

- **Medical**
  - Devices
  - Diagnostics

RELATED CASES

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