A Randomized Trial Of Epinephrine In Out-Of-Hospital Cardiac Arrest

SUMMARY

- Despite lacking evidence, intravenous epinephrine has been a mainstay of resuscitation in cardiac arrest.
- Randomized trials have demonstrated that more epinephrine is not necessarily better and while ROSC may be achieved, neurological outcomes are poor.
- Does epinephrine actually make a difference in out-of-hospital cardiac arrest and neurological outcomes?
- This was a prehospital RCT in the UK looking at epinephrine versus placebo in out of hospital cardiac arrest with the main outcome being survival and neurological outcome.
- Out of 10,623 screened, 8,014 patients were enrolled - the average age was 69 and ⅔ were male with over 90% of patients having a medical cause of arrest.
- Epinephrine resulted in an increase in ROSC compared to placebo (36% vs. 11%), an increase in hospital transports (51% vs. 31%) and survival to hospital admission.
- Survival at 30 days was higher in the epinephrine group compared to placebo (3.2% vs 2.4%, OR 1.47 - CI to 1.09 - 1.97).
- Favorable neurologic outcome at 3 months for the epinephrine group vs. placebo was 2.1% vs. 1.6% (OR 1.3 - CI 0.97 - 2.01), with no significant difference.
- Of survivors, 31% had severe neurologic impairment in the epinephrine group vs. 17% in the placebo group.

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EDITOR'S COMMENTARY: This was a RCT looking at epinephrine in out-of-hospital cardiac arrest and neurological outcomes. Epinephrine resulted in an increase in ROSC and survival at 30 days. However, 31% of survivors had severe neurological impairment in the epinephrine group compared to the placebo group. In the end, it looks like there’s just a big nasty trade-off. The number-needed-to-treat for epinephrine is 112 for 1 survivor, and it comes at a big cost. Namely, a lot more people were admitted to ICUs and twice as many people survived with severe neurologic deficit, and this is in the pre-hospital setting. If the patient arrives in the ED and still doesn't have ROSC, it's unlikely epinephrine is going to give any benefit and may lead to harm.