**Anesthesia – Pocket guide**

### Induction agent

**Propofol:** 10 mg/ml, 20 mg/ml
- Induction anesthesia: 2 mg/kg (children: 2.5-3.5 mg/kg), Sedation bolus: 0.5 mg/kg
- Maintenance of anesthesia: 4-10 mg/kg in descending dose, TCI 2-6 µg/ml, Sedation: 0.5-4 mg/kg/h
- Avoid: Sedation on ICU <16 years

**Pentothal (thiopentone):** 25 mg/ml
- Induction anesthesia: 4-6 mg/kg (70 kg -14 ml)
- Avoid: porphyria, upper airway obstruction, asthma attack, extravasal & intrarterial injection

**Ketamine:** 10 mg/ml iv, 50 mg/ml im
- Induction anesthesia: 1-2 mg/kg iv, (5) -10 mg/kg im + midazolam 1-3 mg (silent on saline)
- Maintenance of anesthesia: 0.5-4 mg/kg/h iv in decreasing dosage
- Post-op pain relief: 0.25-0.5 mg - repeat vb.
- Avoid: hypertension (relative contraindication), In liver failure -> dose reduction

**Esketamine:** 5 mg/ml iv, 25 mg/ml im => half the ketamine dose

### Muscle relaxants:

**Succinylcholine (Suxamethonium):** 50 mg/ml iv
- Intubation dose: 1-1.5 mg/kg iv (give pre-treatment with atropine)
- Cave: hyperkalaemia, malignant hyperthermia, muscle diseases, large tissue damage

**Rocuronium:** 10 mg/ml iv
- Tracheal intubation dose: 0.6 mg/kg (90 sec -> intub), 1.0 mg/kg (60 sec -> intub)
- Cave: Previous reaction to muscle relaxants, myasthenia or similar neuromuscular disease.
- Acute reversal: Sugamadex 16 mg/kg (70 kg = 112 mg = 11.2 ml). Given iv as a bolus of 10 sec

**Atracurium:** 10 mg/ml iv
- Tracheal intubation dose: 0.6 mg/kg iv (1.0 mg/kg at RSI)
- Effect approx 90 sec - duration approx 35 min. Maintenance dose: 0.1-0.2 mg/kg (10-20 min)
- Cave: Previous reaction to muscle relaxants, myasthenia or similar neuromuscular disease.

### Opioids:

**Alfentanil:** 0.5 mg/ml iv - about 25 times the potency of morphine (1 ml alfentanil ≈ 12.5 mg morphine)
- Maximum power within 90 sec - duration 5-10 min. Can provide muscle rigidity especially at high doses.
- Shorter painful intervention: 0.25-0.5 mg - repeat vb.
- Optimum intubation dose: 20 µg/kg iv (70 kg = 1.5 mg = 3 ml)
- TIVA (µg/kg/min) - Intubation 0.4-0.5, Maintenance 0.2-0.7 µg/kg/min
- TCI (ng/ml) - Intubation 40-50, Maintenance 40-80 ng/ml

**Fentanyl:** 50 µg/ml (iv) - about 100 times the potency of morphine (1 ml fentanyl = 5 mg morphine)
- Intubation dose for general anesthesia: 1-5 µg/kg iv (70 kg = 70-350 µg = 2-12 ml)
- For children 2-12 years, 1-3 µg/kg is given in comb. with inhalation anesthesia

**Remifentanil** 50 µg/ml:
- Intubation: TIVA 0.25-0.5 µg/kg/min, TCI 5-8 ng/ml
- Single dose induction 1 µg/kg, induction without muscle relaxants 2-3 µg/kg (90 sec to effect)
- Maintenance: TIVA 0.15-0.5 µg/kg/min (TCI 4-10 ng/ml)

### Antiemetics:

**Droperidol:** 2.5 mg/ml (most effective dose 1 mg)
- Cave: QT prolongation (ECG monitoring 2-3 hours after inj), Pneumothorax

**Betametason:** 1 mg symptomatic of already established PONV

**Ondansetron** 0.5-2.5 mg (most effective dose 1 mg)
- Cave: Non sedative - serotoni receptor antagonist: 1 mg/ml

### Vasopressor agents

**Eufedrine** 5 mg/ml: Direct receptor agonist + NA-release – α1 +, β1+++ , β2 ++ = SVR↑, CO↑, HR↑, BP↓
- Indication: Blood pressure drop, bronchial asthma

**Phenytoine** 0.1 mg/ml: (α1 ++++ = SVR↑, CO↑, HR↑, BP↓)
- Indication: Blood pressure drop, bronchial asthma

**Norepinephrine** 0.1 mg/ml: (α1 ++++ = SVR↑, CO↑, HR↑, BP↓)
- Indication: Sepsis, anaphylactic shock, hypotension with SVR ↓
- Dosage: 0.01-0.5 µg/kg/min = 0.5-40 ml/h for 70 kg

### Inhalation anesthesia:

**Sevoflurane** (Blood/gas solubility coefficient 0.68, CO↑, HR↑, SVR↓, BP↓, RR↑, TV↓, pCO2↑)
- MAC: newborn 3.3%, 25 years 2.5%, 60 years 1.7%, 80 years 1.4%. N2O reduces the need by about 25%.
- Not respiratory irritant:

**Desflurane** (Blood/gas solubility coefficient 0.42, CO↑, HR↑, SVR↓, BP↓, RR↑, TV↓, pCO2↑)
- MAC: 25-year 7%, 45-year 6.0%, 70-year 5%. N2O reduces the need by about 25%.
- Uterus relaxation, respiratory tract - not suitable for induction, dose-dependent cardiodepression.

**Nitrous Oxide N2O** (Blood/gas solubility coefficient 0.42. Small effect on circ and resp. BP↑, TD↑, RR↑)
- MAC: 105%. Upon induction 30-70% by volume with O2 + or other anesthetic gas.
- Avoid: Pneumothorax, pneumopericardium, gas embolism, head injury, ileus, B12 deficiency

### Malignant Hypertermia:

- Triggers: Succinylcholine + inhalation gases.
- Symptom: Muscle rigidity, rate increase 1°C/5 min, EtCO2 ↑, sweating, tachycardia
- Hyperventilate etc. x 2-3 100% O2, change to TIVA, disconnect carburetor, exit op.
- Dantrium starting dose 2.5 mg/kg (in coarse pvc/CVC) - repeat 1mg/kg until temp ↓.