Role of non-invasive ventilation in acute exacerbations of copd: evidence from clinical practice.

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Introduction

Chronic Obstructive Pulmonary Disease (COPD) is a leading cause of morbidity and mortality worldwide. Acute exacerbations of COPD (AECOPD), characterized by a sudden worsening of respiratory symptoms, significantly contribute to disease progression, hospital admissions, and healthcare burden. Non-invasive ventilation (NIV) has emerged as a cornerstone in the management of AECOPD, particularly in patients presenting with acute hypercapnic respiratory failure [1, 2, 3, 4].

NIV delivers ventilatory support through a mask without the need for endotracheal intubation. Its application in AECOPD has been strongly supported by clinical evidence, which demonstrates that early use of NIV reduces the need for invasive mechanical ventilation, lowers mortality rates, shortens hospital stays, and decreases the incidence of ventilator-associated complications [5,6, 7].

Randomized controlled trials and real-world clinical studies have consistently shown that NIV improves gas exchange, reduces the work of breathing, and alleviates respiratory muscle fatigue. Guidelines from the Global Initiative for Chronic Obstructive Lung Disease (GOLD) recommend NIV as the first-line intervention in patients with moderate to severe acidosis (pH 7.25–7.35) and respiratory distress [8, 9, 10].

From a practical standpoint, successful NIV requires careful patient selection, appropriate mask fitting, and close monitoring for treatment response and complications. Early identification of patients who are likely to benefit—those with altered mental status, severe hypoxemia, or profound acidosis—can optimize outcomes.

Conclusion

Non-invasive ventilation plays a pivotal role in the management of AECOPD. Its timely initiation, guided by clinical judgment and supported by strong evidence, significantly enhances patient outcomes while minimizing the risks associated with invasive ventilation. As such, NIV remains a critical tool in modern respiratory and emergency care.

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