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Dentistry

Sedation
- conscious sedation =
  - drugs to produce depression of CNS during which verbal contact with pt is maintained
  - must retain airway reflexes
  - understand verbal instructions
- for patients who wont tolerate LA only:
  - PO or IV sedation
  - inhalational N2O - nasal mask = relative analgesia
- pt must be monitored by trained staff other than dentist
- procedure:
  - ASA 1 & 2
  - pt escort for and after procedure
  - written instructions on driving & machinery post procedure
  - standard starvation guidelines
  - pt must be able to communicate during procedure
  - resus equip must be available
  - flumazenil available
  - 1hr for recovery
- regimes:
  - IV midaz
    - give 2mg - wait 90secs
    - give 1mg every 30sec until sedated
    - (expect 6-10mg midaz
  - low dose propofol - only if suitable trained
  - N2O:
    - add 10% to O2 for 1min
    - 20% for 1 min
    - then ↑ in 5% increments to max 50% until sedated
    - 100% O2 at end of procedure
  - d/c when able to walk

General Anaesthesia
- indication for GA:
  - impossible to achieve LA cover . risk of intra-procedure pain:
    - day case extraction of permanent molars
    - in pt extensive work
  - patients who unlikely able to allow safe completement of procedure ie young/ID
  - long term dental phobia will be induced or prolonged
- premeds useful
- complex medical problems eg Downs ⇒ need full preAx & exclusion of co-morbidities
- routine Abx for endocarditis prophylaxis is no longer done
- surgery not performed in a chair - supine
- ↑ risk of arrhythmias intraop due to stimulation of trigeminal nerve
- use LA where possible:
  ▪ lignocaine 2% with adrenaline 1:80,000 = 90min duration & 7mg/kg max dose ~10x2.2ml cartridges
  ▪ bupivacaine 0.25-0.5% plain - up to 8hr anaesthesia

**Dental Extractions**

Common post operative problems:

1. PONV
2. Pain
3. Bleeding
4. Eye trauma
5. Sedation

**Preoperative**
- focused medical history and examination
- PONV:
  ▪ risk assessment:
    - female,
    - non-smoker,
    - previous motion sickness,
    - previous PONV
  ▪ if high risk:
    - assessment and treatment of hydration status,
    - premedication (anxiolysis; midazolam 0.5mg/kg PO 30min before operation
      - this will ↓ intraoperative anaesthetic requirement but may ↑ post operative sedation
  - can procedure be done under sedation or GA :
    - decreased risk of PONV with sedation
  - discuss with surgeon: oral or nasal ETT or LMA required for surgical access
    - if nasal ETT required provide adequate topical anaesthesia and vasoconstriction to nasal passages prior to OT – cocaine spray to nasopharynx
  - preoperative paracetamol 1g PO and etoricoxib 120mg

**Intraoperative**
- propofol induction (anti-emetic properties and clear headed emergence)
- if GA required minimise opioid use
- short acting NMB
- can SV if ventilation adequate (may avoid use of neostigmine and thus decreased PONV rate)
- throat pack will ↓ amount of blood entering stomach -> ↓ PONV as blood in stomach can be highly emetogenic
- intubate with a warmed, lubricated nasal ETT (decreased risk of epistaxis)
- protect eyes with tapes, pads and lubrication
- minimise volatile (if @ serious risk of PONV use propofol TIVA)
- prophylactic anti-emetics if indicated (dexamethasone 0.1mg/kg)
- IVF to ensure hydration
- may or not require Abx
- avoid N2O use
- use of tramadol under GA (less risk of PONV as compared to being administered awake)
- administration of local anaesthesia (inferior alveolar block) by surgeon +/- local infiltration – use long acting LA (0.5% bupivacaine)
- ensure removal of throat pack

**Post operative**
- extubate in left lateral position with head down
- good analgesia (tramadol, NSAIDS, paracetamol, morphine)
- access to multiple anti-emetics
- pressure dressings applied to sockets
- discharge criteria must be met;
  ‣ pain controlled,
  ‣ ambulatory,
  ‣ able to tolerate fluids,
  ‣ person available to drive patient home and also monitor over next 24 hours, f
  ‣ fully awake and orientated,
  ‣ stable vital signs,
  ‣ discharge drugs prescribed + discharge summary,
  ‣ plan in place if patient develops troublesome symptoms (pain, bleeding, PONV)

