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The effects of extrathoracic mechanical ventilation (Biphasic Cuirass ventilation) for secondary pulmonary hypertension due to chronic pulmonary disease
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INTRODUCTION
Biphasic Cuirass Ventilation (BCV) is a form of non-invasive extrathoracic positive and negative pressure mechanical ventilation. We conducted this study based on remarkable outcomes of BCV treatment, experienced with severe respiratory failure and secondary pulmonary hypertension (PH).

RATIONALE
BCV improves both respiratory and circulatory functions in patients with secondary PH caused by various chronic pulmonary diseases.

METHODS
Seven patients with PH caused by COPD (4), interstitial pneumonia, post-thoracoplasty due to tuberculosis and asbestosis were included. PH was diagnosed by mean pulmonary artery pressure (mPAP) >20mmHg. Control mode was applied in combination with negative pressure between -15 and -25 cmH2O and positive pressure between +3 and +10cmH2O. BCV was applied for two weeks, but limited to 1 hour per day not to exhaust the patients. SpO2, mPAP, and serum NT-proBNP before and after BCV were measured to assess respiratory and circulatory effects. Mann-Whitney test was performed and p<0.05 was considered to be statistically significant.

RESULTS
SpO2 and dyspnea improved after BCV in all cases. mPAP decreased from 28.7 to 23.2 mmHg (p=0.036). Serum NT-proBNP increased(219 pg/ml) in 4 patients before BCV and decreased after BCV (123 pg/ml). These changes did not reach statistical significance. No patients were given epoprostenol, iloprost, bosentan and sildenafil to treat PH.

CONCLUSIONS
These results suggested that BCV improved not only respiratory but also circulatory functions. Further studies are needed to assess the clinical and medicofinancial effects of BCV on the treatment of secondary PH.