



PACU Complications

Mark J. Harris
University of Utah
Salt Lake City
USA



Respiratory Complications

- Airway Obstruction
- Hypoxæmia
- Hypercarbia



Airway Obstruction

7% of PACU complications

Mechanical:

- hypotonic tongue
- laryngospasm
- secretions
- wound hæmatoma

Œdema:

- œdema larynx / pharynx
- 2^o surgery / ETT



Hypoxæmia

$\text{SaO}_2 < 90\%$

$\text{PaO}_2 < 60\text{mmHg}$

| | |
|-------------------------------------|---|
| Atalectasis (most common) | 2° GA → ↓ TV / VC / FRC - lasts 7-10 days → ↓ chest wall / pulmonary compliance → ↓ pulmonary muscle tone → diaphragm cephalad → compression alveoli |
| pulmonary œdema | - cardiogenic - non-cardiogenic |
| pneumonitis | = non-cardiogenic pulmonary œdema |
| pulmonary embolism | air / fat / thrombus |
| pneumothorax | intubated patients with high airway pressures trauma patients with rib fracture surgery near diaphragm |



Hypercarbia

- Hypoventilation:
 - drug-induced central respiratory depression
 - inhaled agents → rapid & shallow
 - opioids → slow & deep
 - intrapulmonary abnormality
 - airway obstruction
 - splinting 2° pain
 - residual neuromuscular blockade



Hypercarbia

- Malignant hyperthermia
- thyrotoxicosis
- NaHCO_3
- rebreathing / added dead space
- expired soda lime
- Pulmonary embolism:
 - air
 - thrombus
 - fat



Cardiovascular Complications

- Ischæmia / infarction
- Arrhythmias
- Hypotension
- Hypertension



Ischæmia / infarction

- 75% of peri-operative infarcts have no pain
- tachycardia greatest risk factor for ischæmia
- Risk factors:
 - previous hx angina / MI
(36% mortality from peri-op MI)
 - CHF
 - DM
 - > 70 yo
 - major vascular / abdominal / thoracic surgery



Arrhythmias

| | | |
|---|---|--|
| ST (100-150 bpm) | usually benign | sympathetic discharge MI hypoxæmia / hypocarbia hypovolæmia / anæmia |
| SB (<60 bpm) | usually \emptyset Tx unless: <ul style="list-style-type: none"> • < 45bpm • hypotension • slow ventricular response | opioids / β -blockade athletes vagal reflexes / high spinal hypoxæmia \uparrow ICP |
| PAC (\emptyset comp. pause) | usually benign | |
| PVC (comp. pause) | Tx if : <ul style="list-style-type: none"> • > 6/min • multi-focal • salvos | hypoxæmia hypokalæmia |



Hypotension

Commonest CV complication in PACU = 3%

- hypovolaemia
- anaemia
- MI
- left ventricular failure
- arrhythmias
- ↓ peripheral vascular resistance
 - sepsis
 - sympathectomy (spinal / epi)

} usually



Hypertension

- Pain
- Anxiety
- Bladder distension
- ETT
- Neuro-endocrine stress response to surgery
- Hypervolaemia
- Hypoxaemia
- Hypercarbia
- Missed antihypertensive medication



The End