**Dental Abscess Surgery**

**Preoperative**
- indicators of potential airway compromise:
  ‣ altered speech
  ‣ odynophagia
  ‣ rapid worsening swelling
  ‣ severe trismus
  ‣ change in voice with poor cough => tracheal intubation recommended
- late signs (AFOI):
  - stridor (may be absent at rest)
  - dysphagia
  - orthopnoea
- careful airway exam:
  ‣ check tongue protrusion - sensitive indicator of sublingual involvement
  ‣ mouth opening
- Investigations:
  ‣ CT
  ‣ flexible nasendoscopy

**Perioperative**
**Induction**
- all types of anaesthetic technique are ok with justification
- trismus:
  ‣ Mouth opening likely will not improve markedly with NMBs
  ‣ low threshold for AFOI
- any concern than all cases should be done in main theatre will all equipment ready

**Maintenance**
- use throat packs to soak up pus
- steroids & antibiotics
- standard

**Extubation**
- extubation based on case by case basis
  ↔ any of concerning signs above then keep extubated => ICU
- NSAIDs
- some pts likely to develop further post op swelling esp Ludwigs angina or parapharyngeal involvement

**Special Points**
- Ludwigs Angina:
  ‣ = life threatening cellulitis of floor of mouth involving submandibular & sublingual spaces bilaterally
  ‣ predictor of sublingual involvement is inability to protrude tongue:
    ‣ genioglossus is C shaped concave muscle
    ‣ when concave is filled with pus ⇒ unable to ofld over self
  ‣ surg trachy:
    ‣ difficult due to involvement of neck & pre-tracheal tissues
    ‣ risk of seeding infection into mediastinum
Oral/Maxillofacial Surgery

General Principles

Issues:
1. shared airway (nasal intubation)
2. eye protection
3. throat pack
4. bleeding airway
5. cardiac arrhythmias
6. free-flap surgery
7. infections - airway obstruction, mediastinal spread, cavernous sinus thrombosis

Intubation
- nasal often required (nostril patency, epistaxis, anticoagulation, co-phenylcaine)
- use north facing nasal tubes - prewarmed
- avoid pressure on ant nares ⇒ necrosis
- can use reinforced LMA for short procedures
- previous surgery may ⇒ poorly compliant soft tissue & ↓ neck mobility
  ▲ prepare for DI

Extubation
- examine airway under direct vision
- head down, lateral position or in 30-45deg upright (↓ venous pressure)
- deep, awake extubation, or deep switch to LMA
- can pull NETT and then cut @15cm mark and put safety pin in it -> create a nasopharyngeal airway

Cardiac Arrhythmias
- common c/o stimulation
- worsened by: halothane, hypercarbia, hypoxia, light anaesthesia
- LA prevents

Extraction of Impacted Teeth

Preoperative
- careful assessment of airway (may have severe trismus or facial swelling)
- nostril patency
- discuss with surgeon length of OT (sometimes can be very short)

Intraoperative
- supine, head ring, shoulder bolster
- nasal ETT or LMA
- may need AFOI
- eye protection
- LA blocks to trigeminal nerve by surgeon:
  ▶ maxillary division: infraorbital, greater palatine, nasopalatine
  ▶ mandibular division: inf alveolar, lingual, buccal, mental
- antibiotics prophylaxis - often augmentin for gram -ve coverage
- dexamethasone
- extubate light or deep (left lateral position with head down)
Postoperative
- simple to opioid analgesia

**Orbito-Zygomatic Complex Fracture**
= elevation of fractured zygomatic complex +/- fixation

**Preoperative**
- may have limited mouth opening
- discuss with surgeon regarding approach (temporal (most common), intraoral, percutaneous, transantral)
- carefully assess for associated injuries - these #’s best fixed 5-7d post acute injury
- careful airway assessment

