Anesthesia Seminars

1- Preoperative Evaluation and Risk Assessment
2- Muscle relaxant & Reversal, Iv and inhalational Anaesthetic Agent
3- Conduct of anaesthesia, Monitoring in Anesthesia
4- Intubation and Anatomy of the Airway And Anesthesia apparatus
5- Intravenous Fluid and Blood Component Therapy
6- Local Anaesthetic Agents, Spinal and Epidural Anaesthesia and I.V.R.A. (BIER S Block)
7- Basic & advanced life support (BLS &ALS)
8- Pain Management

Guide Lines

Skills to be learned
1. Intravenous cannulation
2. Setting up intravenous infusion
3. Connecting monitoring devices
4. Maintenance of the Airway in unconscious patient
5. Observation of induction of Anaesthesia
6. Observation of Endotracheal Intubation
7. Observation and monitoring recovery from General Anaesthesia
8. Observation of Local and Regional Blocks

I. Anaesthetic Agents (Intravenous Anaesthetic)

<table>
<thead>
<tr>
<th>Thiompentone</th>
<th>Ketamine</th>
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<tbody>
<tr>
<td>physical, chemical properties and presentation</td>
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<tr>
<td>Pharmacokinetics</td>
<td>Pharmacokinetics and mechanism of action</td>
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<tr>
<td>Pharmadynamics (effect on the different organ systems)</td>
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<tr>
<td>Dosage and Administration</td>
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<tr>
<td>Indications and Contraindications (absolute and relative)</td>
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II. Anaesthetic Agents
(Inhalational Agents)

- MAC and factors which alter MAC.
- Factors determining how quickly the inhalational agent reaches the alveoli.
- Factors determining how quickly the inhalational agent reaches the brain from the alveoli in order to establish anaesthesia.
- MAC Value of N2O, Halothane, Isoflurane, Sevoflurane.

Nitrous Oxide (N2O):

- Physical properties.
- MAC Value of N2O.
- The second gas effect.
- Diffusion hypoxia.
- Effect on closed gas spaces.

Halothane, Isoflurane, Sevoflurane

- IN DETAILS
- Enflurane. And Desflurane JUST the value of MAC.

III. Muscle relaxant & Anticholinergic drugs & Cholinesterase inhibitors

1. Physiology of neuromuscular Transmission
2. Depolarizing Muscle relaxant:
   • Suxamethonium:
4. Anticholinergic drugs (mainly Atropine)
   * Effect on the different organ systems:

<table>
<thead>
<tr>
<th>Other adjuvant intravenous anaesthetic agents:</th>
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<tbody>
<tr>
<td>- Benzodiazepines (only midazolam and Diazepam)</td>
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<tr>
<td>- Narcotic Agonists and Antagonists: Definition, Site of action, Effect on organ systems, Fentanyl and Morphine.</td>
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<tr>
<td>- Narcotic Antagonist: Naloxone.</td>
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</table>

- Physical, chemical properties and presentation
- Pharmacodynamics (effect on the different organ systems)
- Dosage and Administration
- Indications and Contraindications
### 3. Non-Depolarizing Muscle Relaxant:
- * Mechanism of action
- * Factor Affecting duration of Non-Depolarizing Muscle relaxant
  - **Atracurium** and **Cis-Atracurium** (Tracrium®): in Details
  - **Rocuronium bromide** (Esmeron®): in Details
  - **Pancuronium bromide** (Pavulon®): in Details
  - **Vecuronium bromide** (Norcuron®): in Details

### 5. Cholinesterase inhibitors: (mainly Neostigmin)
- * Mechanism of action
- * Effect on the different organ systems: (Cardiovascular, Salivary Glands, smooth muscles and Pupils)

### IV. Conduct of Anesthesia
1. Inhalational Induction:
   - * Procedure
   - * Indications
   - * Difficulties and Complications

2. Maintenance of Anaesthesia
   2.1. Conduct of inhalational Anaesthesia with spontaneous ventilation
   2.2. Difficulties and complications
   3. Airway Maintenance delivery of inhalational agents
      - * face mask
      - * Laryngeal mask
      - * Tracheal intubation (Indications)

