



**Increased Intrathoracic Fluid Content
Following Weaning From Mechanical
Ventilation**

Thesis

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Abstract

Background: Weaning from invasive mechanical ventilation is considered as a daily challenging practice in the management of critically ill patients. The integrated use of echocardiography, lung ultrasound and impedance cardiography during weaning may help to predict weaning outcomes

Patients and methods: 60 patients who fulfilled readiness criteria for weaning from MV. SBT on T-piece for 120 minutes was performed under close hemodynamic monitoring with evaluation of the LV diastolic function using echocardiography. Lung ultrasound was performed using eight lung zones protocol to detect both the presence and the trend in change in B lines before and after SBT. All the studied patients were connected to impedance cardiography (ICON device).

Results: Patient who passed SBT successfully had significantly higher ejection fraction than those who failed (p value 0.009) while patients who failed to pass SBT significantly showed higher septal and lateral E/E- values either before (p values 0.006 - 0.030 respectively) or after (p values 0.005-0.028. respectively), Those patients also showed significant increase in lung segments showing B pattern (p value < 0.001) after SBT. Thoracic fluid content showed higher levels before (p value 0.001) and after (p value < 0.001) SBT in patients who failed SBT patient who failed to passed SBT successfully had significant higher duration of ICU stay (p value < 0.001) Despite mortality rate was higher among patients who failed SBT yet it was statistically insignificant (p value 0.104).

Conclusion: Integrated use of echocardiography, lung ultrasound and impedance cardiography readily clarifies different aspects in hemodynamic changes occurred in both heart and lungs during weaning from mechanical ventilation and correlates with weaning outcome.

Key words: weaning, mechanical ventilation, sponatnous breathing trials, echocardiography, lung ultrasound , B lines , impedance cardiography, thoracic fluid content.