



Maryland Chapter

AMERICAN COLLEGE OF EMERGENCY PHYSICIANS

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PRESENTATION

Echocardiography should be standard of care in Cardiac Arrest

DESCRIPTION

This presentation will discuss utility of echocardiography to diagnose reversible causes of cardiac arrest.

OBJECTIVES

- Standardized echocardiography minimizes interruptions of chest compressions.
- Echocardiography can diagnose cardiac tamponade.
- Echocardiography can diagnose right heart strain suggestive of massive PE.
- Review fundamental elements of ACLS Adult Cardiac Arrest Algorithm.
- Use primary literature to discuss benefit of CASA protocol.
- Examine how echocardiography can identify reversible causes of cardiac arrest.

DISCLOSURE

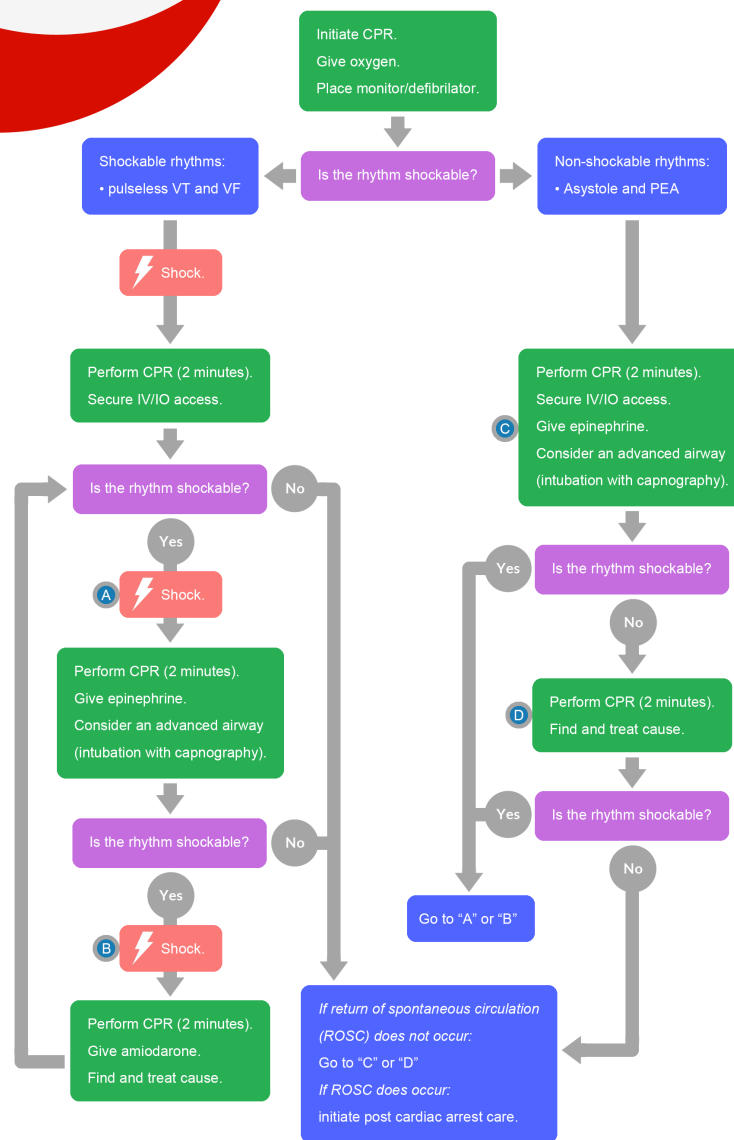
No significant financial relationships to disclose.

Echocardiography should
be standard of care in
cardiac arrest.

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CPR Technique

Depth: Hard & fast, 2in (5cm).
Rate: 100-120 per minute.
Ratio: 30:2 compressions to breaths (If no advanced airway). Attempt to minimize interruptions. Rotate compressions provider every 2 minutes or if fatigued. Avoid excessive ventilation.
Capnography Evaluation: If PETCO₂ is <10mmHg improve the CPR quality.
Intra-Arterial Pressure Evaluation: If diastolic pressure is <20mmHg improve the CPR quality.

