

Abstract

Introduction

Airway pressure release ventilation (APRV) allows spontaneous breathing throughout the ventilation cycle. It increases venous return and cardiac index, which will significantly improve organ perfusion. The primary outcome of the current study is whether the use of APRV in septic shock patients restores hemodynamics stability earlier than the CMV mode. The secondary hypothesis is whether the use of APRV improves their survival in the ICU, decrease length of ICU stay, decrease days of ventilation; decrease the need for sedation and neuromuscular blockers (NMBS) compared to CMV mode.

Methods

We prospectively analyzed the clinical data of forty septic shock patients who received ventilator support from November 2014 to August 2015 at Nasser institute hospital. Patients were randomized into two groups according to the used mode of ventilation (APRV and CMV groups). All included patients were subjected to resuscitation for septic shock according to approved guidelines, full clinical evaluation, routine microbiological and laboratory investigations. Patients were followed up daily to assess their clinical course, length of ICU stay, duration of mechanical ventilation, dosages and duration of vasopressors, need for, dosage and duration of sedation, NMBS and the final outcome.

Results

The initial time to start recovery signs from septic shock was significantly earlier in APRV compared to CMV (**13.7 ± 4.6 hours versus 21.3 ± 8.5 hours, P < 0.001**). The need for sedation or NMBS was statistical significantly higher in CMV compared to APRV, **P: 0.010 and 0.028** respectively. CMV patients had statistical insignificantly longer ICU length of stay and duration of ventilation. APRV did not reduced mortality compared to CMV.

Conclusion

The use of APRV in septic shock patients restores hemodynamic stability earlier than the CMV mode, decreasing the need of sedation and NMBS.

Key words: Airway Pressure Release Ventilation, Controlled Mechanical Ventilation, Septic shock, Hemodynamic