Rapid Sequence Intubation (RSI)

Objectives

Identify drugs, doses and rationale for use in RSI:

- Pre-medication
- Sedatives
- Neuromuscular Blockers

Rapid Sequence Intubation (RSI)

- Definition
- Pre-medications
- Sedatives
- Neuromuscular blocking agents (NMBA)

Pre-medications

- L – Lidocaine: 1.5 mg/kg IVP over 30-60 seconds
- O – Opioid: Fentanyl 3 mcg/kg @ 1-2 mcg/kg/min

  IV analgesia if awake
- A – Atropine: 0.02 mg/kg IVP
  - Glycopyrrolate 0.1mg/kg IVP
- D – Defasciculation: 10% of paralyzing dose

Sedatives: Etomidate (Amidate®)

- 0.2-0.4 mg/kg **IVP**
- Onset = 60 sec DOA = 5 min
- Myoclonus, adrenal suppression
- Lowers ICP → good for head injury patient
- No effect on hemodynamics→ ok if hypotensive
- No effect on ventilation

Sedatives: Midazolam (Versed®)

- 0.1- 0.3 mg/kg
- Onset = 1-2 min DOA = 10-20 min
- Tachycardia, respiratory depression, hypotension
- Amnesia

Sedatives: Propofol (Diprivan®)

- 1 – 2.5 mg/kg IVP
- Onset = 30 sec DOA = 1- 3 min
- Respiratory depression, hypotension, ↓ CO
- ↓ICP, ↓ cerebral oxygen demand, rapid awakening
- Found in ICU pyxis

Sedatives: Ketamine (Ketalar®)

- 1 – 2 mg/kg
- Onset = 30-60 sec DOA = 5-15 min
- HTN, ↑ICP, ↑ myocardial/cerebral oxygen demand, ↑ BP, ↑ HR
- Bronchodilator
- Found in ED pyxis

Neuromuscular Blocking Agents

NMB	Dose (70 kg)	Onset	Duration	Side Effects	Notes
Succinylcholine (Anectine®)	1-1.5 mg/kg (70-100 mg)	<1 min	6-10 min	↑ ICP, IOP, K+ HTN, myalgia, fasciculations, malignant hyperthemia, tachy/bradyrythmias	Quickest onset
Pancuronium (Pavulon ®)	0.1-0.15 mg/kg (7-10 mg)	2-3 min	60-90min	Hepatic elimination	↑ HR, BP, histamine release
Vecuronium (Norcuron ®)	0.1 – 0.15 mg/kg (7-10 mg)	2-3 min	30-45 min	Renal/Bile elimination	No hemodynamic effect
Rocuronium (Zemuron ®)	1 mg/kg (70 mg)	1-2 min	10-40 min		Used in renal and hepatic failure
Cisatracurium (Nimbex ®)	0.15-0.2 mg/kg (10.5 – 14 mg)	~ 2 min	30 – 90 min		Reserved for use in renal failure (CrCl < 30 ml/min)

NMBA

- Used to manage ventilation, ICP, spasms and decreased oxygen consumption
- Not first line
- Before NMBA, medicate with sedation and analgesia

Summary

- RSI can involve pretreatment ("LOAD"), sedation and paralyzing the patient
- Sedate before paralyze
- NMBAs are used for muscle relaxation
- NMBAs should be selected based on PMH, DOA, renal & liver function

Supplementary Reading

- Dufour DG, Larose DL, Clement SC. Rapid sequence intubation in the emergency department. *J Emerg Med* 1995; 13: 705–10
- Lafferty, KA, Stettner, T. Rapid sequence intubation. Accessed: http://www.emedicine.com/emerg/topic939.htm Updated June 2006.