



EPINEPHRINE IN OOHCA: THREAT OR MENACE?

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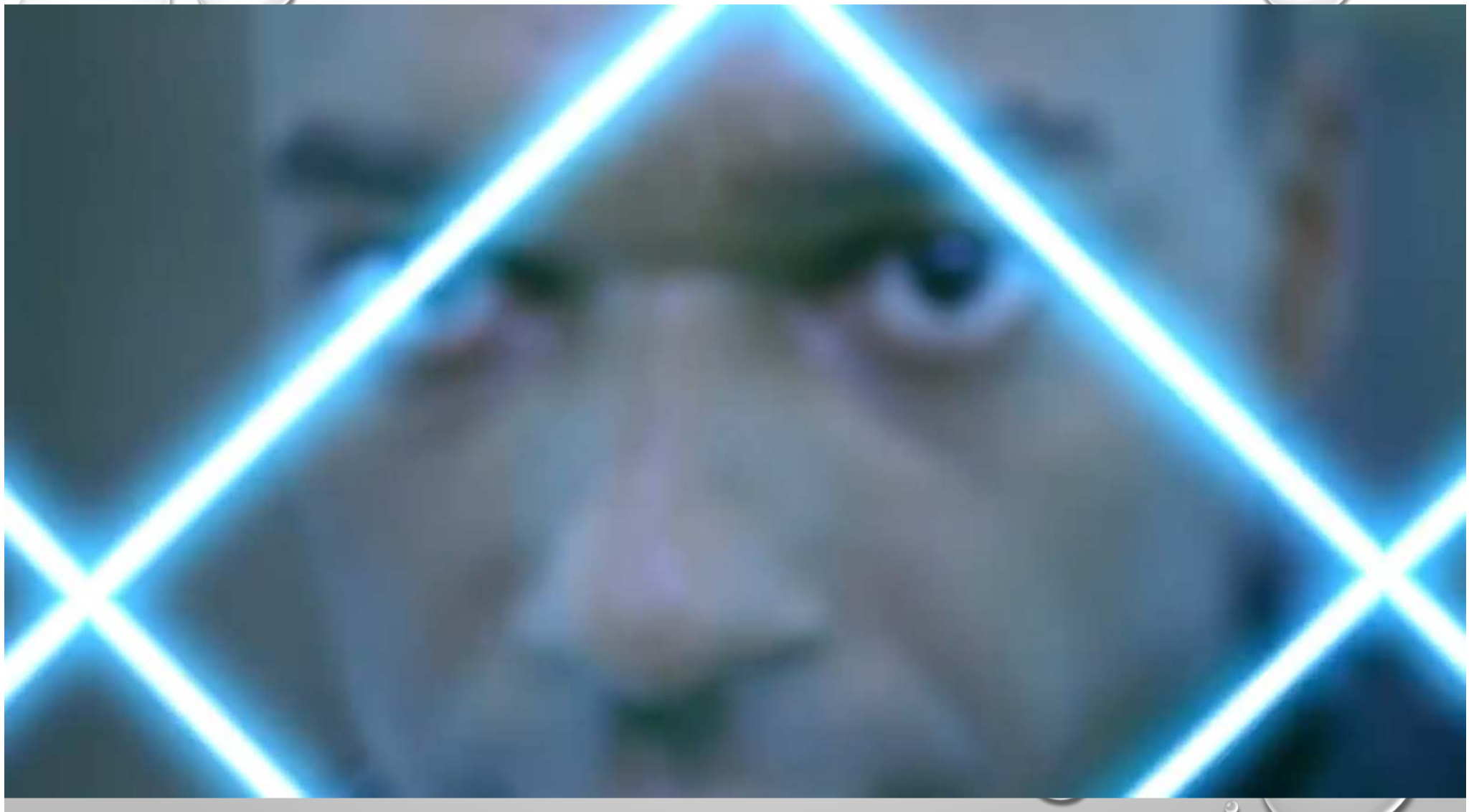
EACH YEAR ANOTHER ATTEMPT TO ENLIGHTEN AND ENTERTAIN

Dr. Valenzuela- Creative yet rigorous in thinking, grounded in the medical literature but not enslaved by it.

Dr. Fowler- A brute force intellect in command of an immense body of alternative facts

In previous debates, Dr. Fowler has not fared well...



