

AB093. SOH23ABS_233. The management of respiratory failure with level 2 strategies including the airway pressure release ventilation-time controlled adaptive ventilation mode in a regional intensive care unit—a case series

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Background: Airway pressure release ventilation-time controlled adaptive ventilation (APRV-TCAV) is a level 2 strategy for severe respiratory failure. Other strategies include nitric and proning. The evidence in favour of APRV-TCAV remains limited due to the lack of large scale randomised controlled trials. It is used with increasing frequency as a rescue mode of ventilation in severe acute respiratory distress syndrome (ARDS), particularly in centres without direct access to extracorporeal membrane oxygenation (ECMO) therapy. Concerns regarding barotrauma and pneumothorax remain.

Methods: We present a case series involving four patients with severe ARDS who were ventilated using APRV-mode ventilation in a regional adult intensive care unit (ICU). A few months prior to these cases [during the coronavirus disease 2019 (COVID-19) pandemic], a group of six healthcare professionals including ICU nurse educators, ICU clinical nurse managers and ICU physicians from our unit attended a 5-hour workshop on APRV-TCAV ventilation.

Results: Four patients were mechanically ventilated using the APRV-TCAV mode on our Draeger ventilators in the setting of refractory hypoxaemia and hypercarbia. All patients had worsening respiratory failure despite nitric therapy. Proning was contra-indicated in one patient. Proning failed or needed to be deferred in the other patients. Two of the patients were subsequently weaned from APRV-TCAV mode to traditional ventilation modes, and two patients were accepted for transfer to an ECMO centre. One patient did not receive ECMO due to a substantial improvement in his oxygenation 24 hours after

the APRV-TCAV mode was commenced. One patient has been discharged home, two patients have progressed to ward-level care and continue to make clinical progress and one has recently been commenced on ECMO.

Conclusions: In conclusion, four heterogeneous patients with severe hypoxaemia and hypercapnia were successfully rescued/bridged to ECMO using APRV-TCAV ventilation in a regional ICU. In patients who do not respond to (or cannot have) other level 2 strategies, APRV-TCAV can be considered as a rescue strategy. It may be a bridge to recovery or facilitate lung recruitment prior to transfer to an ECMO centre. It is important that a team approach is taken when introducing this mode of ventilation as a treatment modality in an ICU setting.

Keywords: Acute respiratory distress syndrome (ARDS); airway pressure release ventilation (APRV); mechanical ventilation; critical care

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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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