Preoperative Assessment

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Principles

- All patients scheduled to undergo surgery should have a preoperative evaluation to assist in planning their peri-operative management, thus reducing the risk of morbidity and mortality

- This applies to ALL patients, even if planned for a regional anaesthesia technique

Aims of Preoperative Assessment

- Confirm the indication for the surgery planned: *risk benefit*
- Anticipate potential problems (eg HT on diuretics can have hypokalaemia)
- Ascertain that patient is optimally prepared for surgery (eg correct any electrolyte imbalance)
- Obtain *informed consent* for the procedure
- Prescribe appropriate medication for the patient (eg anxiolytics to decr SNS overdrive)

The process of assessment

- Timing - before undertaking the anaesthesia. True for all surgical procedures, elective and emergency

- Entails taking a detailed history, performing a systematic clinical examination and requesting special investigations as appropriate

- Culminates with a determination of procedural risk according to scoring system: modify risk factors; cancel or reschedule procedure

History

- Surgical history: the presenting surgical conditions
- Co-morbid conditions: DM, HT, RA
- Anaesthetic history: previous anaesthesia experience (n&v, delayed emergence)
- Family history: MH, porphyria, scoline apnea, bleeding
- Drug history: medicinal, recreational
- Allergy (Latex; Muscle relaxants; Antibiotics)
- Social (smoking and alcohol)

Potential Drug Interactions

- CVS:
    - Hypotention (potentiated by anaesthetic agents): AntiHT, B-blockers, CCB
    - Bradyarrhythmias: B-blockers, CCB, digoxin, magnesium
- CNS: enzyme induction, additive sedative effects
- Antibiotics: Aminoglycosides (kidney damage) vs NMBs (prolongs action)
- NSAIDS: coagulopathy
- Steroids: glucose homeostasis, adrenal suppression
- Cancer therapy: pancytopaenia

Clinical examination

- General: color, hydration, jaundice (JACCOLD)
- Systematic: CVS, Resp + airways, NS, MSK
- Local: confirm Dx; assess for placement of blocks, lines and monitors
- Special examinations and tests as indicated

Airway Assessment

- Difficulty in management is the single most important cause of anaesthesia-related mortality and morbidity

- Involves: history, clinical examination and clinical tests

History

- Previous anaesthetics involving airway management
- Previous tracheal intubations
- Previous trauma, surgery, radiotherapy to the head and neck area
- *Medical conditions at high risk for difficult airway*: DM (Prayer sign), RA, cervical spondylosis, acromegaly, morbid obesity, syndromes (Down's, Pierre-Robin)

Inspection

- Neck masses, scars, and contractures
- Anatomical distortions: Small mouth (scleroderma), large tongue, large breasts, receding chin, widely spaced teeth, poor dentition