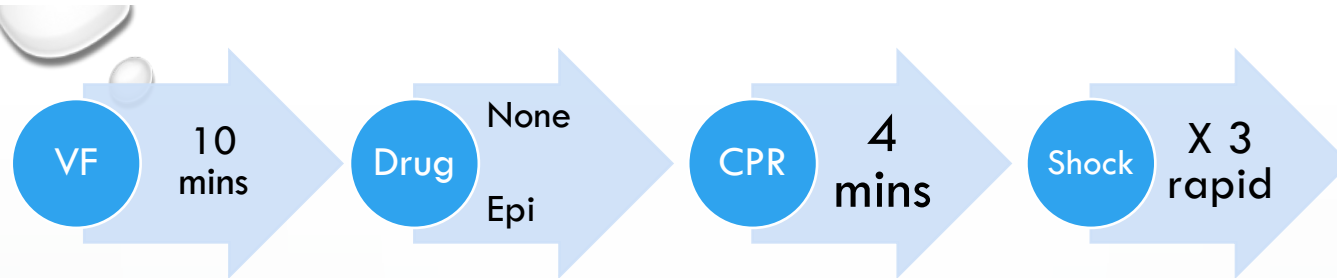


J'ACCUSE! EPINEPHRINE !

“...epinephrine remains one of the most common ALS interventions, and **likely increases the rate of ROSC** after cardiac arrest, its **effects on long-term outcomes is far less certain**”

“epinephrine... may be reasonable in ... cardiac arrest
However, **the literature behind its use is controversial, based on initial studies in the 1960s...** Epinephrine can improve ROSC but patients receiving epinephrine demonstrate **decreased survival to discharge and [poorer] neurological outcome...**”