Defibrillation

Monophasic: 360J
Biphasic: follow manufacturer recommendations (eg. first shock 120-200J). If recommended joules is unknown, use the maximum available. Following shocks give equal joules with higher joules considered.

Medication Therapy

Epinephrine:
1mg IV/IO every 3-5 minutes.
Amiodarone:
1st dose 300mg IV/IO bolus.
2nd dose 150mg IV/IO bolus.

Advanced Airway

Provide ETT or subglottic airway. Confirm placement and monitor with capnography or capnometry. With an advanced airway, provide 1 breath every 6 seconds without stopping chest compressions.

Return of Spontaneous Circulation

Palpable pulse and blood pressure. Sustained improvement in PETCO₂ (generally ≥ 40mmHg). Intra-arterial monitoring showing spontaneous arterial pressure waves.

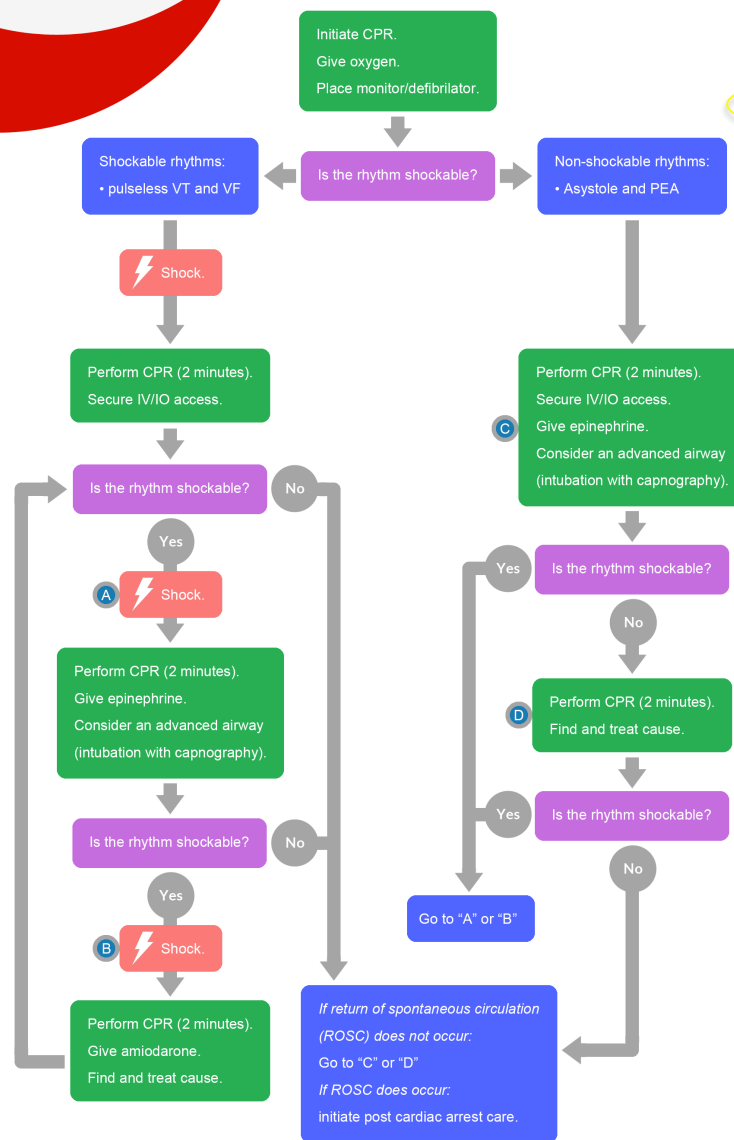
Possible Causes

Acidosis
Cardiac tamponade
Coronary thrombosis
Hyperkalemia/Hypokalemia
Hypothermia
Hypovolemia
Hypoxia
Pulmonary thrombosis
Tension pneumothorax
Toxins

