

Intravenous water-soluble amiodarone improved 24-hour survival in incessant ventricular tachycardia

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

QUESTION

In patients with incessant ventricular tachycardia (VT), is intravenous water-soluble amiodarone more effective than lidocaine for improving 24-hour survival?

DESIGN

24-hour randomized {allocation concealed*}†, blinded (clinicians and patients),* controlled trial.

SETTING

14 centers (11 in the United States and 3 in Hungary).

PATIENTS

29 patients (mean age 66 y, 69% men) who had incessant VT defined as sustained VT refractory to electroshock with a heart rate > 120 beats/min. Exclusion criteria included a "do not resuscitate order," concomitant use of another experimental antiarrhythmic medication, and known life-threatening allergy to lidocaine or amiodarone. Follow-up was 100%.

INTERVENTION

Patients were allocated to amiodarone ($n = 18$) or lidocaine ($n = 11$). Patients (as allocated) received up to 2 boluses of amiodarone (150 mg) or lidocaine (100 mg) intravenously over 2 minutes. If VT did not terminate, the patient was electrically shocked. If VT terminated, patients in the

amiodarone group received amiodarone, 600 mg, in 1 L of 5% dextrose in water infused over 24 hours, and those in the lidocaine group received lidocaine, 2 mg/min, infused over 24 hours. If the first assigned medication failed to terminate VT, the patient was crossed over to the alternative therapy.

MAIN OUTCOME MEASURES

Survival rate at 24 hours. Secondary outcomes included termination of VT, survival rate at 1 hour, and crossover to alternate therapy.

MAIN RESULTS

Analysis was by intention to treat. At 24 hours, the survival (alive and free of VT) rate was greater in the amiodarone group than in the lidocaine group (Table). The rates of VT termination and survival at 1 hour were

greater in the amiodarone group than in the lidocaine group (Table). The rate of crossover to alternative therapy was lower in the amiodarone group than in the lidocaine group (Table). The groups (including patients who crossed over) did not differ for incidence of hypotension (7% vs 28%, $P = 0.06$).

CONCLUSION

In patients with incessant ventricular tachycardia, intravenous water-soluble amiodarone was more effective than lidocaine for improving 24-hour survival.

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*See Glossary.

†Information provided by author.

Intravenous water-soluble amiodarone vs lidocaine in incessant ventricular tachycardia (VT) at 24 hours

Outcomes	Absolute numbers (percentage)		P value
	Amiodarone	Lidocaine	
Survival	7 (39%)	1 (9%)	< 0.01‡
VT termination	14 (78%)	3 (27%)	< 0.05§
1-hour survival	12 (67%)	1 (9%)	< 0.01§
Crossed over to alternate therapy	7 (39%)	9 (82%)	0.05§

‡Kaplan–Meier test.

§Fisher exact test.

COMMENTARY

Resuscitation guidelines recommend the use of intravenous amiodarone for ventricular arrhythmias (1), but concerns about the pharmacokinetics of the current formulation (Cordarone) exist, particularly with respect to the time of onset of action.

The study by Somberg and colleagues suggests that the new intravenous water-soluble preparation of amino-aqueous amiodarone is effective and safe in incessant VT. It should be noted that the endpoints (Table) are too small to provide precise survival data, and the 95% confidence intervals, were they calculated, would be wide. Indeed, given the small number of patients in this study, is it valid to draw a definitive conclusion about the safety of amino-aqueous amiodarone in preventing unwanted hypotension? Furthermore, the favorable side effect profile of water-soluble amiodarone in this trial cannot be compared with that of other large trials, which used a different formulation and patient population (2, 3). Also, hemodynamically stable and unstable patients in the amiodarone group did not differ for VT termination, 1-hour survival, or 24-hour survival, but hemodynamic stability was determined by the investigator, and validation of the hemodynamic criteria was not provided.

The study shows the superiority of the new preparation of amino-aqueous amiodarone over lidocaine for the treatment of shock-resistant VT, but the claims of reduced adverse effects need further validation. Studies comparing the standard intravenous preparation of amiodarone (Cordarone) with the new amino-aqueous preparation in larger numbers of patients are required before its full introduction into clinical practice.

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