**NON-INVASIVE RESPIRATORY MONITORING IN HEART FAILURE PATIENTS UNDERGOING INTERVENTIONAL PROCEDURES**

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Background: Heart failure patients often require interventional procedures. Respiratory compromise can evolve in the catheterization laboratory, especially during prolonged procedures. Currently, there is no adequate non-invasive monitoring system that provides an accurate, continuous assessment of respiratory status in non-intubated patients. A novel system, the ExSpiron, projects to reducing risk for heart failure patients undergoing interventional procedures.

Objective: We compared the performance of the impedance-based ExSpiron respiration monitor in measuring minute ventilation (MV), respiratory rate (RR), and tidal volume (TV) with the Wright/Haloscale Respirometer.

Methods: Twenty ambulatory subjects with various comorbidities were enrolled. One subject had severe Congestive Heart Failure (CHF) and died 48 hours after the test. Electrodes were placed on the sternum and right mid-axillary line and connected to the ExSpiron. Supine subjects breathed into the Respirometer while data were collected simultaneously from the ExSpiron (11 60-second breathing tests). Measurements of TV, RR, and MV were recorded from each device. Data were analyzed to determine accuracy and precision of the ExSpiron to the Respirometer.

Results: Comparing the ExSpiron to the Respirometer, accuracy for MV, TV and RR were 10.4, 9.8 and 2.4, respectively. Precision for MV, TV and RR were 10.2, 9.7 and 2.3, respectively. For the CHF subject, accuracy for MV, TV and RR were 12.5, 8.9 and 4.6 and precision for MV, TV, and RR were 10.1, 7.1 and 4.2.

Conclusions: The ExSpiron is emerging as a promising technology with clinically acceptable accuracy. For physicians undertaking prolonged procedures on heart failure patients, the ExSpiron may be indispensable.