THE EFFECT OF BIPHASIC EXTRATHORACIC CUIRASS VENTILATION FOR ACUTE RESPIRATORY FAILURE IN CHILDREN.
Y Ueda, K Okada
1Kumagaya General Hospital Pediatrics - Kumagaya (Japan)
2Saitama Medical University Hospital Pediatrics - moroyama (Japan)

OBJECTIVE:
To investigate the efficacy of the Biphasic Extrathoracic Cuirass Ventilation (BCV) as a first-line intervention in patients with early phase of acute respiratory failure.

METHODS:
A retrospective study was designed to analyze the clinical data of patients with early phase of acute respiratory failure admitted in Saitama Medical School Hospital between April 2006 and September 2009. 60 patients were enrolled in our study. Patients were divided into three groups according to the mechanical ventilation method: 1) conventional mechanical ventilation (CMV), 2) non-invasive positive pressure ventilation (NIPPV), and 3) biphasic extrathoracic cuirass ventilation (BCV) with continuous negative mode (CN). We compared these three groups in terms of age, sex, height, weight, birth height, birth weight, PaCO2, respiratory rate, oxygen saturation, mechanical ventilation time, and duration of hospital stay.

RESULT:
Respiratory condition (decrease PaCO2, decrease respiratory rate, increase oxygen saturation) were improved in each group. Duration of mechanical ventilation was 182.3±145.3 hours in CMV, 80.8±21.2 hours in NIPPV, and 64.2±6.6 hours in BCV (CMV vs BCV p=0.0079, CMV vs NIPPV p=0.0313). Average hospital stay was 17.7±10.5 days in CMV, 19.0±3.2 days in NIPPV, 10.7±0.8 days in BCV (BCV vs NIPPV p=0.0030).

CONCLUSION:
Our study showed that among three mechanical ventilation options, BCV group had shortest duration of mechanical ventilation as well as minimum duration of hospital stay. Based on our study, we recommend using BCV as a first line intervention in patients with early phase of acute respiratory failure.

Paediatric Respiratory Reviews
2010 (Vol. 11 Supplement 1, Pages S109-S110)