4. Anaesthesia for tracheal intubation:
   4.1. Inhalational technique for intubation
   4.2. Relaxant Anaesthesia
      - * Indications

5. Conduct of extubation:
   - * Procedure
   - * Complications of tracheal extubation

### Side effects of Suxamethonium
- * (Scopolamine and Glycopyrrolate: differences to Atropine)
### V. Intubation and Anatomy of the Airway And Anesthesia apparatus

| 1. Assessment of patients airway including 1-2-3-Test | 5. Laryngoscopes and type of blades |
| 2. Different classifications of airway structures | 6. Tracheal tubes: size and types of tubes |
| 3. The technique of tracheal intubation (the 5 steps in Detail) | Shape of tube and specialized tubes |
| 4. The anatomical structures seen in region of intubation (name of these structures) | 7. the laryngeal mask |
| 9. Other apparatus including oro- and nasopharyngeal airways. | |

### VI. Monitoring in Anesthesia

| 1. Anesthesia Depth | 5. how to identify Cynosis |
| 2. Guidelines to the practice of anaesthesia and patient Monitoring | 6. O2- Hb-dissociation curve |
| 3. What and how we monitor the Oxygenation, ventilation, circulation, Tempetre | 7. the normal values of monitored parameters for a healthy adult |
| 4. Moniting : ECG, Pulsoximetry, Blood pressure, CVP, Capnography EtCO2 | Undergoing general anesthesia |

### VII. Local Anaesthetic Agents

- The Pharmacology of Local Anaesthetic Agents
  - 1. Definition
  - 2. Classification of Local Anaesthetic Agents
  - 2.1. Comparison between the two Classes.
  - 3. Mode of action
  - 4. Preparation of Local Anaesthetic Agents
  - 5. Addition of Vasoconstrictors
  - 5.1. Indications and Contraindications and Dosage.
  - 5.2. How can I prepare Adrenaline 1:200000?
  - 6. Clinical uses of local anesthetic agents
  - 7. Lidocaine
  - 8. Toxicity (Causes, Prevention and Treatment)
  - 8.1. Systemic Toxicity

### VIII. Local Anaesthetic Techniques

- 1. Central Block: Spinal and Epidural Anaesthesia
  - 1.1. Procedure including Anatomy.
  - 1.2. Indications and contraindications
  - 1.3. Complications (Prevention and Treatment)
- 2. I.V.R.A. (BIER S Block)
  - 1.1. Procedure
  - 1.2. Indications and contraindications
  - 1.3. Complications (Prevention and Treatment)
Pain management seminar outline:

1. What is pain
2. Pain score
3. Pain types and its definition
4. Pathophysiology of pain
5. Gate control theory
6. Pharmacological treatment of pain
   - Opioids (morphine, codeine, pethidine, fentanyl, tramadol).
   - Non-opioids (paracetamol, NSAIDs (diclofenac sodium and ketorolac).
   - Adjuvants (only names).
7. Choice of drugs in treatment of acute and chronic pain (3 step analgesic ladder).

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<thead>
<tr>
<th>V. Intravenous fluids and Electrolytes in surgical patients</th>
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<tbody>
<tr>
<td>1. Distribution of Body Fluid Compartments</td>
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<td>2. Normal values in extracellular space (SERUM)</td>
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<td>3. Normal maintenance needs:</td>
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<tr>
<td>* Water, Sodium and Potassium</td>
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<td>4. Fluid Replacement Solutions</td>
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<tr>
<td>4.1. Crystalloid Solutions (Types, Contents, Indications)</td>
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<tr>
<td>4.2. Colloid Solutions (Types, Contents, Indications)</td>
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<td>4.3. Intraoperative fluid requirements</td>
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<tr>
<td>1. ABO-Rh Typing</td>
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<tr>
<td>2. Storage and preservation of Blood</td>
</tr>
<tr>
<td>3. Indications For Transfusion of Blood and Derivatives</td>
</tr>
<tr>
<td>4. Complications of Blood Transfusion</td>
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