Improved detection of Acute Respiratory Distress Syndrome (ARDS)

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Technology description

Computer algorithm, which combines multiple factors to predict ARDS with significantly higher sensitivity.

Problem

Acute respiratory distress syndrome (ARDS) represents a major cause of morbidity, mortality, and cost in intensive care units (ICUs) worldwide. Approximately 20% of all hospital admissions develop ARDS. Lung protective ventilation (LPV), using low tidal volumes (size of ventilator breath) and alveolar pressures, has been shown to reduce mortality in these patients when compared with traditional mechanical ventilation. However, the practice of LPV has not been widely adopted, mainly due to the frequent under-recognition of ARDS.

Solution

To solve this problem Dr. Fuchs developed, validated, and implemented an automated electronic ARDS detection and alert algorithm in the hospital information system. This electronic system, the ARDS Finder ©, exhibits significantly higher sensitivity in comparison to the manual screen currently used, and has improved (close to 100%) clinicians' adherence with LPV. In addition, the ARDS Finder© alerts the medical staff in real time when the risk of ARDS has been detected through email, text, phone call or a pager.

Advantages

• More sensitive detection and diagnosis of ARDS.

• Significant increase in specificity and NPV in comparison to manual approach currently used.

• Results in almost 100% clinicians' adherence with LPV.

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