

Ischemic Heart Diseases

Myocardial Ischemia → Reduced O₂ Supply Due to Partial or Complete Blockage of Artery.

Symptoms

- | | |
|------------------------|---------------------|
| a) Chest Pain | b) Neck or Jaw Pain |
| c) Shoulder Pain | d) Tachycardia |
| e) Shortness of Breath | f) Sweating |
| g) Nausea and Vomiting | |

Risk Factors

- | | |
|------------------------------|---------------------------|
| 1) Tobacco | 2) Diabetes |
| 3) High Blood Pressure | 4) High Blood Cholesterol |
| 5) Lack of Physical Activity | |

Anaesthesia and Ischemia (history and evaluation)

Checking Perioperative Cardiac Mobility

- | | |
|------------------|--------------------------------|
| 1) Recent MI | 2) Peripheral Vascular Disease |
| 3) Angina | 4) DM |
| 5) Hypertension | 6) Dysrhythmia |
| 7) Renal Disease | 8) Current Medication |

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- 1) Propofol in Association with Opioid Is Logical Anaesthetic Choice.
- 2) Ketamine → Is Associated with Tachycardia and Rise in Blood Pressure.

Revised Cardiac Index

- 1) High Risk Surgery
 - 2) Ischemic Heart Disease
 - 3) Heart Failure
 - 4) Cerebrovascular Disease
 - 5) Preoperative Treatment with Insulin
 - 6) Preoperative Creatinine Over 2mg/dL
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Laboratory Investigation

- 1) ECG
 - 2) Echo
 - 3) Holter Monitoring
 - 4) Treadmill
 - 5) Thallium Scintigraphy
 - 6) Radionuclide Study
 - 7) Dobutamine Stress Test
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Clinical Risk Factors (with surgery and anaesthesia)

- a) Major Clinical Predictors (Sever H.F, ACS, Sever Arrhythmia).
 - b) Intermediate Clinical Predictor (Mild Angina, Previous MI, Compensated Heart Failure).
 - c) Minor Predictor (Hypertension, Bundle Branch Block, Non-Specific ST-T Wave Changes).
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Cardiac Management Options (Before Non-Cardiac Surgery)

- 1) Optimization of Medical Management
 - 2) Revascularization by PCI
 - 3) Revascularization by Surgery (CABG)
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(Pre-Anaesthetic Considerations)

- a) Preoperative Visit
- b) Medication To Be Reviewed

- 1) Medications That Continue till The Day of Surgery like Beta Blockers, Calcium Channel Blockers and Digitalis.
- 2) Potassium Should Be Normal.
- 3) Anticoagulant Should Be Stopped 2-3 Days.
- 4) Anxiolytic Agents Should Be Given Like Benzodiazepine.

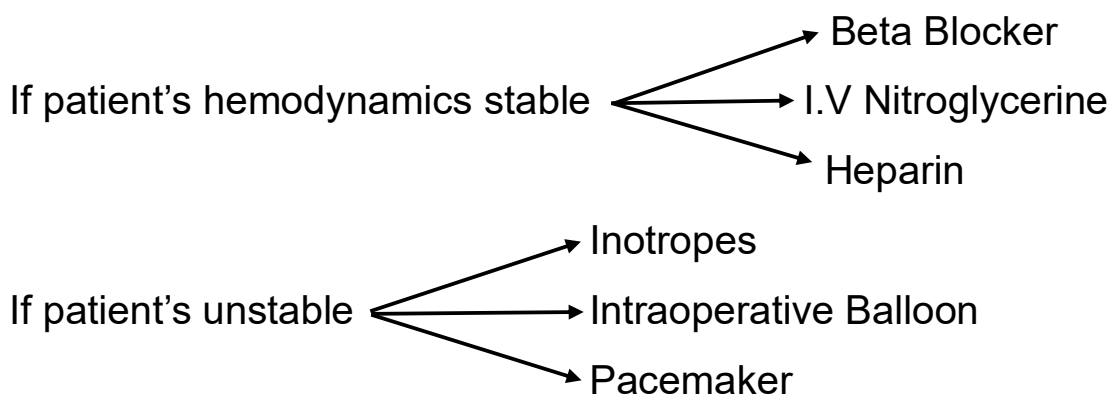
Intraoperative Management

- | | |
|----------------------------|------------------------------|
| 1) ECG | 2) Blood Pressure |
| 3) Pulse Oximetry | 4) Capnography |
| 5) Temperature Monitoring | 6) Urine Output Monitoring |
| 7) Central Venous Pressure | 8) Pulmonary Artery Pressure |

Anesthetic Drugs

- a) Drugs Reducing Myocardial Contractility:
- | | | |
|----------------|-------------|-------------|
| 1) Thiopentone | 2) Ketamine | 3) Propofol |
|----------------|-------------|-------------|
- b) Drug With Effect Good Hemodynamic Stability:
- | | | |
|--------------------------------------|------------------|-------------|
| 1) Midazolam | 2) Etomidate | 3) Morphine |
| 4) Fentanyl | 5) Nitrous Oxide | |
| 6) Muscle Relaxant (Like Vecuronium) | | |