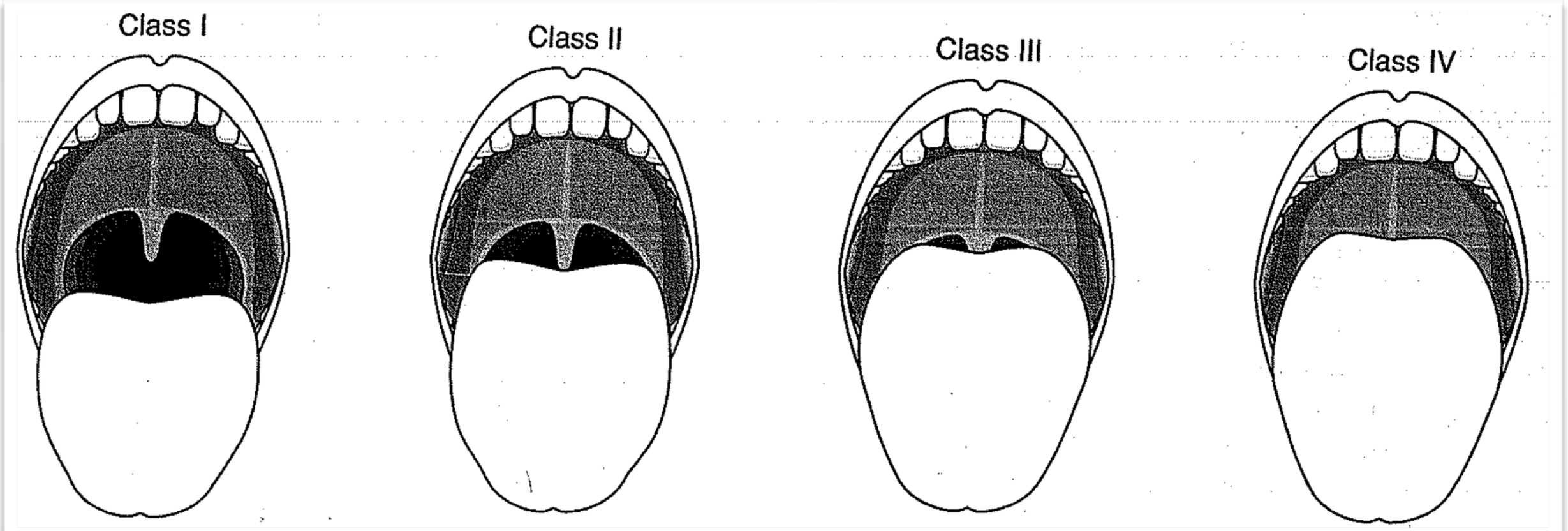
Clinical tests

- Inter-incisor gap ≥ 3cm
- Jaw movement: Protrusion beyond incisors
- Flexion/extension at cranio-cervical junction >90o
- Thyromental distance (Patil) > 6.5 cm
- Sternomental distance (Savva) > 12.5 cm

Mallampati Test

- Setting: Eye level, head neutral, don't phonate
    - *Class 1: Best view (faucical pillars, soft palate and uvula)*
    - *Class 2: Faucical pillars and soft palate*
    - *Class 3: Soft palate only*
    - *Class 4: Hard palate only*

Mallampati view



Features associated with difficult airway

- Short muscular neck
- Protruding incisors (buck teeth)
- Long, high arched palate
- Receding mandible
- Poor mobility of jaw
- Decreased cervical movement

Physical examination

- Vital signs: BP, pulse (rate and rhythm), RR, temp (paeds)
- Airway: facies, dentition, mouth opening, mandible and TMJ, neck mobility and circumference
- Heart: size, abnormal sounds
- Lungs: wheezes, crackles, bronchial breathing
- Neurological: nerve blocks, autonomic neuropathy
- Extremities

Special investigations

- Will they yield new information not reveled by the clinical examination?
- Will they alter the management of the patient?
- Other they are confirmatory (pallor confirmed as anaemia because of low Hb

Investigations

- Hct or Hb: clinical anaemia, menses, anticipated blood loss
- Electrolytes: HT, DM, diuretic Tx, digoxin, renal disease, diarrhoea, and vomiting
- Cardiac assessment: ECG, U/S
- Respiratory assessment: CXR, lung fx (spirometry), blood gases
- Other: liver fx, coagulation screen

Prediction of Morbidity and Mortality

- What are patient's risk factors for morbidity and mortality? *Age, co-morbidities, type of surgery, emergency procedure*

- Is the patient optimally prepared for anaesthesia and surgery? *Control of co-morbidities*

- What is the risk-benefit ratio for proceeding with the procedure?

Scoring system: ASA Grading

- Considers physical condition of patient and whether surgery is elective or emergent

- Elective patients with no or controlled systemic disease have lowest risk of mortality

- Weakness: doesn't consider age, type of surgery, airway difficulties, severity of presenting illness or type of surgery proposed

American Society of Anaesthesiologists (ASA)

- Class 1 Normal healthy patient
- Class 2 Mild systemic disease
- Class 3 Severe systemic disease that is not incapacitating
- Class 4 Incapacitating disease that is a constant threat to life
- Class 5 Moribund; not expected to survive operation with or without operation
- Class E Suffix for Emergency procedure

ASA Perioperative Mortality Rates

- Class 1: 0.06 – 0.08%
- Class 2: 0.27 – 0.42%
- Class 3: 1.8 – 4.3%
- Class 4: 7.8 – 23%
- Class 5: 9.4 – 51%

Postponing Surgery: Indications

- Acute URTI
- Co-morbid disease not optimally controlled: DM, HT, bronchial asthma
- Emergency surgery to enable optimization of resuscitation
- Recent food ingestion
- Failure to obtain consent

Common indications

- Blood Pressure: SBP >140 or DBP > 110 mmHg (Must be a true reading)
- Cardiac: Ischaemia, failure
- HR and Pulse: Abnormal rhythm
- Respiratory: Active pulmonary infection, bronchospasm
- Endocrine: Uncontrolled DM, thyroid
- Renal failure: untreated

Preoperative Preparation

- Prescribe and administer premedication
- Ensure preoperative fast:
  - Risk of aspiration of stomach contents with institution of general anaesthesia (at risk patients: recent food or fluid by mouth, bowel obstruction, pregnancy, opioid premedication [pt with a full stomach])
  - NPO guidelines: adults and children no solid <6hrs preop; clear fluids up to 2hrs preop

End