

Rhythms and Outcomes of Adult In-Hospital Cardiac Arrest

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- The four rhythms associated with pulseless cardiac arrest are ventricular fibrillation (VF), pulseless ventricular tachycardia (pulseless VT), pulseless electrical activity (PEA) and asystole.
- The shockable rhythms, VF and pulseless VT, have been considered the 'good' cardiac arrest rhythms.
- Cardiac arrest survival outcomes are affected by when the shockable rhythm occurs during the cardiac arrest event.

Top 10 Things to Know

1. Survival to hospital discharge for adult in-hospital cardiac arrest (IHCA) has been reported in several studies to be approximately 18%.
2. The American Heart Association Heart Disease and Stroke Statistics—2009 Update reports that 17.9% had a shockable rhythm (VF or pulseless VT) as the first recorded rhythm with IHCA. This study showed 24% had a shockable first rhythm.
3. This *NRCPR paper sought to determine the relationship of ECG rhythm during adult IHCA with survival outcomes.
4. Patients with a first documented shockable rhythm had better outcomes (37% survival to discharge) than patients with an initial rhythm of PEA (12% survival to discharge) or asystole (11% survival to discharge).
5. Although 24% of IHCA had an initial shockable rhythm, these patients made up 51% of the survivors to hospital discharge.
6. Although an initial rhythm of pulseless VT was hypothesized to have better outcome than VF, there was no significant difference found (pulseless VT 36.9%, VF 37.3%).
7. Out of hospital cardiac arrest data have observed better outcomes for patients with PEA than asystole. In this study of IHCA, there was no substantial difference in survival to discharge between patients with PEA (11.9 %) and asystole (10.8%).

8. A shockable rhythm of pulseless VT or VF occurred in 44% of arrests at some time during the arrest (24% at onset, 20% after the initial rhythm of PEA/asystole).
9. Although an initial shockable cardiac arrest rhythm has better survival outcome, subsequent shockable rhythms during IHCA is associated with worse survival to discharge. Pulseless VT/VF occurring later during resuscitation, that began with PEA or asystole, is associated with worse survival to discharge compared with first documented PEA or asystole without subsequent pulseless VT/VF.
10. Immediate factors related to the arrest differed for the initial shockable and non-shockable rhythm patients. More of the patients with initial pulseless VT or VF had an acute myocardial infarction, while those with PEA or asystole more commonly had acute respiratory deterioration and hypotension as an immediate factor.

What does this mean for your facility?

- This study re-iterates the importance of providing cardiac monitoring and/or close observation for those patients with strong cardiac histories who may have the potential for deadly arrhythmias.
- Increased knowledge about the correlation between cardiac arrhythmia and patient outcome during IHCA may provide data for decisions related to resuscitation efforts.

*NRCPR is a performance improvement tool that can be used to identify and monitor key process variables and patient outcomes for in-hospital cardiac arrest. Link to: (NRCPR.org)

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