

Airway Resistance Evaluation by Respiratory Inductive Plethysmography in Subjects with Airway Obstructions

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Abstract : A new approach based on respiratory inductive plethysmography (RIP) signal analysis has been used for bronchoconstriction changes evaluation in 50 healthy controls and in 44 adults with moderate bronchial obstruction treated with a bronchodilatation protocol. Thoracic and abdominal motions were recorded (5 min) by RIP. For each recording the thoracoabdominal signals were analysed and a mean distance (D) was calculated. Airway resistance (Raw) and spirometric data were measured with a body plethysmograph. The results showed that both D and Raw were higher in subjects compared to the healthy group. Significant decreases of D and Raw were also observed after bronchodilatation in the obstructive group. There was also a positive and a significant correlation between D and Raw in subjects before and after bronchodilatation. This D calculated from RIP Signals could be used as a non invasive tool for continuous monitoring of bronchoconstriction changes.

Keywords : airway resistance, bronchoconstriction, thorax, respiratory inductive plethysmography

Conference Title : ICMISC 2015 : International Conference on Medical Image and Signal Computing

Conference Location : London, United Kingdom

Conference Dates : November 27-28, 2015