R Adams Cowley Shock Trauma Center
University of Maryland

Shock Trauma Go-Team
Standard Operating Procedure
Prehospital Total Intravenous Anesthesia

Last update: 12 FEB 2020

Supplies
- 100 mL saline bag
- 2 x 20 mL propofol (200 mg each)
- Ketamine (50 mg/mL)
- Fentanyl (50 mcg/mL)
- Macro dripper IV set (1 gtt = 1 mL)

Indications:
- Surgical anesthesia in an out-of-hospital environment where volatile anesthetics are not practicable
- Prolonged sedation and analgesia for painful procedures after definitive airway management has been achieved

Contraindications:
- Severe hemodynamic instability (not amenable to a titratable infusion)
- Cardiac arrest

PROCEDURE STEPS

Final Mixture "P4 : K2.5 : F2.5"

1. Confirm patency of at least **TWO INTRAVENOUS SITES**
2. Gather supplies
3. Remove **50 mL** from 0.9% saline bag
4. Replace the 50 mL with **400 mg propofol** (40 mL), **250 mg ketamine** (5 mL of 50 mg/mL solution), **250 mcg fentanyl** (5 mL of 50 mcg/mL solution)
5. Start the infusion at **1 gtt / second** *
6. A bolus of **4 mL** can be given every **5** minutes *if needed*
7. One bag of "**P-K-F**" should last ~ 90 minutes
8. If alternative agents are required, consider alternative protocols listed below
9. If neuromuscular blockade is indicated, dose with **rocuronium** or **vecuronium** (see below)

* At 1 gtt/second, this is nearly equivalent to an infusion of propofol at **100** mcg/kg.min, ketamine **5** mg/min, fentanyl **150** mcg/min

Alternative Protocol #1
- For every **50** mL of 0.9% saline, add **200 mg ketamine**, **10 mg vecuronium**, **5 mg midazolam**
- **mL/hr** = patients weight in **kg / 2**

Alternative Protocol #2
- For a **250** mL of 0.9% saline, add **750 mg ketamine**, **20 mg vecuronium**, **25 mg midazolam**
- **mL/hr** = patients weight in **kg / 2**
- For SEDATION, decrease dose to **mL/hr** = patients weight in **kg / 2**

Alternative Protocol #3 (F20:K20:M1)
- 5 mL "syringe stick" TIVA
- In a **5** mL syringe, place **100 mcg fentanyl** (2 mL), **100 mg ketamine** (1 or 2 mL), **5 mg midazolam** (1 mL)
- Add 1 mL of saline if ketamine 100 mg/mL
- 1 mL = "F20:K20:M1"
- Titrate **2-3 mL to nystagmus**
- Titrate **1 mL PRN to maintain sedation**

Alternative Protocol #4 (F25:K30:M1)
- 10 mL "syringe stick" TIVA
- In a **10** mL syringe, place **250 mcg fentanyl** (5 mL), **300 mg ketamine** (3 mL), **10 mg midazolam** (2 mL)
- 1 mL = "F20:K20:M1"
- Titrate **3-4 mL for induction of anesthesia**
- Titrate **1-2 mL PRN to maintain anesthetic depth**

Titrate neuromuscular blocker PRN (rocuronium 0.1-0.2 mg PRN **OR** vecuronium 0.05-0.1 mg/kg every hor or PRN)