

Echocardiography Assessment of Subcostal only view (EASy) Point of Care Ultrasound (POCUS) during Rapid Evaluation of PACU Hypotension: an Analysis of 71 Patients



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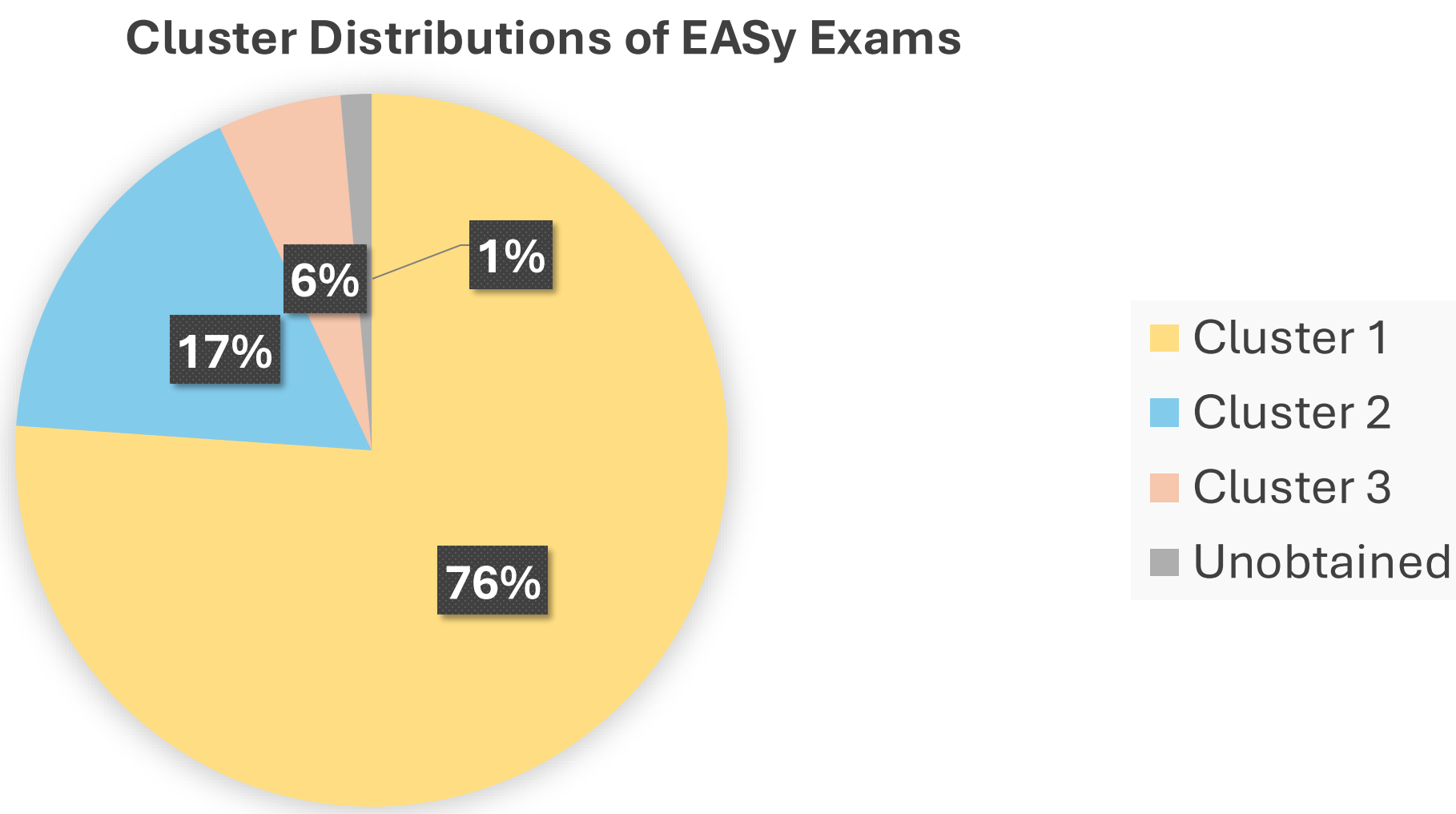
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Introduction

- Intraoperative hypotension is common and increases risk of organ ischemia, cardiac events, and cerebrovascular injury.¹
- Standard treatment often involves broad volume resuscitation, which may be harmful when the cause of hypotension is unclear (e.g., severe RV dysfunction).
- Cardiac POCUS can rapidly evaluate hemodynamic status, but traditional approaches (e.g., focused transthoracic echo) can be time-consuming.
- Evidence linking POCUS use in the PACU to improved clinical outcomes is still limited.²
- The EASy exam (Echocardiography Assessment using Subcostal-only-view) provides a quick, algorithmic assessment of hemodynamic stability.
- We propose that incorporating the EASy exam in the postoperative period may enable faster, more tailored management of PACU hypotension and potentially improve patient outcomes.

Methods

- Retrospective observational study of PACU patients with hypotension (MAP <65 mmHg) from 2017–2024.
- Included patients receiving an anesthesia POCUS consult.
- Exams performed by residents with standardized POCUS training, under faculty supervision.
- EASy exam: subcostal heart view, subcostal IVC view, + lung views.
- Patients assigned to three clusters based on:
 - Cluster 1: Preserved biventricular function
 - Cluster 2: Reduced LV function - severe LV systolic dysfunction
 - Cluster 3: RV enlargement – Severe RV dilation (RV > LV)
- IVC phenotype classified by size + collapsibility.
- Post-exam PACU documentation reviewed for management decisions.
- Compared fluid bolus and inotrope use across clusters.

