

# **Validity of lung ultrasound score and inferior vena cava diameter compared to pulse pressure variation predicting fluid responsiveness in mechanically ventilated critically ill patients: a comparative study**

**Background:** lung ultrasound examination is gaining popularity in patient assessment and guiding patient management. We intend to evaluate fluid responsiveness in mechanically ventilated patients by measuring IVC distensibility index and lung B-lines by sonography comparing their accuracy with PPV as a noninvasive parameter.

**Methods** Minimal sample size of patients was 118 patients with 59 responsive cases and 59 non-responsive cases. Calculation is guided by AUC of 0.915 obtained from a study in comparison to a null value of 0.8, with alpha of 0.05 and power of 90%. Sample size was increased to 150 patients to increase precision and ensure that at least 59 responsive and 59 non-responsive cases are included.

**Results:** In our study, the best cut off value for PPV was  $>13$  with best sensitivity 94% and specificity 93% for fluid responsiveness, dIVC cut off value was  $> 18.5$  with 90 % sensitivity and 96% specificity and delta b line sensitivity was 77% and specificity was 100%.

**Conclusion:** Pulse pressure variation, inferior vena cava distensibility index and lung Ultrasound have a predictive value for fluid responsiveness with high sensitivity and specificity.

**نوع البحث:**

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### **المشاركون في البحث حسب الترتيب:**

د. عمر سيد فرغلي، ا.م.د. محمد أحمد حامد، أ.د. جوزيف مكرم بطرس، د. دعاء لطفي عبد الباقي،  
د. حازم علي عبد العال، د. محمد مجدي بسيوني

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