

Category : **Respiratory: other**

A161 - Sevoflurane therapy using anaesthetic conserving device in life-threatening refractory bronchospasm in adults

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Introduction:

Life-threatening asthma and chronic obstructive airway disease (COPD), which are refractory to standard medical therapy, has high mortality. Sevoflurane usage in ICU is difficult due to the need to operate anaesthetic machine. This is a single centre retrospective case series describing the usage and effectiveness of sevoflurane via anaesthetic conserving device (ACD) to treat refractory bronchospasm in adult medical intensive care unit (MICU).

Methods:

Seven patients ranging from 34-62 years old was admitted to MICU for life-threatening status asthmaticus. A patient aged 67 years old was admitted to MICU post-cardiac arrest for hypercapnic respiratory failure due to COPD. They all required invasive mechanical ventilation with high dose inhaled beta-2 agonist, anti-muscarinic agent, paralytic agent, corticosteroid, and ketamine infusion. Sevoflurane was initiated using ACD in these patients as a rescue therapy in view of worsening intrinsic positive end expiratory pressure (iPEEP) and respiratory acidosis.

Results:

The mean (range) pCO₂ (mmHg) level before starting sevoflurane (via ACD), 6 hours after, and at the end of therapy were 76.4 (57.4 – 93.8), 74.4 (50.4 – 95.3), and 56.6 (40.4 – 86). The mean (range) pH was 7.2 (7.1 – 7.3), 7.2 (7 – 7.4) and 7.4 (7 – 7.5). The mean (range) iPEEP (cmH₂O) was 10.5 (5.6 – 16.2), 5.7 (2.9 – 9.3) and 7.3 (2.8 – 12.4). The mean (range) duration (hours) of sevoflurane was 63.5 (20 – 93). A patient had rapidly worsening ventilatory difficulties despite using sevoflurane hence, the patient was transferred to another centre for extra-corporeal membrane oxygenation (ECMO). No severe adverse effects apart from hypotension, which was manageable with noradrenaline infusion. All eight patients survived and were discharged from the hospital.

Conclusion:

Sevoflurane via ACD can be safely used in ICU and can improve pCO₂, pH, iPEEP and clinical condition of mechanically ventilated adults, who failed standard treatment for refractory bronchospasm.