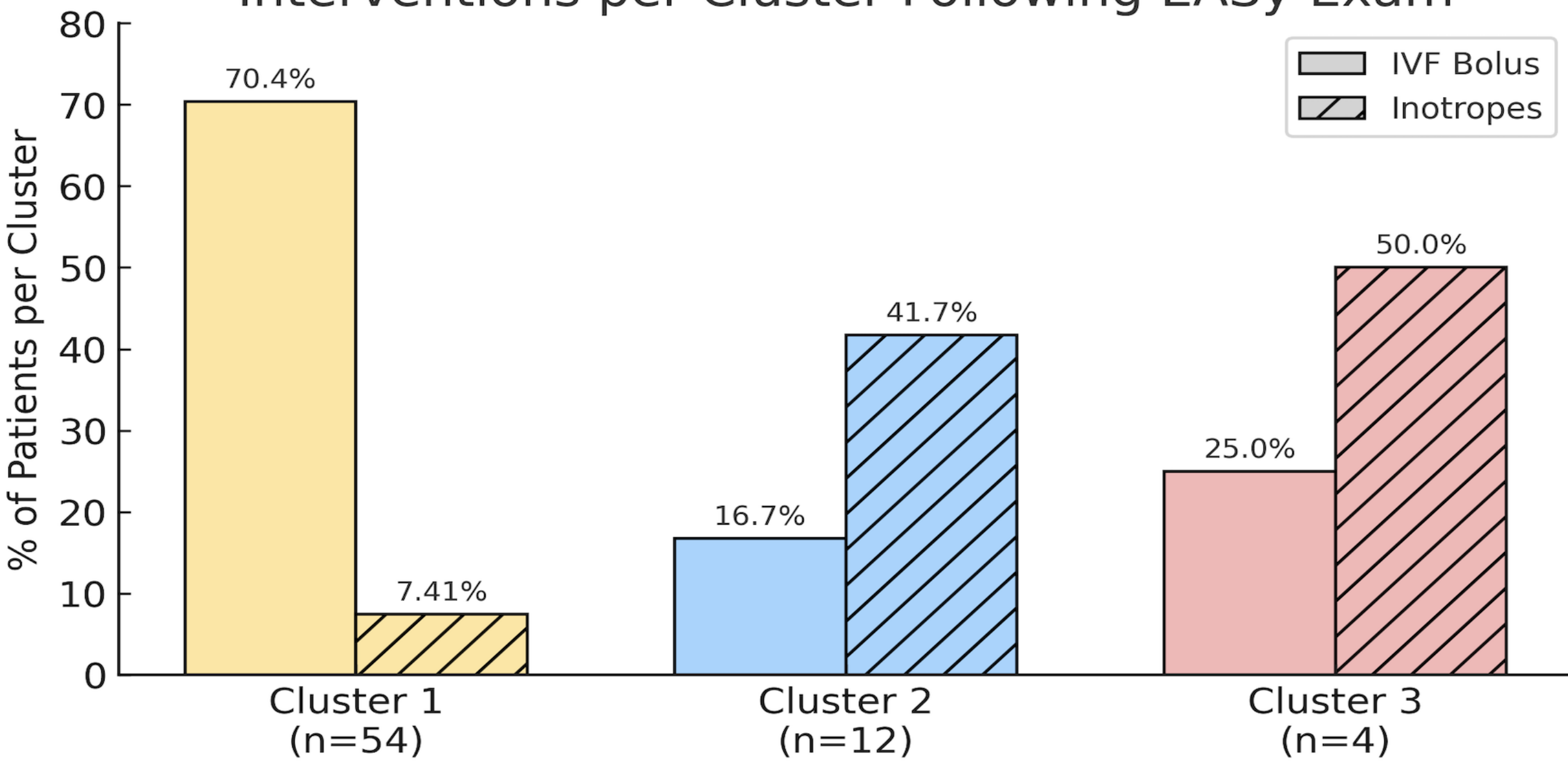


Results

Among our 71 patients, the Clusters 1, 2, and 3 distribution was 76.1%, 16.9%, and 5.6%, respectively. A cardiac view was not obtainable for one patient, thus no cluster was identified. Of the exams, 85.7% were deemed "good" or "adequate," with an average image acquisition time of 3.8 minutes. Treatment varied across clusters: 70.4% of Cluster 1 received IV fluid boluses and 7.41% received inotropes; in Cluster 2, 16.7% received a fluid bolus and 41.7% received inotropes; for Cluster 3, 25.0% received a fluid bolus and 50.0% were given inotropes.

Cluster 1 Small/normal cavity Increase or normal global contractility			Cluster 2 Enlarged LV +/- RV cavity Decreased global contractility		Cluster 3 Isolated enlarged right ventricle Increase or normal LV contractility	
Phenotype 1	Phenotype 2	Phenotype 3	Phenotype 4	Phenotype 5	Phenotype 6	Phenotype 7
1	2	3	4	5	6	7
Hypovolemic shock	Distributive shock	Diastolic dysfunction +/- Hypovolemic +/- Distributive shock	Cardiogenic shock (pump failure) high pressure pulmonary edema		Acute isolated RV failure ARDS	Acute on chronic isolated RV failure ARDS pulmonary HTN

Interventions per Cluster Following EASy Exam



Discussion

- The EASy exam provides a rapid, pattern-based hemodynamic assessment for hypotensive PACU patients.
- This approach is accessible to novice POCUS users and supports targeted management.
- Cluster 1 (preserved function) patients received more fluid boluses, while Clusters 2–3 (LV dysfunction or RV enlargement) received more inotropes.
- Patients with flat IVCs received higher fluid volumes than those with plethoric IVCs.
- Findings suggest EASy may help tailor PACU hypotension management based on immediate cardiovascular status.
- Larger datasets and prospective studies are needed to confirm associations with morbidity and mortality.

References

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