

## Paramedic CAT (Critically Appraised Topic) Worksheet

**Title:** Addition of an Anti-Arrhythmic to Cardiac Arrest/Resuscitation Sequence

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**Clinical Scenario:** Paramedics respond to a cardiac arrest. They discover the patient is in Ventricular Fibrillation and choose to administer amiodarone over lidocaine. This patient obtains a return of spontaneous circulation. What role did the antiarrhythmic have in this case?

**PICO (Population – Intervention – Comparison – Outcome) Question:**

In cardiac arrest patients, does the addition of an anti-arrhythmic medication, such as lidocaine or amiodarone, increase survivable outcome versus no treatment using anti-arrhythmics?

**Search Strategy:** ("CARDIAC ARREST" OR RESUSCITATION OR "HEART ARREST" OR "VENTRICULAR TACHYCARDIA" OR "VENTRICULAR FIBRILLATION") AND (ANTIARRHYTHMIC OR AMIODARONE OR LIDOCAINE OR "SODIUM CHANNEL BLOCKERS" OR "POTASSIUM CHANNEL BLOCKERS")

**Search Outcome:** 12575 Search Results

**Relevant Papers:**

AUTHOR, DATE	POPULATION: SAMPLE CHARACTERISTICS	DESIGN (LOE)	OUTCOMES	RESULTS	STRENGTHS/ WEAKNESSES
John C. Somberg, 2002	29 Patients -11 received lidocaine -18 received amiodarone	Original Research/ Double Blinded Parallel Design	24 Hour Survival	39% had survival on amiodarone  9% had survival on lidocaine	+uses amiodarone or lidocaine  +both groups had similar baseline characteristics with no significant differences  +p value of <0.05 (95% chance)  -only 29 patients enrolled in study  -Only observed VT arrests not VF arrests

Peter J. Kudenchuk, MD, 2014	3000 Adult Patients across North America  -Patients $\geq 18$ years of age -Non traumatic cardiac arrest -Persistent or recurring VF/VT after $\geq 1$ shock	Original Research/ Prospective Randomized Blinded Design	Survival to hospital discharge	Study is currently ongoing, no data currently available	+uses amiodarone/lidocaine/or placebo  +study's principal aim is to determine if survival is improved by amiodarone as compared with placebo  +good blinding  +study will use large sample size  -study is prospective/ongoing and is not yet complete  -no preliminary data available
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**Comments:**

-Two studies found that amiodarone is more effective than lidocaine in the treatment of shock resistant Ventricular Tachycardia

-Second study (Peter J Kudenchuk, MD): "Based on prior studies, IV amiodarone is hypothesized to be an effective anti-arrhythmic agent for cardiac arrest whereas the effectiveness of lidocaine is less certain"

**Consider:** *Why would you NOT change practice, based on this article?*

Practice should not be changed based on this article due to the fact that both groups of patients show a benefit when an addition of anti-arrhythmic medication is added to the cardiac resuscitation sequence.

**Clinical Bottom Line:** The addition of an anti-arrhythmic medication (particularly amiodarone) vs. no anti-arrhythmic medication during cardiac arrest is hypothesized to improve cardiac arrest outcomes.

**References:**

Somberg JC, Bailin SJ, Haffajee CI, Paladino WP, Kerin NZ, et.al. (2002) Intravenous lidocaine versus intravenous amiodarone (in a new aqueous formulation) for incessant ventricular tachycardia. *Am J Cardiol*, 90(8):853-9.

Peter J. Kudenchuk, MD, Siobhan P. Brown, PhD, Mohamud Daya, MD, Laurie J. Morrison (2014) Resuscitation Outcomes Consortium- Amiodarone, Lidocaine or Placebo Study (ROC-ALPS): Rationale and methodology behind an out-of-hospital cardiac arrest antiarrhythmic drug trial. *Am Heart J*, 167(5):653-659