RMeasuring PH Of Exhaled Breath Helps Identify Airway Diseases

University of Virginia

When it comes to identifying airway diseases and a course of treatment, standard methods of monitoring airway inflammation in patients have proven invasive, difficult and expensive — until now. Physicians at the University of Virginia in Charlottesville have developed a quick, non-invasive, inexpensive breath-analysis test that accurately determines the severity of lung diseases, as well as the presence of acid reflux, which often leads to lung disease.

This new methodology, involving exhaled breath condensate pH measurement, was developed primarily by John Hunt, M.D., and Ben Gaston, M.D., both faculty members at the University of Virginia. Engineer Rafi Baddour of Respiratory Research, a University of Virginia startup company, designed the "RTubeTM™ Exhaled Breath Condensate Collector."

The RTubeTM™ is used with the pH measurement system to test samples of condensed breath, which provides previously unavailable information about how much acid there is in the lungs in diseases such as asthma, chronic cough, acid reflux and respiratory failure in the intensive care unit.

> *Test results, obtained in as few as 20 minutes, are useful for identifying gastric acid reflux as the cause of chronic cough, as well as determining which patients need airway pH neutralization therapy.*

This system is readily usable by patients in a home, clinic, hospital or emergency room setting. RTubeTM™ provides highly reproducible results that may have relevance to airway pathology beyond asthma, including cystic fibrosis, smoking-induced diseases and occupational lung diseases. Scientists are using this equipment to better understand airway biochemistry and to develop more effective therapies for respiratory diseases.

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