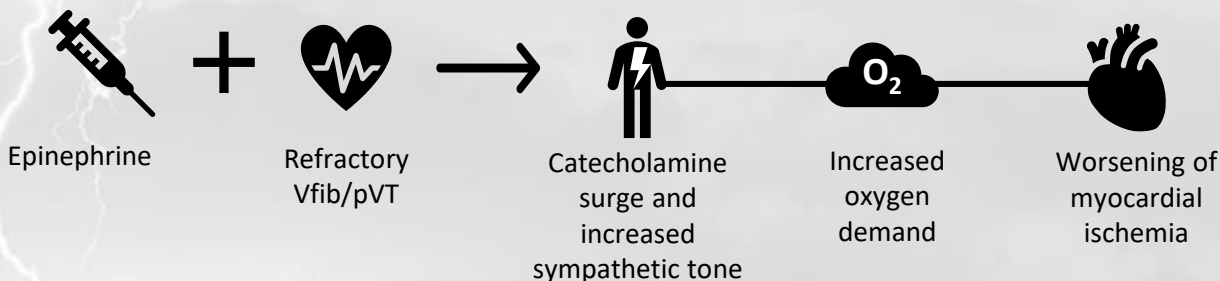


ESMOLOL IN REFRACTORY VENTRICULAR FIBRILLATION (Vfib) OR PULSELESS VENTRICULAR TACHYCARDIA (pVT)

Definition

Refractory Vfib/pVT: ≥ 3 defibrillations + 3 mg of epinephrine + 300 mg amiodarone OR 100 mg lidocaine

Proposed pathophysiology



Why Esmolol?

- Beta-blockade will help suppress the effects of beta-agonism of epinephrine leading to a decrease in oxygen demand and automaticity while preserving the effects of epinephrine's alpha agonism
- Esmolol is the only selective beta-blocker with the fastest onset and shortest duration of action making it easily titratable

Evidence

| | Driver et al. 2014 | Lee et al. 2016 |
|--------------------|--|--|
| Patient Population | Out of hospital cardiac arrest patients with initial rhythm of Vfib/pVT | Out of hospital cardiac arrest patients with initial rhythm of Vfib/pVT |
| Intervention | Esmolol + standard of care (n=6) vs. Standard of care (SoC) (n=19) | Esmolol + standard of care (n=16) vs. Standard of care (SoC) (n=25) |
| Outcomes | Sustained ROSC: Esmolol group 67% vs 32% SoC; p=NS Survival to discharge with good neurological outcome: Esmolol group 50% vs 10.5% SoC | Sustained ROSC: Esmolol group 56% vs 16% SoC; p=0.007 Good neurological outcome at 30 days: Esmolol group 18.8% vs 8% SoC; p=NS |
| Conclusion | Esmolol had higher rate of ROSC | Esmolol had higher rate of ROSC |

Dosing

- **Esmolol bolus: 500mcg/kg - - Draw up from esmolol bag (10mg/ml) – 80kg pt = 4ml**
- +
- **Esmolol infusion 50-100mcg/kg/min**

References

Driver BE et al. Resuscitation. 2014;85(10):1337-41.
 Lee YH et al. Resuscitation. 2016;107:150-5.