Anaesthetic Update -
A Toolkit for GP Anaesthetists

RDN – Continuing Education
Stephen Barratt
19/9/2009
Milsons Point
Purpose

Review recent advances in anaesthesia which may be of interest to rural GP anaesthetists
Airway Management

- Intubation
- Laryngeal mask
- Proseal
Difficult Intubation

- Predictors
  - Mouth opening – Mallampati scale
  - Neck extension – 30° said to be magic number
  - Thyro-mental distance – 6cm said to be magic number
  - Caudal larynx syndrome
AMA's new President

NEW TEAM TAKES OVER - Page 3

Inside

Bushfire experience exposes fund-holding flaws - page 13
Rev your engines and get stimulated - page 19
War on obesity: Parliamentary committee joins up - pages 23, 24 & 25
Bushfire experience exposes fund-holding flaws - page 13

Rev your engines and get stimulated - page 19

War on obesity: Parliamentary committee joins up - pages 23, 24 & 25
Obesity is NOT a predictor to a difficult airway.
Issues with Obesity

- Difficult venous access
- Difficult mag and mask ventilation
  - Aspiration risk
  - Sux or Rocuronium
- Intubation rarely an issue
- Rapid awakening desirable
  - Desflurane/remifentanil/propofol
  - Hypnosis monitor
- Minimise muscle relaxants at end of case
Obesity Postoperatively

- Hypoxia
- CC impacts upon FRC - venous admixture
- Minimally invasive surgery >> epidurals
- Rapid awakening
  - Appropriate drugs
  - Minimise muscle relaxants @ end of case
- Non invasive or invasive ventilation post op?
Aids to difficult intubation

- The usual
  - Optimal position
  - Assistance
  - Bougie
  - Blades
- In a difficult situation don't try something new
- DO WHAT YOU NORMALLY DO
Aids to difficult intubation

- Direct vision techniques better than blind
- Blind
  - Classic LMA
  - Fast trach laryngeal mask
  - Light wand
- Direct vision
  - Bullard
  - Video laryngoscope – glidescope, storz (website)
  - FOI – gold standard but really elective
Failed intubation

- Oxygenation is main priority
- Need to prevent awareness
- Laryngeal mask is first failed airway device
- Proseal is an alternative
- Cricothyroidotomy as last resort
- Is case urgent or elective?
Muscle Relaxants

- Suxamethonium still gold standard for RSI
- Attempts to decrease potency to increase speed of onset (vecuronium vs. rocuronium) have not matched suxamethonium
- Risk of anaphylaxis increased ??? (rocuronium)
- Use of cyclodextrins to immediately reverse muscle relaxants
Sugammadex

- Cyclodextrin designed to bind rocuronium

**Advantages**

- More effective than neostigmine
- Can reverse at any time (with sufficient dose)

**Disadvantages**

- Cost. Full dose roc (1.2mg/kg) for RSI in adult requires 16mg/kg of sugammadex if failed intubation.
- ~ $1,600
Failed Airway

- Can't intubate can't ventilate = 1:10,000 adults
  - These patients are fairly obvious
  - But 1980's data
  - Dentition, LMA, feminisation of workforce
- 1:2,000 prolonged duration of suxamethonium
- ie. You will kill 1 in 20 million patients with this combination
- Roc/sugammadex eliminates this risk
TIVA vs. Inhalational

- **TIVA advantages**
  - Less nausea and vomiting
  - Less pollution
  - Rapid clear headed recovery

- **TIVA disadvantages**
  - Cost – less of a difference now
  - Monitoring – though awareness monitoring 'routine'
  - ?? Toxicity of long chain triglyceride emulsions
TIVA vs. Inhalational

**Inhalational Advantages**
- Historical gold standard – most experience
- Easier to use
- Easier titration with spontaneous ventilation
- Relatively rapid awakening – kept pace with TIVA
- Preconditioning effects on the heart

**Inhalational Disadvantages**
- Nausea and vomiting
- Pollution
Nitrous Oxide – RIP

- Old drug that needs to be retired
  - Improved pharmacology of new drugs
  - Academic agenda
- ENIGMA study
  - > 2000 high risk patients
  - Nitrous associated with worse recovery, one day stay longer in hospital, greater N&V
- No FANZCA trainee currently uses nitrous oxide (except children)
High Risk Surgery

- Guidelines divide this into
  - Low, medium and high risk surgery
  - Low medium and high risk patients
- Emergency is the other factor
- Its the medium/medium which is problematic
- With emergencies and high risk patients
  - Heart rate control with beta blockers
  - Academic agenda
Nerve Blocks

- Have become more popular in lieu of the decline in epidural blockade
- Traditionally nerve stimulators have been used
- Ultrasound guidance has become standard of care for upper limb blocks
Local Anaesthetics

- No spectacular advances
- Ropivacaine and L-bupivacaine
- Lower toxicity than racaemic bupivacaine
- But also less potent
- Probably less cardiotoxicity for given LA effect on bolus injection
Obstetrics

- Spinal standard for elective caesarean section
- Evidence for fluid loading rather poor
- Rather infusion of vasopressors (NOT ephedrine) is the preferred method to maintain BP
  - Metaraminol 500mcg/ml at 20-30mls per hour
  - Stop if BP is above pre spinal level
  - Restart if BP below pre spinal level or if nauseated
Analgesic Controversies

- COX-2 analgesics
  - IHD
  - Renal failure
  - One dose OK? Other nephrotoxins
- Tramadol
  - N&V
  - Epilepsy
  - Serotonergic syndrome
- IV Paracetamol
Post operative N & V

- Things we can influence vs patient factors
  - Choice of anaesthetic
    - Total IV better than gaseous (at least omit nitrous)
  - Choice of analgesic
    - Opioids and tramadol problematic
    - 5HT-3 antagonists established
  - Steroids effective and indicated in high risk cases
  - Prolonged QT syndrome with droperidol
Anaesthetic Machine

- Move towards electronic machines
- Advantages in accuracy, monitoring, record keeping
- Reliability and ease of use problems have largely been resolved
- Cost is main issue
Syringe Swaps

- Rare but devastating problem
- Strapping ampoules to syringes (old practice)
- Labels good but not enough
  - Too complex cognitively
- Minimise bolus injections (e.g., antibiotics)
- Red syringes for muscle relaxants
  - Only 5ml
  - Have been swaps despite this
- Bar code systems