

A New Dynamic System VRI™ Forgives Values of Regional Assessment of Lung Function, Preliminary Data

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Rationale:

Imaging is essential for the management of pulmonary disorders. Patients who undergone chest surgery need a follow-up of lung function before and after the operation. Vibration Response Imaging (VRI) is a new system developed by the Deep Breeze Medical Diagnosis[Israel] that records the vibration produced by the passage of airflow in the bronchial tree and converts the signal to a dynamic image of the lung and gives values of regional assessment of lung function. Signals are recorded by 42 acoustic sensor without emission of radiation or need of invasive procedures. Further advantage of this new technology is that it can evaluate separately ventilation of each region of the lung.

Method:

Aim of this study was to analyze Regional Assessment achieved with VRI in 15 patients before and after they undergone thoracic surgery, and we compared results for each pulmonary region. It was recorded also functional respiratory test and Thoracic Radiography before and after surgery.

Results:

In 6 of 15 patient measured the % volume before and after treatment and we calculated the difference between the two measures. Table 1. No difference is observed in functional respiratory test before and after thoracic surgery.

Conclusion:

VRI™ is a simple, non-invasive, radiation-free method to monitorize gain and loss of lung function before and after chest surgery that allows to measure, better than functional respiratory test, the variation of lung volume without the collaboration of the patient.

Percentual difference before and after treatment	
Lung left	Lung right
-0.31	+8.99
-2.37	+2.37
-3.46	+3.57
-10.20	+10.13
-5.50	+4.65
-5.05	+6.67

Values with “-” indicates a loss of function and with “+” indicates a gain of function.