Managing Intraoperative Complications



Postoperative Complications

- 1) Prevents Ischemia
- 2) Monitors and Treats MS

Respiratory System

Anaesthesia and Infection

Important Parts to Be Remembered:

- 1) Assess Patient Preoperative.
- 2) General Anaesthesia Affects Resp System Via
 - a) Alter functional Residual Capacity.
 - b) Shape and Motion of Chest.
 - c) Resp Muscle Function.
- 3) Antibiotic Enhance Neuromuscular Block if Given with Neuromuscular Blocking Drug.
- 4) The Following Anaesthetic Drugs Act in This Way
 - 1) Ketamine → Preserve Resp Drive and Maintain Airway.
 - 2) Thiopentone → Increase Airway Resistance.
 - 3) Volatile Anaesthetics → Depress Resp Drive
 - 4) Resp Rate During Anaesthetics is 8-12 bpm.
 - 5) Hypoxic Pulmonary Vasoconstriction Mechanism Inhibited by Anaesthetic Drug Leading to Reduced Arterial Oxygen Concentration Because of Early Closure of Airway → Decreased Ventilation → Atelectasis

Symptoms of Resp Tract Infection

- | | |
|---|--|
| 1) Cough | 2) Sneezing |
| 3) Stuffy Nose | 4) Sore Throat |
| 5) Headache | 6) Muscle Pain |
| 7) Fever | 8) Breathlessness |
| 9) Facial And Tooth Pain
More with Sinusitis | 10) Sore Throat More with
Pharyngitis |

Viral Infection Change to Bacterial Infection if

- 1) Symptoms Last Longer than 10-14 Days
- 2) High Fever
- 3) White Pus-filled Spots on The Tonsil

Points of Differentiation Between Types of Resp Tract Infection

- 1) Shortness of Breath → Epiglottitis.
- 2) Barking Cough and Difficulty Breathing, Hoarseness and Voice → Laryngotracheitis.
- 3) Cough + Shortness of Breath + Pressure in The Chest → Bronchitis.
- 4) Dry Raspy Cough + Wheezing → Bronchitis.
- 5) Cough + Difficulty Breathing + Sharp Chest Pain + Dehydration + Clammy Skin or Sweating + Shallow Breathing → Pneumonia.

Investigations of Resp Tract Infection

- 1) CBC
- 2) ECG
- 3) Chest X-ray (Pneumonia)
- 4) Lateral Neck X-ray (Epiglottitis)
- 5) Pulmonary Function Test
- 6) Arterial Blood Gases Study
- 7) Throat Swab
- 8) Bronchoscopy
- 9) CT scan (Sinusitis & Pneumonia)

Bacterial Resp Tract Infection Treatment

- 1) Cough Suppressant.
- 2) Expectorants.
- 3) Vit C and ZinC to Reduce Symptoms.
- 4) Steam Inhalation.
- 5) Gargling Salt Water.
- 6) Pain Relievers.

Complications of Resp Tract Infection

- | | |
|----------------------|-----------------------|
| 1) Empyema | 2) Lung Abscess |
| 3) Potts Puffy Tumor | 4) Orbital Cellulitis |
| 5) Orbital Abscess | 6) Mastoiditis |

More Advanced Complications

- 1) Congestive Heart Failure.
- 2) Resp Failure.
- 3) Sepsis → Organ Shutdown.

Risk Factors of Preoperative Period

- a) Cessation of Smoking.
- b) Preoperative Muscle Training.
- c) Fluid Therapy.

Risk Factors of Preoperative & Postoperative Complications

- 1) Chronic Pulmonary Complications.
- 2) Age >60 Yrs.
- 3) ASA (Physical Status Classification)

[Smoking, History, Functional Dependence, Obstructive Sleep Apnea, Cardiovascular Problem, Malnutrition (ASA 1,2,3)].

Anaesthetic Drug

- 1) The Intravenous Induction Agent (Thiopentone, Propofol, Etomidate,) Produce Transient Apnea.
- 2) Ketamine Preserves Respiratory Drive.
- 3) Volatile Drugs Depress Resp Drive in Decreasing Order
(Enflurane > Desflurane > Isoflurane > Sevoflurane > Halothane)
- 4) Atracurium and Tubocurarine Release Histamine and Induce Bronchospasm.
- 5) Opioid and Benzodiazepine Depress Resp Drive and Histamine Release.
- 6) Nonsteroidal Anti-Inflammatory (NSAIDS) Exacerbate Asthma.
- 7) Pethidine is a Useful Alternative Analgesic.
- 8) Surgery Lasts More than 3 Hours → Higher Incidence of Postoperative Complication.
- 9) Postoperative Return of Lung Function May Take One to Two Weeks.