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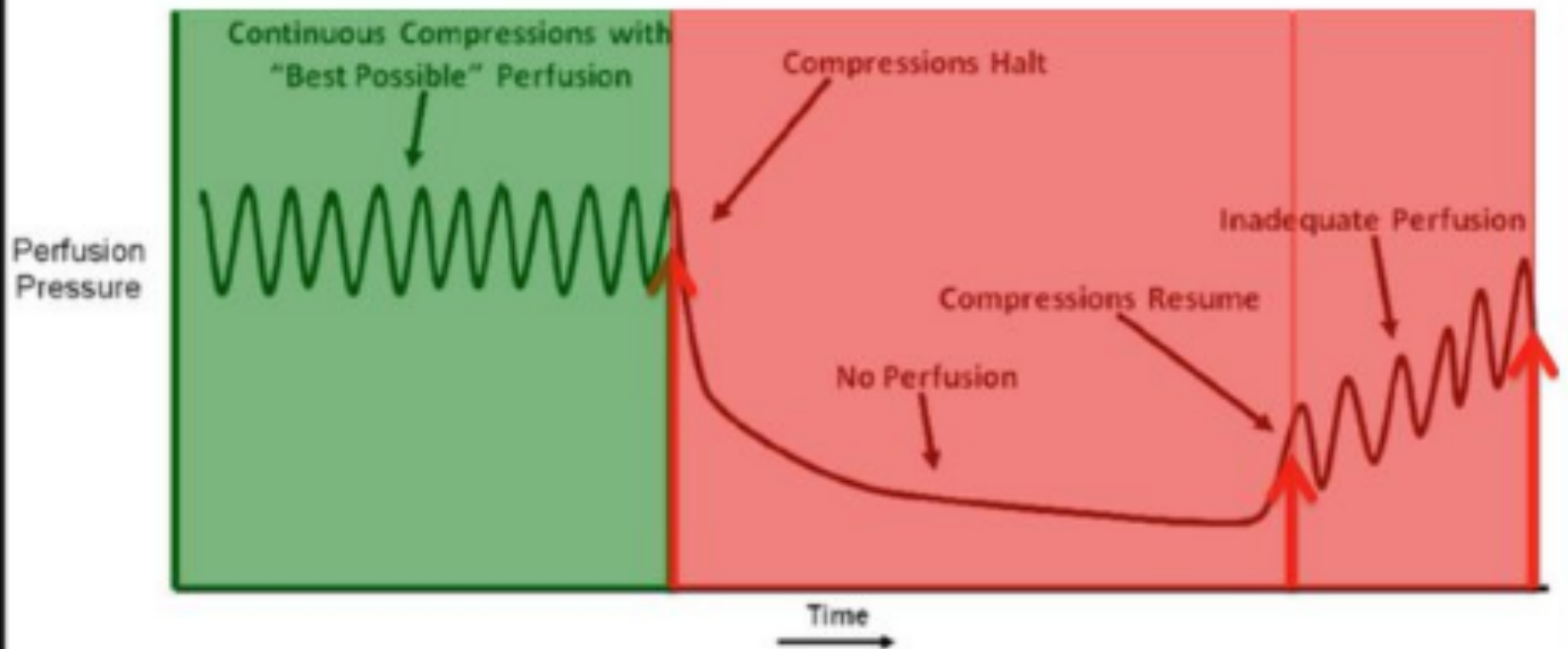
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