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 - ✓ Unit 4
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- ✓ Unit 1
 - ✓ Unit 2
 - ✓ Unit 3
 - ✓ Unit 4
 - ✓ Unit 5
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NOTES

- ✓ Unit 1
 - ✓ Unit 2
 - ✓ Unit 3
 - ✓ Unit 4
 - ✓ Unit 5
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- ✓ Unit 1
 - ✓ Unit 2
 - ✓ Unit 3
 - ✓ Unit 4
 - ✓ Unit 5
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NOTES

- ✓ Unit 1
 - ✓ Unit 2
 - ✓ Unit 3
 - ✓ Unit 4
 - ✓ Unit 5
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- ✓ Unit 1
 - ✓ Unit 2
 - ✓ Unit 3
 - ✓ Unit 4
 - ✓ Unit 5
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PHARMACOLOGY - III

UNIT 1

TOPIC :

- e. Emetics and anti-emetics.



Emetics and Anti-Emetics

Emesis (Vomiting)

- Emesis means the forceful expulsion of stomach contents through the mouth.
- It is controlled by the vomiting center in the medulla of the brain.

Causes of Vomiting

- Food poisoning
- Motion sickness
- Pregnancy
- Drug side effects
- Gastrointestinal infections
- Chemotherapy
- Emotional stress

Emetics

- Emetics are drugs that induce vomiting.
- They are used mainly to remove poisonous substances from the stomach in certain poisoning cases.

Classification of Emetics

1. Centrally Acting Emetics

- Stimulate the chemoreceptor trigger zone (CTZ).

Example:

- Apomorphine

2. Locally Acting Emetics

- Irritate gastric mucosa and induce vomiting.

Examples:

- Ipecac syrup
- Copper sulfate (rarely used)

Mechanism of Action & Uses

Drug/Class	Mechanism of Action	Uses
Apomorphine	Stimulates CTZ in brain	Poisoning cases
Ipecac syrup	Irritates gastric mucosa and stimulates CTZ	Accidental poisoning

Important Emetics

1. Apomorphine

Mechanism

→ Stimulates dopamine receptors in CTZ causing vomiting.

Uses

- Poisoning (rarely used now)

Adverse Effects

- Drowsiness
- Respiratory depression

2. Ipecac Syrup

Mechanism

→ Irritates stomach lining and induces vomiting.

Uses

- Emergency poisoning management (historically)

Adverse Effects

- Prolonged vomiting
- Diarrhea

Limitations of Emetics

Emetics are generally avoided now because:

- Risk of aspiration
- Better methods like activated charcoal are available
- Not useful in corrosive poisoning

Anti-Emetics

→ Anti-emetics are drugs used to prevent or treat nausea and vomiting.

Uses of Anti-Emetics

- Motion sickness
- Pregnancy-related vomiting
- Post-operative vomiting
- Chemotherapy-induced vomiting
- Gastroenteritis

Classification of Anti-Emetics

1. H₁ Antihistamines

Examples:

- Promethazine
- Dimenhydrinate
- Meclizine

2. Anticholinergics

Example:

- Hyoscine (Scopolamine)

3. Dopamine Antagonists

Examples:

- Metoclopramide
- Domperidone
- Prochlorperazine

4. Serotonin (5-HT₃) Antagonists

Examples:

- Ondansetron
- Granisetron

5. Neurokinin-1 (NK₁) Antagonists

Example:

- Aprepitant

6. Corticosteroids

Example:

- Dexamethasone

Mechanism of Action & Uses

Drug/Class	Mechanism of Action	Uses
Promethazine	Blocks H ₁ receptors	Motion sickness
Hyoscine	Blocks muscarinic receptors	Motion sickness
Metoclopramide	Blocks dopamine receptors and increases gastric motility	Vomiting, GERD
Ondansetron	Blocks 5-HT ₃ receptors	Chemotherapy-induced vomiting
Aprepitant	Blocks NK ₁ receptors	Severe chemotherapy vomiting

Important Anti-Emetic Drugs

1. Ondansetron

Mechanism

→ Blocks serotonin (5-HT₃) receptors in CTZ and GIT.

Uses

- Chemotherapy-induced vomiting
- Post-operative nausea

Adverse Effects

- Headache
- Constipation
- Dizziness

2. Metoclopramide

Mechanism

→ Blocks dopamine receptors and enhances gastric emptying.

Uses

- Nausea and vomiting
- GERD

Adverse Effects

- Drowsiness
- Extrapyramidal symptoms

3. Promethazine

Mechanism

→ Blocks H₁ receptors.

Uses

- Motion sickness
- Allergy with nausea

Adverse Effects

- Sedation
- Dry mouth

Advantages of Anti-Emetics

- Prevent dehydration
- Improve patient comfort
- Useful in chemotherapy and surgery

Disadvantages

- Drowsiness
- Dry mouth
- Constipation
- Movement disorders (some drugs)

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