A CASE STUDY: THE USE OF ISOFLURANE FOR BRONCHODILATION IN A PATIENT WITH LIFE THREATNING STATUS ASTHMATICUS.

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Introduction: This case study describes the potential benefits of using Isoflurane for bronchodilation in life threatening status asthmaticus. Benefits may include: decrease in CO_2, improved airway dynamics, and an increase in PaO_2. In addition, the possibility of refractory bronchospasm after rapid weaning or abrupt discontinuation of Isoflurane will be discussed.

Case Study: A 29-year-old male with acute asthma exacerbation was admitted to the sub-acute care floor and developed severe respiratory distress. The patient was transferred to the ICU and emergently intubated. The patient was placed on paralytic and sedative drips. Initial vent settings: PCV 26, RR 10, PEEP 4, $FI0_2$ 80%. ABG: PH 6.75, $PaCO_2$ out-of-range, PaO_2 31, HCO_3 missing data, SO_2 26%. VT 120cc. The patient was failing conventional therapies including bronchodilation. The patient was placed on an anesthesia ventilator and Isoflurane was initiated. ETT dosage of Isoflurane was 2.2 MAC. Ventilator settings: PCV 38, RR 5, PEEP 4, FIO_2 100%. ABG: PH 6.85, CO_2 184, PAO_2 352, HCO_3 31, SO_2 99.7. VT 580cc. Isoflurane was weaned to 1.2 MAC due to increased need for Epinephrine infusion. VT decreased to 200cc. An ABG was obtained before transition to heliox, and conventional ventilator. Ventilator settings: PCV 40, PEEP 4, RR 10, FIO_2 60%. ABG: PH 6.88, $PaCO_2$ 115, PAO_2 116, HCO_3 21, SO_2 96%. The patient was transitioned to PCV 30, PEEP 10, RR 10, FIO_2 35% and Heliox 80/20 mixture. VT 485cc. Within 2 hours of transition the patient was noted to have decreased VT 250cc, ABG PAO_2 54.

Discussion: Isoflurane as a bronchodilator may be useful in patients with severe/life threatening status asthmaticus that are unresponsive to conventional therapies. Furthermore, a reduction in VT may suggest that the rapid weaning and/or discontinuation of Isoflurane may cause refractory bronchospasm.