

Paramedic CAT (Critically Appraised Topic)

Title: Procainamide vs Amiodarone for the conversion of Stable Ventricular Tachycardia

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Clinical Scenario: A 65-year-old male presents to a rural emergency department complaining of 2/10 chest pain with no other complaints. The ECG monitor is attached to the patient and he appears to be in ventricular tachycardia rhythm at a rate of 188 beats per minutes, presently the patient is stable. Between Procainamide and Amiodarone, which would be a more effective medication to convert the presenting rhythm?

PICO Question: In patients presenting to an Emergency Departments or EMS service in Stable Ventricular Tachycardia (P), is Procainamide (I) more effective than Amiodarone (C) in converting the rhythm back to sinus(O)?

Search Strategy: "Amiodarone" AND "Procainamide" AND "Wide QRS Tachycardia" OR "Stable Ventricular Tachycardia"

- Search was further refined to papers published within the last 10 years.

Search Outcome: 14

Relevant Papers: 2

Author, Date	Population: Sample Characteristics	Design (LOE)	Outcomes	Results	Strength/Weaknesses
Ortiz, 2016	62 stable patients with regular wide QRS complex tachycardia	Prospective Study Level I	<i>Primary Endpoint:</i> Compare the incidence of major cardiac adverse events between both treatments. <i>Secondary Endpoints:</i> (i) Compare the efficacy of both drugs in relation to acute	<i>Primary Endpoint:</i> Fifteen patients (24%) had major cardiac adverse events during the study period. Major cardiac adverse events occurred less frequently in patients treated with IV procainamide (9 vs. 41%; OR = 0.1; 95% CI: 0.03-0.6).	Fairly equal randomization Limited number of participants.

			<p>termination of the tachycardia episode.</p> <p>(ii) Compare the incidence of total adverse events during the observation period.</p>	<p><i>Secondary Endpoints:</i> (i) Termination of VT during the study occurred in 33 patients (53%). Efficacy was significantly higher in patients treated with IV procainamide: 67 vs. 38%; OR = 3.3; 95% CI 1.2-9.3; P = 0.026. (ii) Adverse events occurred 8 times in the procainamide group and 14 in the amiodarone group (24 vs. 48%; OR = 0.34; 95% CI 0.12-1.00; P = 0.052)</p>	
Marill, 2010	<p>97 patients total were studied, 90 patients total received the full amount of medication. 7 patients were not counted towards the medication effectiveness due to complications or deterioration.</p>	<p>Retrospective Study</p> <p>Level I</p>	<p><i>Primary Endpoint:</i> VT termination within 20 minutes of onset of study medicine infusion.</p> <p><i>Secondary Endpoint:</i> Ultimate need for electrical therapy to terminate VT episode.</p>	<p><i>Primary Endpoint:</i> Rates of VT termination were 25% (13/53) for Amiodarone and 30% (9/30) for Procainamide. The adjusted odds of termination with procainamide compared to amiodarone was 1.2 (95% confidence interval [CI]=0.4 to 3.90.</p> <p><i>Secondary Endpoint:</i> 35/66 Amiodarone Patients (53%, 95% CI=40 to 65%) and 13/31 Procainamide patients (42%, 95% CI=25 to 61%) required electrical</p>	<p>Retrospective study, Limited number of patients</p>

				therapy for VT termination.	
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Comments: Despite attempts to find any literature, limited information is available regarding the utilization of procainamide in the prehospital setting. Therefore, the information utilized in this CAT is from patients who were given either of the treatments in hospital.

Consider: Procainamide has an unproven efficacy in cardiac arrest, therefore if it was to be utilized in the prehospital setting you would still be required to carry amiodarone on the truck. Carrying both medications would be the best option, but if limited to one medication, Amiodarone would be a more beneficial medication to have.

Clinical Bottom Line: Procainamide appears to be the superior medication for the treatment of Stable Ventricular Tachycardia and should replace Amiodarone in these cases.

References

Marill KA, d. I. (2010, March). *PubMed*. Retrieved from US National Library of Medicine :
<https://www.ncbi.nlm.nih.gov/pubmed/20370763>

Mercedes Ortiz, A. M.-V. (2017). Randomized comparison of intravenous procainamide vs. intravenous amiodarone for the acute treatment of tolerated wide QRS tachycardia: the PROCAMIO study .
European Heart Journal , 1329-1335.