ICU
MANAGEMENT & PRACTICE

Respiratory Compromise as a New Paradigm

Acute respiratory compromise refers to a condition characterised by a deterioration in respiratory function with a high likelihood of rapid progression to respiratory failure and death. It is thus important to identify patients who are at risk of respiratory compromise.

See Also: Mechanical Ventilation: Which Patients Benefit from High PEEP?

This article focuses on hospitalised patients who are at high risk for respiratory failure or death and for whom these complications could be avoidable. Identifying patients who are in respiratory compromise or in whom respiratory compromise is worsening is a very important component of in-patient hospital care. It is thus important to implement appropriate interventions that could avoid catastrophic events.

This particular monograph is based on discussions that emerged during a workshop organised by the National Association for the Medical Direction of Respiratory Care (NAMDRC), it was highlighted that it was important to address the unmet needs of respiratory compromise from a clinical practice perspective. Different subsets of respiratory compromise were identified in order to facilitate early detection and useful intervention to prevent respiratory failure. Some common pathophysiological mechanisms that were identified include impaired control of breathing, impaired airway protection, parenchymal lung disease, increased airway resistance, hydrostatic pulmonary oedema and right-ventricular failure.

Non-respiratory conditions can also place patients at risk for respiratory failure and death. These include procedural sedation and other anesthetic approaches. Postoperative patients may be susceptible to respiratory failure due to opiate-induced respiratory depression and immobility-induced pulmonary embolus or atelectasis. In addition, neurological impairment can also increase the risk for respiratory failure from reduced mobility or altered ventilatory control mechanisms.

While respiratory compromise can be a chronic stable condition, the focus of this discussion is on respiratory compromise in the acute environment. Patients in acute care hospitals are especially at risk for developing respiratory compromise. Data suggests that respiratory failure requiring emergency mechanical ventilation occurs in over 44,000 patients per year in the U.S. The NSQIP reports that 1.03% of all surgical patients require an unplanned intubation post-operatively.

Patients who are hospitalised with respiratory illness are also known to have higher death rates as compared to those hospitalised for other common conditions. Development of in-hospital respiratory failure is associated with a mortality of nearly 40%. In-hospital deaths in patients with respiratory failure are twice as high as for myocardial infarction and much higher than for cancer, stroke, CHF and renal failure.

It is important to recognise respiratory compromise on the basis of both severity and risk and it is critical to develop preventive strategies and systems to identify respiratory compromise changes early in order to help prevent respiratory failure and death. By increasing attention, observation and therapeutics, it may be possible to improve survival in deteriorating patients.

Effective prevention and early detection and intervention for respiratory compromise could be more easily accomplished by an understanding of the various mechanisms by which respiratory homeostasis is maintained and also by identifying mechanisms by which it deteriorates. Classifying acutely ill respiratory patients into the right categories may help in selecting the most effective screening and monitoring strategies that would be most appropriate for that particular patient's pathophysiology.

Source: Respiratory Care
Image Credit: James Heilman, MD

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