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Case Studies in Pathophysiology

Experiment 14 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To connect the mechanisms of nine syllabus-listed conditions with case findings, appropriate clinical assessment and prevention.

Principle

A case analysis links symptoms, mechanism, evidence and the clinician's assessment. The examples below are fictional teaching cases; they do not replace clinical evaluation.

Requirements

- Instructor-provided fictional case files, relevant teaching test reports and a case-record sheet.

Procedure

1. Extract findings

Identify the main symptoms, duration, risk factors and relevant medicines without using real patient identifiers.

2. Explain the mechanism

Connect the organ disturbance to the recorded findings and identify at least one plausible alternative.

3. Review evidence

Interpret only the results actually supplied and distinguish confirmed findings from assumptions.

4. Record the care role

Describe referral, prevention, adherence support and warning signs without writing an individual prescription.

Case Files

Inflammatory bowel disease

- A fictional young adult has recurrent bloody diarrhoea, urgency and weight loss. The teaching report describes continuous colonic mucosal inflammation.
- Mechanism: Abnormal immune-mediated intestinal inflammation can injure the mucosa. Ulcerative colitis is predominantly continuous colonic disease; Crohn disease may be patchy, transmural and affect other GI sites.
- Assessment and pharmacy role: Review stool investigations and endoscopy/biopsy findings supplied in the case. Distinguish IBD from functional IBS; rule-out infection is important. Heavy bleeding or severe systemic illness needs urgent review.

Peptic ulcer

- A fictional adult with epigastric pain reports regular NSAID use. The case contains an endoscopy result showing a gastric ulcer.
- Mechanism: Mucosal protective mechanisms are overcome by acid-related injury; NSAIDs and Helicobacter pylori are important causes. Food-related pain patterns alone are not sufficiently specific to identify an ulcer.
- Assessment and pharmacy role: Review prescribed H. pylori testing and medicine history. Haematemesis, black tarry stool, collapse or sudden severe abdominal pain are urgent warning signs; discuss cause-directed care without choosing a personal prescription.

Jaundice

- A fictional adult has yellow sclerae, dark urine and pale stool. The supplied record shows bilirubin fractionation and liver-associated tests.
- Mechanism: Jaundice is a sign of excess bilirubin, with pre-hepatic, hepatic or post-hepatic causes. Conjugated bilirubin can enter urine; an unconjugated increase has different handling.
- Assessment and pharmacy role: Use total/direct bilirubin, relevant enzyme pattern and imaging/history supplied by the instructor to build a differential. Do not treat every jaundice case as viral hepatitis; fever with obstruction symptoms requires prompt assessment.

Hepatitis

- A fictional adult has fatigue and jaundice with an aminotransferase rise. The case includes the clinician's viral-serology interpretation and medicine history.
- Mechanism: Hepatocyte inflammation may arise from viruses, medicines, alcohol, autoimmune processes or other causes. Different hepatitis viruses have different transmission and chronicity patterns.
- Assessment and pharmacy role: Review cause-specific results and clinician-directed prevention. Discuss vaccination where applicable and avoidance of unnecessary hepatotoxic products. Confusion, bleeding or rapidly worsening jaundice requires urgent evaluation.

Typhoid

- A fictional patient has persistent fever, abdominal symptoms and travel/exposure history. The clinician-provided report supports enteric fever.
- Mechanism: Salmonella Typhi causes systemic infection following faecal-oral transmission. Symptoms overlap with other febrile illnesses.
- Assessment and pharmacy role: Interpret the supplied clinical laboratory report; do not use a single Widal result as definitive proof. Discuss safe water/food and clinician-guided treatment. Severe abdominal pain, bleeding or altered consciousness are urgent findings.

Asthma

- A fictional student reports episodic wheeze, night cough and symptoms after allergen exposure. The supplied assessment describes variable airflow obstruction.
- Mechanism: Airway inflammation, variable bronchoconstriction and hyperresponsiveness can limit expiratory airflow. Symptoms and objective assessment are used together.
- Assessment and pharmacy role: Review the provided lung-function information, inhaler technique and written care plan. Severe breathlessness, inability to speak normally or poor response to the prescribed reliever requires urgent help.

Tuberculosis

- A fictional adult has persistent cough, weight loss and night sweats. The teaching record contains clinician-interpreted imaging and microbiological results.
- Mechanism: Mycobacterium tuberculosis can cause pulmonary or extrapulmonary disease; latent infection differs from active disease. Airborne transmission is associated with infectious respiratory disease.
- Assessment and pharmacy role: Discuss referral, treatment adherence and the clinician's infection-prevention plan. Use provided reports only; no organism cultivation or handling is part of this case activity. Haemoptysis or serious illness needs prompt care.

Diabetes

- A fictional adult has thirst and frequent urination with elevated clinician-confirmed glucose. The record supplies HbA1c and the clinical classification.
- Mechanism: Hyperglycaemia can result from deficient insulin secretion, reduced insulin action or both. Type 1 and type 2 mechanisms differ; complications involve several organ systems.
- Assessment and pharmacy role: Explain the supporting test pattern, medicine adherence and complication-prevention checks. Marked illness with vomiting, deep breathing or altered awareness may indicate a metabolic emergency; do not make treatment changes in the exercise.

Thyroid disorders

- Compare fictional cases of weight loss with tremor and weight gain with cold intolerance. The teaching records give TSH and free T4.
- Mechanism: Primary hyperthyroidism typically increases hormone action; primary hypothyroidism reduces it. In primary disease, TSH commonly changes in the opposite direction to free T4; central disorders can differ.
- Assessment and pharmacy role: Interpret the given pattern and assay intervals rather than symptoms alone. Discuss clinician-directed assessment, medicine timing and follow-up. Severe cardiovascular or consciousness changes need urgent review.

Observations and Record

Case	Mechanism / supporting evidence	Alternative / referral point
Inflammatory bowel disease	_____	_____
Peptic ulcer	_____	_____
Jaundice	_____	_____
Hepatitis	_____	_____
Typhoid	_____	_____
Asthma	_____	_____
Tuberculosis	_____	_____
Diabetes	_____	_____
Thyroid disorders	_____	_____

Result

Complete the nine case records with a mechanism, supporting evidence and appropriate care/referral role.

Precautions

- Use fictional or de-identified teaching material. Do not disclose patient information.
- Do not infer a diagnosis from an isolated symptom or use the case activity to alter a person's medicines.

Viva Questions and Answers

1. Why is jaundice not a single disease?

It is a sign with multiple possible causes of excess bilirubin.

2. How do IBD and IBS differ?

IBD involves inflammatory disease; IBS is a disorder of gut-brain interaction without the same characteristic inflammatory lesions.

3. Why assess evidence and alternatives?

Several conditions share symptoms, so a mechanism must be supported by appropriate findings.

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