**Intraoperative**
- ETT PO RAE or flexible LMA
- eye protection
- antibiotics
- extubate in lateral position with # up
- potential bradycardia as zygoma # lifted (Gillies lift) ➔ very stimulating
- extubate
  ‣ ensure SV
  ‣ avoid pressure over zygoma with FM

**Postoperative**
- IV opioids
- eye observations - watch for retrobulbar haemorrhage ⇒ require emergency return to theatre

**Mandibular Fracture**
= reduction and fixation of a fractured mandible

**Preoperative**
- discuss with surgeon approach:
  ‣ closed reduction and indirect fixation -> interdental wires or splints +/- jaws wired together
  ‣ open reduction and direct skeletal fixation using bone plates
- associated injuries
- thorough airway assessment
- nostril patency
- NETT contraindicated in coagulopathy and CSF leak

**Intraoperative**
- trismus makes intubation look difficult -> tends to relax following induction
- acuity of injury is impt - any superimposed infection ⇒ failure of view to improve on relaxation
- bilateral #:
  ‣ ↑ed ant mandibular displacement
  ‣ but more difficult BMV
- RSI with nasal intubation usually appropriate
- AFOI may be required if v swollen/infected
- gas induction often difficult c/o pain

**Postoperative**
- standard care
Maxillary/Mandibular Osteotomy

= realignment of the facial skeleton

**Preoperative**
- may have major craniofacial abnormalities -> careful airway assessment
- x-match blood - bleeding can be heavy
- VTE prophylaxis

**Intraoperative**
- supine, head up, head tilt
- airway:
  - nasal ETT with IPPV
  - if severe malocclusion than consider AFOI
  - oral intubation with tube passed out retromolar or through floor of mouth percutaneously
  - tracheostomy
- risk of damage to ETT during surgery which may need to be replaced
- art line
- TIVA -
  - ↓ bleeding risk & remi allows intraop rapidly titratable analgesia
  - ↓ PONV - vital to avoid post op
  - large doses of LA & adrenaline may be instilled to control pain & bleeding:
    - dental mix of LA & adrenaline = 1:80,000 adrenaline
    - should give max 300mcg adrenaline/hour
    - can see tachy & ↑ MAP 2nd to adrenaline injections
- eye protection
- induced hypotension - see notes in ENT section
- isovolaemic haemodilution = now not performed:
  - suggested benefit = ↓ need for allogenic blood
  - evidence = no benefit & may have actually showed ↓ quality of surgical field
- IV A/B + Dex
- hypothermia cares
- PONV cares - 7-40% chance of PONV
  - extubate once patient fully awake and co-operative (can cut nasal tube to create a N/P airway
  - mandibular or maxillary nerve blocks by surgeon

**Postoperative**
- fixation of mandible and maxilla can take place -> if airway obstruction (eg vomiting) occurs this needs to be removed quickly - need wire cutters
- PONV and monitoring for bleeding to prevent airway obstruction
- small doses of IV opioid
- HDU
- humidified O2
- IV or IM medications
- encourage oral intake as soon as possible

**Facial Trauma**

**Classifications**
- # lower ⅓:
  - ring formed by mandible, TMJ & base of skull
  - # on one side of mandible often create # on another
  - not a problem for airway unless:
    - delayed injury with coninfection
    - gross displacement ⇒ large sublingual haematoma ⇒ similar to Ludwig’s angina
- bilat anterior #s
- common to lose teeth
- # mid ⅓:
  - complex #s can result in life threatening problems:
    - airway compromise
    - massive epistaxis
  - Use bite blocks to tamponade bleeding
  - Le Fort # classification seen here
- # upper ⅓:
  - nose & base of skull involvement mean extreme care when placing tubes in nose

Preoperative
- standard careful airway assessment done in discussion with surgeon

Intraoperative
- Pain should ↓ after # fixation
- Dex to minimise swelling
- Correct antibiotics:
  - grossly contaminated wounds
  - penetrating wounds
  - exposed cartilage
  - devascularised wounds
- reflex brady during lifting of zygomatic #
- G&H

Extubation
- plan carefully
- Le Fort II & III oedema can worsen for 48hrs post op

Post OP
- watch for haematoma:
  - have rescue plan ie removing sutures clips
  - documented plan for re-intubation