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ADRENALINE: THE FINAL DEFENSE IN COPD EXACERBATIONS

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INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a commonly seen obstructive airway disease worldwide and was the 4th leading cause of death globally in 2021.(1) Management of life-threatening acute exacerbation COPD (AECOPD) is challenging, the use of adrenaline in AECOPD remains controversial.

CASE REPORT

A 76-year-old male with underlying COPD presented with cough and worsening dyspnea despite multiple doses of metered-dose inhaler (MDI) salbutamol. He was then found unresponsive by family members and brought to the hospital. On arrival, he was in asystole and apneic, requiring immediate cardiopulmonary resuscitation (CPR). Return of spontaneous circulation (ROSC) was achieved after four cycles of CPR. Post-intubation, ventilation was challenging, with absence of bilateral chest rise and silent lungs. Bedside ultrasonography revealed the absence of sliding sign in the right lung. Chest X-ray showed no pneumothorax. Suspecting a mucous plug, reintubation was performed, but ventilation remained difficult. The lungs remain tight with poor air entry despite continuous nebulization of bronchodilators and several drug administration such as hydrocortisone, magnesium sulphate, augmentin and even infusion of salbutamol and ketamine. Intramuscular adrenaline 0.5mg was then administered, resulting in significant improvement in air entry and ventilation. Bronchospasm miraculously disappeared. The patient was stabilized and subsequently transferred to the intensive care unit (ICU) for further management.

DISCUSSION

According to the Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines, the management of AECOPD includes bronchodilators, corticosteroids, antibiotics, and oxygen therapy.(2) Bronchodilators include short-acting muscarinic antagonists, short-acting beta-agonists, and combination therapy. Adrenaline use is not commonly practiced or recommended by GOLD guidelines due to concerns about complications such as hypertension and arrhythmias, especially in patients with underlying cardiovascular disease. However, there have been a few case reports and studies suggesting that adrenaline use should be considered in life-threatening COPD due to its potent effect as a stimulant of alpha and beta-adrenergic receptors. (3)

CONCLUSION

This case highlights the potential role of adrenaline use in refractory bronchospasm during life-threatening AECOPD. Adrenaline use in life threatening AECOPD should be considered when we exhausted all other possible options.

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