Responding to symptoms of minor ailments

Pain

Introduction of Pain

- Pain is one of the most common symptoms prompting individuals to seek help in a community pharmacy.
- A pharmacist is often the first point of contact, and must evaluate the type, cause, severity, and duration of pain to suggest appropriate Over-the-Counter (OTC) medications or refer when necessary.

Classification of Pain

Type of Pain	Description
Acute Pain	Short-term, usually associated with tissue injury (e.g., headache, sprain).
Chronic Pain	Long-lasting pain (e.g., arthritis, neuropathy).
Somatic Pain	Originates from skin, muscles, joints. Sharp, localized.
Visceral Pain	From internal organs; dull, deep, and poorly localized.
Neuropathic Pain	Caused by nerve damage; burning, tingling sensations.

Pathophysiology of Pain

- Pain is a complex sensory and emotional experience associated with actual or potential tissue damage.
- It is mediated through the nervous system.
- There are several types of pain, but for minor ailments, the focus is often on:
    - **Nociceptive pain:** Caused by the activation of nociceptors (pain receptors) due to injury, inflammation, or mechanical damage.
        - **Somatic pain:** From skin, muscles, and joints (sharp and localized).
        - **Visceral pain:** From internal organs (dull, aching, poorly localized).
    - **Inflammation:** When tissues are damaged, inflammatory mediators like prostaglandins, bradykinin, histamine, and cytokines are released. These chemicals sensitize nerve endings and lower the threshold for activation, leading to pain.
    - **Peripheral Sensitization:** At the site of injury, nociceptors become more responsive.
    - **Central Sensitization:** In prolonged pain, the central nervous system (spinal cord and brain) amplifies the pain signal.

Pain signal transmission pathway:

1. **Transduction:** Nociceptors convert harmful stimuli into electrical signals.

2. **Transmission:** Signals pass via Aδ and C fibers to the spinal cord and brain.
3. **Perception:** Brain interprets pain signals.
4. **Modulation:** Brain sends signals to inhibit or amplify pain.

Common Causes of Pain

- Headache (tension, migraine)
- Musculoskeletal pain (sprains, strains, arthritis)
- Dental pain
- Dysmenorrhea (menstrual cramps)
- Post-trauma pain
- Back pain

Drug Therapy for Pain

Drug Class	Examples	Mechanism of Action	Use Case
NSAIDs	Ibuprofen, Diclofenac, Naproxen	Inhibit COX enzymes → ↓ Prostaglandins	Headache, muscle pain, arthritis
Paracetamol	Paracetamol (Acetaminophen)	Inhibits prostaglandin synthesis (mainly in CNS)	Fever, mild to moderate pain
Topical Analgesics	Diclofenac gel, Capsaicin cream	Local anti-inflammatory or counter-irritant	Joint pain, sprain, back pain
Opioid Analgesics	Codeine (in combination with paracetamol)	Binds opioid receptors in CNS	Moderate to severe pain (prescription only)

Role of Community Pharmacist

- Assess type, location, and severity of pain
- Recommend appropriate OTC analgesics
- Provide guidance on dosage, side effects, and maximum duration of use
- Refer patients with:
    - Severe, persistent or unexplained pain
    - Signs of systemic infection
    - Pain with fever, rash, vomiting, or neurological signs

Gastrointestinal Disturbances – Nausea and Vomiting

Introduction

- Nausea (a sensation of needing to vomit) and vomiting (expulsion of stomach contents) are protective reflexes but often distressing.
- They frequently encountered symptoms in community pharmacy practice.

