Amiodarone as Compared with Lidocaine for Shock-Resistant Ventricular Fibrillation

Dorian P, Cass D, Schwartz B. *et al. NEJM* 2002. 346(12): 884-890.

Objective: To compare intravenous lidocaine with intravenous amiodarone for ventricular fibrillation resistant to electrical cardioversion.

Methods:

- 347 patients were enrolled between Nov 1995 and April 2001
- Study carried out by Toronto Emergency Medical Services
- Randomized, double-blinded, placebo controlled trial
- Inclusion criteria:
    - Out-of-hospital V-fib
    - V-fib resistant to 3 shocks plus at least one round of IV epinephrine then one more shock and remained in V-fib
        Or
    - Recurrent V-fib, after successful initial defibrillation
- Exclusion criteria:
    - V-fib not due to trauma
    - V-fib not secondary to a previous different cardiac rhythm
- Randomized to either:
    - Amiodarone 5mg/kg and lidocaine placebo followed by amiodarone 2.5mg/kg plus placebo if V-fib persisted
    - Lidocaine 1.5mg/kg and amiodarone placebo followed by another 1.5mg/kg of Lidocaine plus placebo if V-fib persisted
- End point = survival to hospital admission to ICU, not survival to ED

Results:

- 22.8% of patients in amiodarone group survived to hospital admission
- 12.0% of patients in lidocaine group survived to hospital admission
- For patients with transient ROSC (n=35):
    - Amiodarone had higher rate of survival to admission
- For patients with no transient ROSC (n=312):
    - Amiodarone had higher rate of survival to admission
- For patients with V-fib or pulseless V-tach as initial rhythm (n=175):
    - 24.8% of patients given amiodarone survived to admission
    - 14.2% of patients given lidocaine survived to admission
- Shorter intervals from dispatch of EMS crew to administration of study drug were associated with increased survival to hospital admission

Bottom Line: Amiodarone is superior to lidocaine for shock-resistant, out-of-hospital V-fib, in terms of survival to hospital admission. This benefit was seen in all patient subgroups. This study was not powered to show a significant improvement in survival to hospital discharge, and none was seen.