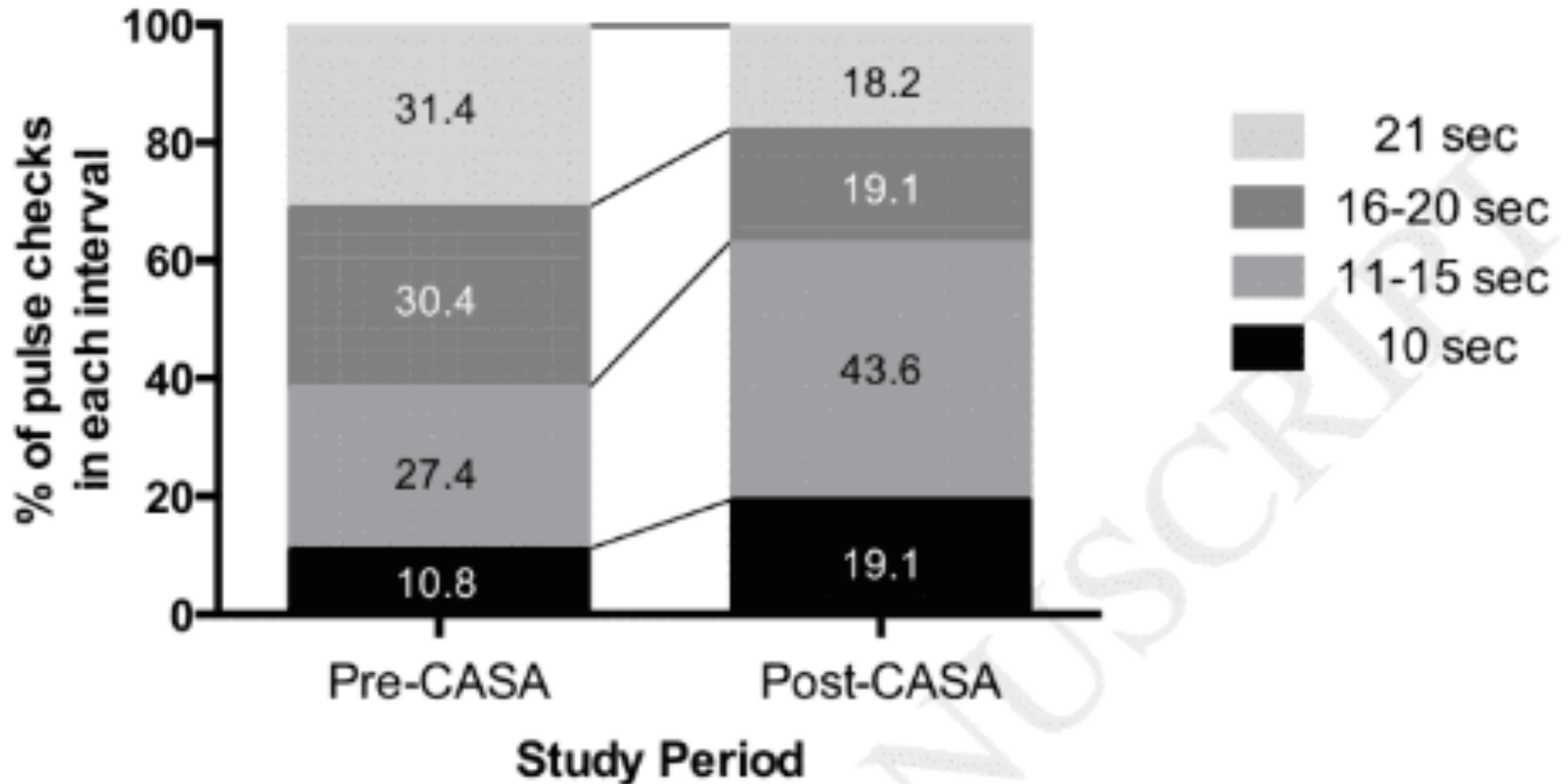
FACT: Echocardiography minimizes interruptions of chest compressions.