Causes of Nausea and Vomiting

Type	Examples
Gastrointestinal causes	Gastritis, food poisoning, gastroenteritis
CNS-related	Motion sickness, migraine, meningitis
Drug-induced	Antibiotics, chemotherapy, opioids
Pregnancy	Morning sickness in first trimester
Psychogenic	Anxiety, stress

Pathophysiology of Nausea and Vomiting

- These symptoms are controlled by the vomiting center in the medulla oblongata, which receives input from multiple sources:
    - **Chemoreceptor Trigger Zone (CTZ):** Located in the area postrema, detects blood-borne toxins, drugs.
    - **Vestibular System:** Involved in motion sickness (mediated by histamine and acetylcholine).
    - **Gastrointestinal tract:** Sends afferent signals via the vagus nerve (especially in response to distension, toxins).
    - **Higher CNS centers:** Emotions, sights, smells can stimulate vomiting.
    - **Neurotransmitters involved:** Dopamine (D2), Serotonin (5-HT3), Histamine (H1), Acetylcholine (M1), Substance P (NK1 receptors).

Neurotransmitters involved:

- Dopamine (D2)
- Serotonin (5-HT3)
- Histamine (H1)
- Acetylcholine (muscarinic)
- Substance P (NK1)

Drug Therapy

Drug Class	Examples	Indication	Mechanism of Action
Antihistamines	Meclizine, Promethazine, Dimenhydrinate	Motion sickness	H1 receptor antagonism in vestibular system

Anticholinergics	Hyoscine (Scopolamine)	Motion sickness	Blocks muscarinic receptors
Dopamine antagonists	Domperidone, Metoclopramide	GI-induced nausea, gastroparesis	D2 receptor antagonists; increase GI motility
5-HT3 antagonists	Ondansetron, Granisetron	Drug-induced vomiting (e.g., chemotherapy)	Block serotonin receptors in CTZ & GIT
Herbal Remedies	Ginger	Mild nausea, pregnancy	GI calming effects, serotonin antagonism

Role of Community Pharmacist

- Identify underlying cause and duration of symptoms
- Determine if self-limiting or requires referral (e.g., dehydration, pregnancy, blood in vomit)
- Recommend appropriate antiemetics
- Counsel on:
    - **Hydration**: Oral rehydration solutions (ORS) if needed
    - **Diet**: Bland, small meals; avoid oily or spicy foods
    - **When to refer**:
        - Persistent vomiting (>24 hrs)
        - Associated with fever, dehydration, abdominal pain
        - Vomitus with blood (hematemesis)
        - Suspected drug poisoning or overdose

Dyspepsia (Indigestion)

Introduction

- Dyspepsia, also known as indigestion, refers to upper abdominal discomfort or pain often related to eating.
- In community pharmacy, patients may present with complaints like bloating, early satiety, belching, and upper stomach pain.

Causes of Dyspepsia

Cause Category	Examples
Functional Dyspepsia	No obvious organic disease (common)

Gastroesophageal Reflux Disease (GERD)	Acid reflux causing heartburn
Peptic Ulcer Disease	Helicobacter pylori infection, NSAIDs
Lifestyle Factors	Spicy foods, caffeine, alcohol, stress, smoking
Drugs	NSAIDs, antibiotics, iron supplements

Pathophysiology of Dyspepsia

- Dyspepsia (indigestion) is upper abdominal discomfort or pain, often related to eating.
- It can be caused by:
  - **Excess stomach acid** or irritation of gastric mucosa.
  - **Delayed gastric emptying**.
  - **Functional dyspepsia**: No identifiable structural cause.
  - **Helicobacter pylori** infection (in chronic cases).

Symptoms

- Upper abdominal discomfort
- Heartburn (burning sensation in chest)
- Bloating
- Belching
- Nausea
- Loss of appetite

Drug Therapy in Community Pharmacy

Drug Class	Examples	Mechanism	Use
Antacids	Magnesium hydroxide, Aluminium hydroxide	Neutralize stomach acid	Quick symptom relief
H2 Blockers	Ranitidine, Famotidine	Block histamine H2 receptors → ↓ acid	Mild/moderate symptoms
Proton Pump Inhibitors (PPIs)	Omeprazole, Pantoprazole	Inhibit H^+/K^+ ATPase pump in parietal cells	Severe or frequent symptoms
Prokinetics	Domperidone, Itopride	Enhance GI motility, ↓ nausea	Functional dyspepsia
Digestive Enzymes	Fungal diastase, pancreatin	Aid digestion	Bloating/gas

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