

# A COMPARISON OF CLINICAL EFFICACY BETWEEN AIRWAY PRESSURE RELEASE VENTILATION AND CONVENTIONAL VENTILATION IN PEDIATRIC ACUTE RESPIRATORY DISTRESS SYNDROME: A RANDOMIZED CONTROLLED TRIAL

Navaporn Puangpakisiri<sup>1</sup>, Jitladda Deerojanawong<sup>1</sup>, Suchada Sritippayawan<sup>1</sup>, Nuanchan Prapphal<sup>1</sup> and Rujipat Samransamruajkit<sup>1</sup>

<sup>1</sup>Division of Pediatric Pulmonology and Critical care, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand 10330

**Objective:** To evaluate the clinical efficacy of airway pressure release ventilation (APRV), relative to conventional ventilation (CV) in children with moderate to severe acute respiratory distress syndrome (ARDS).

**Materials and methods:** We performed a randomized controlled trial of pediatric patients who were admitted to PICU with diagnosed of moderate to severe ARDS at King Chulalongkorn Memorial Hospital, during January 2017- April 2018. They were randomized to use either APRV or conventional ventilation.

**Results:** Thirteen children with moderate to severe ARDS were recruited to our study. Seven patients were assigned to APRV and the others were on conventional ventilation. There were no significant different for demographic variables between two groups. Significant improvement in oxygen index at 12, 24, 48, 72, 96 hours after treatment with APRV compared to CV. Also, peak airway pressure was significantly lower in the APRV-group ( $19.6 \pm 3.6$  vs.  $25.7 \pm 2.6$  cmH<sub>2</sub>O) within the first week of the study ( $P = 0.005$ ). However, at PICU day 28th, the number of ventilator-free days was similar as well and the survival rate.

**Conclusion:** APRV could be used safely in pediatric ARDS with superior oxygenation and significantly reduced peak airway pressure over CV that may reduce lung injuries.

**Keywords:** Airway pressure release ventilation, Acute respiratory distress syndrome, Mechanical Ventilation, Lung injury