AB168. SOH23ABS_235. Level two strategies in the management of a severe case of type 2 respiratory failure

Wan Nur Jasmine Aziz Zabidi, Abdul Ateeq, Michael Gilmartin, Catherine Nix

Department of Anaesthesia, University Hospital Limerick, Dooradoyle, Limerick, Ireland

Background: We describe a 42-year-old previously healthy caucasian man who presented with respiratory failure due to bilateral pneumonia and underlying mitral valve prolapse managed with level 2 ventilation strategies in a regional intensive care unit (ICU) centre.
Methods: Admission computed tomography exhibited bilateral infiltrates, larger on the right with an effusion. Initial pressure controlled-bilevel positive airway pressure (BiPAP) ventilation, paralysis, a Fraction of inspired oxygen of 1.0 and broad-spectrum antimicrobial cover only maintained a low arterial partial pressure of oxygen (PaO_2, 7–8 kPa). Therefore, an ultrasound-guided right chest drain was inserted. Level 2 ventilation strategies were initiated with Airway Pressure Release Ventilation - Time Controlled Adaptive Ventilation (APRV-TCAV) and nitric oxide. We referred the patient for extra-corporeal membrane oxygenation (ECMO) but with time the PaO_2 improved. We initiated proning to maximize alveolar recruitment and improve ventilation-perfusion mismatch. Prior to proning, a Grade 3 systolic murmur was auscultated. A point-of-care-ultrasound (POCUS) was performed once supine and much turbulence was noted over the mitral valve. A departmental transthoracic echocardiogram (TTE) followed by trans-oesophageal echocardiogram (TOE) confirmed severe mitral valve prolapse and ruptured chordae tendinae. An intra-aortic balloon pump (IABP) was inserted by our Cardiology colleagues as a temporizing measure.
Results: The Cardiothoracic Service of the ECMO centre accepted the patient for definitive surgical replacement of the mitral valve once sepsis had abated.
Conclusions: In conclusion, APRV-TCAV can help improve oxygenation in those with severe acute respiratory distress syndrome (ARDS) and underlying valvular pathology in a non-cardiac surgery, non-ECMO centre. TOE was required to delineate the severity of the underlying pathology. Further temporizing strategies including proning and placement of an IABP.
Keywords: Respiratory failure; Airway Pressure Release Ventilation - Time Controlled Adaptive Ventilation (APRV-TCAV); mitral valve prolapse; level 2 ventilation strategies; intra-aortic balloon pump (IABP)

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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