Chest Compressions During Cardiac Arrest Magnitude of Perfusion Resulting from Chest Compressions



Cunningham LM et al. American Journal of Emergency Medicine 2012

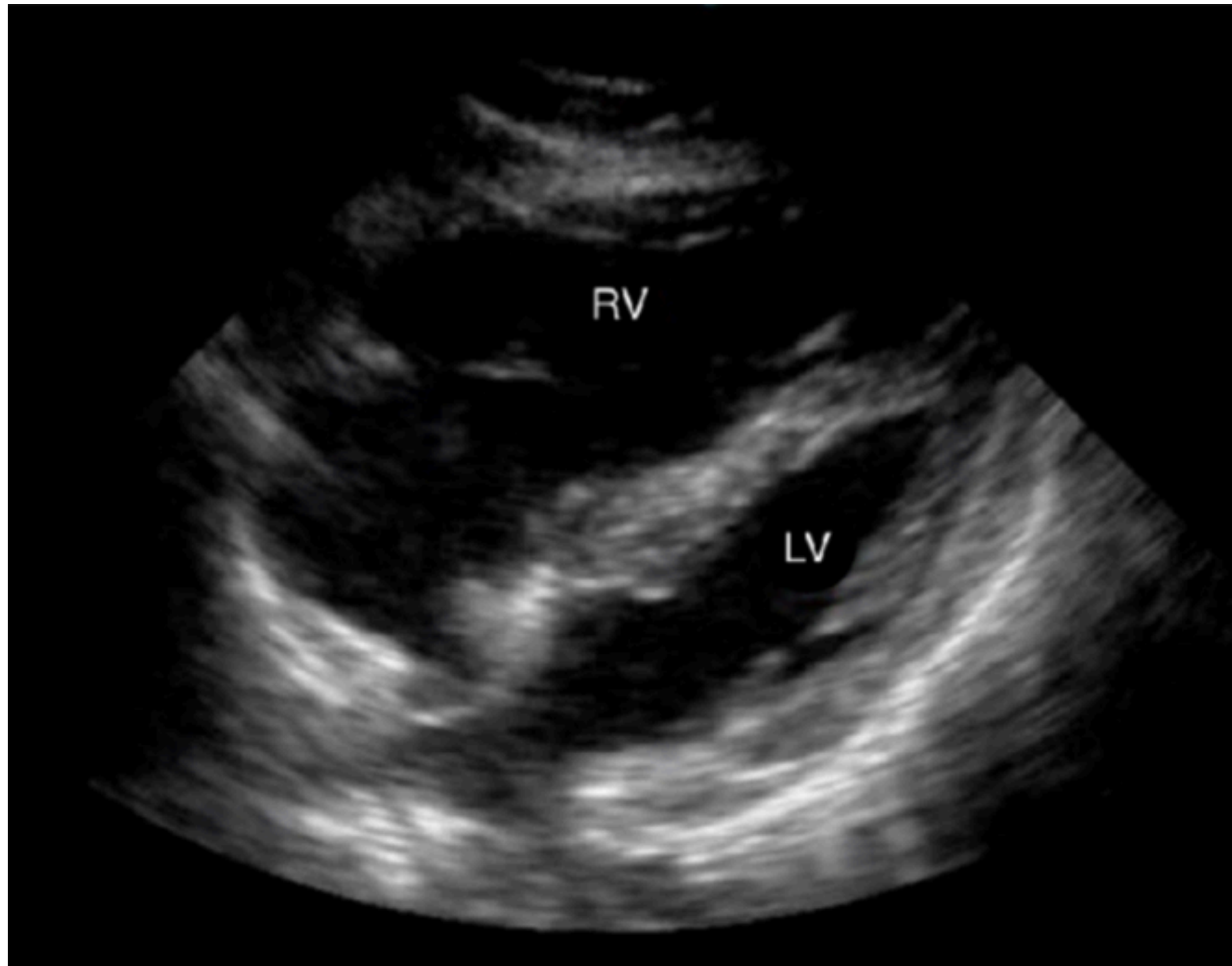
Figure 3. Proportion of pauses ≤ 10 seconds, 11-15 seconds, 16-20 seconds, and ≥ 21 seconds by pre and post CASA intervention time periods.



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