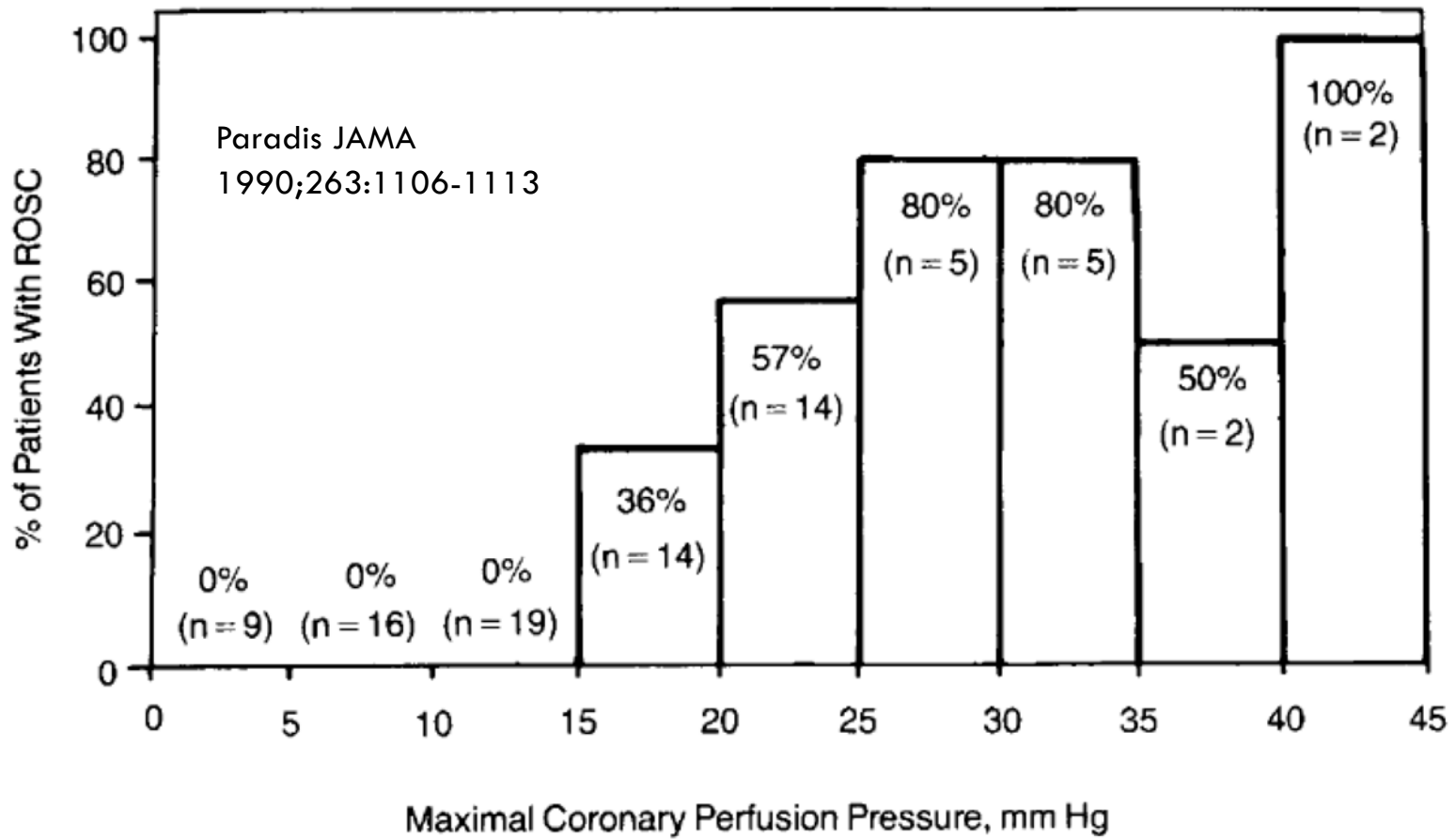


Drug	Dose	Shocked	ROSC	Awake at 24 hrs	Coma or Death at 24 hrs
None	-	3 (20%)	1 (7%)	0 (0%)	15 (100%)
Epi	1 mg	7 (47%)	7 (47%)	3 (20%)	12 (80%)

Redding JS JAMA
1968; 203: 93-98
Resuscitation from
Ventricular
Fibrillation

Conclusion: Further studies will be necessary to clarify the optimal combination of drugs to enhance the effectiveness of artificial ventilation of the lungs, external cardiac massage, and external electrical countershock in resuscitation from ventricular fibrillation.

JAMA, Jan 22, 1968 • Vol 203, No 4



A DECADE AGO

HAGIHARA JAMA 2012;307:1161-1168



Registry Study

417,188 cases of OOHCA 2005-2008

Propensity matched analysis

“Epinephrine associated with greater chance of ROSC before hospital arrival but a decreased chance of survival with good functional outcome at 30 days”

Odds Ratio			
Outcome	ROSC	1 month survival	Cerebral Performance Category
Adjusted for known variables influencing survival after OOHCA	2.36	0.46	0.31

Callaway CW. Questioning the Use of Epinephrine to Treat Cardiac Arrest JAMA 2012; 307: 1198-1200

Thus, properly evaluating this traditional therapy now seems necessary and timely and **should consist of a rigorously conducted and adequately powered clinical trial comparing epinephrine with placebo** during cardiac arrest. Such a trial has previously seemed unethical, and investigators who have attempted to perform this comparison have received unwarranted criticism in their communities. While awaiting results of such a definitive trial, **physicians and other practitioners involved in cardiac resuscitation must consider carefully whether continued use of epinephrine is justified**

Perkins GD. A Randomized Trial of Epinephrine on Out-of-Hospital Cardiac Arrest 2019 379; 8: 711-721

Treatment Arm	Epinephrine	Placebo
Number enrolled	4007	3995
Survived to discharge	128 (3.2%)	91 (2.3%)
Good neuro function	87 (2.2%)	63 (1.9%)
Severe neuro impairment	39 (0.98%)	16 (0.40%)

CALLAWAY CW. TESTING EPINEPHRINE FOR OUT-OF-HOSPITAL
CARDIAC ARREST
N ENGL J MED 2018; 379:787-788

“We must ponder whether additional treatments after he returned to of spontaneous circulation could improve functional recovery and whether drug use should differ on the basis of cardiac rhythm, and whether lower doses of epinephrine would be superior to higher doses among patients with out- of- hospital-cardiac-arrest”

I.e. Keep using epinephrine while we look for stuff that improves neurologic outcome. **FURTHER STUDY IS NEEDED**

REASON NOT TO JOIN THE EPINEPHRINE HATERS

Every Epi Black-flag article sites the same reference:

Ristagno G Crit Care Med 2009;37:1408-1414. Epinephrine reduces cerebral perfusion during CPR

Methods

”Cerebral cortical microcirculatory blood flow (MBF) was measured with orthogonal polarization spectral imaging.”

SERIOUSLY ? SHOW OF HANDS

NICHOL G. WHAT CHANGE IN OUTCOMES AFTER CARDIAC ARREST IS NECESSARY TO CHANGE PRACTICE? RESUSCITATION (2016); 107: 115-120

OUTCOME	CURRENT PROPORTION	CHANGE IN OUTCOME	PROJECTED OUTCOME
ROSC ON ED ARRIVAL	27%	10%	37%
SURVIVAL TO HOSPITAL DISCHARGE	9%	3%	12%
GOOD NEURO FUNCTION AT DISCHARGE	6%	2%	8%
SURVIVAL TO HOSPITAL DISCHARGE (PERKINS)	3.2%	? %	? %
SEVERE NEURO IMPAIRMENT AT DISCHARGE (PERKINS)	0.98%	? %	? %

FUTURE NEUROPROTECTION DURING CPR

Active compression decompression CPR
Heads up CPR
Sodium Nitroprusside enhanced CPR
Post ischemic conditioning after CPR
Membrane stabilizers
Post ischemic conditioning with inhaled gases

Moore JC Current Opinion
Critical Care 2017; 23:
215-222

