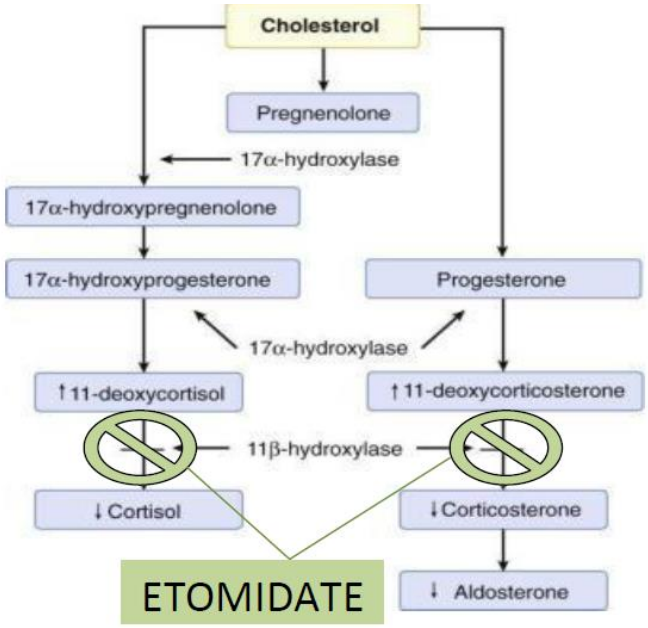
Pharmacy 5 Minutes Friday's

Etomidate for RSI in Septic Shock

1. Etomidate is the most commonly utilized induction agent for rapid sequence intubation in emergency departments in the United States.
2. Favorable characteristics include reliably good intubating conditions, a rapid onset and offset of activity, non-renal elimination, and maintenance of the cardiorespiratory drive
3. Unfortunately, etomidate causes relative adrenal insufficiency in up to 90% of patients after a single dose for up to 48 hours
4. Serious safety concerns first surfaced in the early 1980's when continuous infusions were associated with increased mortality in trauma patients.



	Etomidate
Mechanism of Action	• Short-acting hypnotic, which appears to have gamma-aminobutyric acid **(GABA)–like effects.** • Unlike the barbiturates, etomidate reduces subcortical inhibition at the onset of hypnosis while inducing neocortical sleep.
Dose	• 0.3 mg/kg IV (range 0.2 to 0.6 mg/kg)
Adverse Effects	• Injection site pain (20%) • Nausea, Vomiting • Myoclonus (32%)
Kinetics	• Onset ~20 seconds • Duration 4 to 10 minutes • Routes IV only • Renal Excretion 75%
Administration	• IV push followed by paralytics and flush

Author, Year	Design	Sample Size	Etomidate+ Comparator regimen	Outcome Comparator vs Etomidate
McPhee C, 2013	Retrospective cohort study	n=2014	Not published	**No difference** in ICU and hospital mortality, shock, duration of mechanical ventilation, ICU or hospital length of stay, or vasopressor use
Chan CM, 2012	Meta-analysis	n=1,623	Etomidate (mostly 0.3 mg/kg) Vs comparator	↑ All-cause mortality RR 1.20 (95% CI 1.02-1.42) ↑ Adrenal insufficiency RR 1.33 (95% CI 1.22–1.46)
Tekwani K, 2010	RCT	n=122	Etomidate 0.3 mg/kg vs midazolam 0.1 mg/kg	**No significant** differences in median hospital LOS (9.5 vs 7.3 days), ICU LOS (4.2 vs 3.1 days), In-hospital mortality (26% vs 43%) or ventilator days
Jabre P, 2009	RCT	n=469	Etomidate 0.3 mg/kg vs Ketamine 2 mg/kg	**No difference** in SOFA score, 28 day mortality, Vent free days, vasopressor support, or GCS
Cuthbertson, 2009	a-priori sub-study of the CORTICUS trial	n=499	Not published	↑ non-responders to corticotropin with etomidate ↑ 28-day mortality in univariate analysis (P = 0.02) with etomidate Hydrocortisone administration did not change the mortality of patients receiving etomidate (45 vs. 40%)
den Brinker, 2008	Retrospective	n=29	Etomidate 0.29 mg/kg x 1	Mean cortisol levels were 3.2 times lower in case of etomidate use Mean ACTH levels were 4.1 times higher in etomidate use

References

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4. Tekwani KL, et al. A comparison of the effects of etomidate and midazolam on hospital length of stay in patients with suspected sepsis: a prospective, randomized study. Ann Emerg Med. 2010 Nov;56(5):481-9.
5. Jabre P, et al. Etomidate versus ketamine for rapid sequence intubation in acutely ill patients: a multicentre randomised controlled trial. Lancet. 2009 Jul 25;374(9686):293-300
6. Cuthbertson BH, et al. The effects of etomidate on adrenal responsiveness and mortality in patients with septic shock. Intensive Care Med. 2009 Nov;35(11):1868-76.
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