STUDY GUIDE
3rd YEAR MBBS
Y3 – B1

# DEPARTMENT OF MEDICAL EDUCATION

## CMH KHARIAN MEDICAL COLLEGE

# Table of Contents

# MISSION

Our mission is to educate and produce exemplary doctors who practice ethical patient centered health care, discover and advance knowledge and are responsive to the community needs.

# VISION

To produce competent doctors equipped with sound knowledge based on scientific principles, imbued with ethics and moral values primed to serve the community through the profession. Our aim is to

- Provide outstanding educational environment for medical students.
- Develop exemplary clinicians who are lifelong learners and provide the highest quality compassionate care and serve the needs of their community and the nation in the best traditions of medical profession.
- Ensure the highest ethical and professional standards in all of our deeds.

# Exit Outcomes for the CKMC Graduate

At the end of five years MBBS degree program graduate of CMH Kharian Medical College should be able to:

## Knowledge

- Integrate knowledge of basic and clinical sciences in disease prevention and promotion of health and well-being of community.
- Able to appraise varied information they would come across during professional work

and testify innovative ideas to benefit human society through evidence-based health care practice

- Demonstrate scientific knowledge in all professional activities
- Demonstrate research skills which bring innovation and significance to health care practices.

## Skills

- Able to perform physical examinations, formulate provisional diagnosis with appropriate investigations to identify specific problems.
- Perform various common procedures to diagnose and manage non critical clinical problems.
- Demonstrate competency in life saving procedures.
- Exhibit propensity of critical thinking, problem solving and lifelong self-directed learning skills.

## Attitude

- Manifest ethical values and professionalism.
- Demonstrate professional attitude towards patients, their families, seniors and colleagues.
- Demonstrate dedication and professionalism when faced natural disasters in country.
- Demonstrate communication skills, inter professional skills and leadership.

| knowledge | Skill | Attitude |
|---|---|---|
| Integrated knowledge of basic & clinical sciences | Communication skills | Ethical values |
| Patient centered care | Research skills | |
| Health promotion & disease prevention | Patient management skills | Professionalism |
| Community needs | Leadership skills | |
| | Critical thinking skills | |

# Introduction to the Study Guide

Dear Students,

We, at the Department of Medical Education, CMH Kharian Medical College, have developed this study guide especially for you. This study guide is an aid to

- Inform you how this part of your syllabus has been organized.
- Inform you how your learning programs have been organized in this block.
- Help you organize and manage your studies throughout the block
- Guide you on assessment methods, rules and regulations.
- Communicate information on organization and management of the block. This will help you to contact the right person in case of any difficulty.
- Define the objectives which are expected to be achieved at the end of the block.
- Identify the learning strategies such as lectures, small group discussions, clinical skills, demonstration, tutorial and case-based learning that will be implemented to achieve the block objectives.
- Provide a list of learning resources such as books, and journals for students to consult in order to maximize their learning.

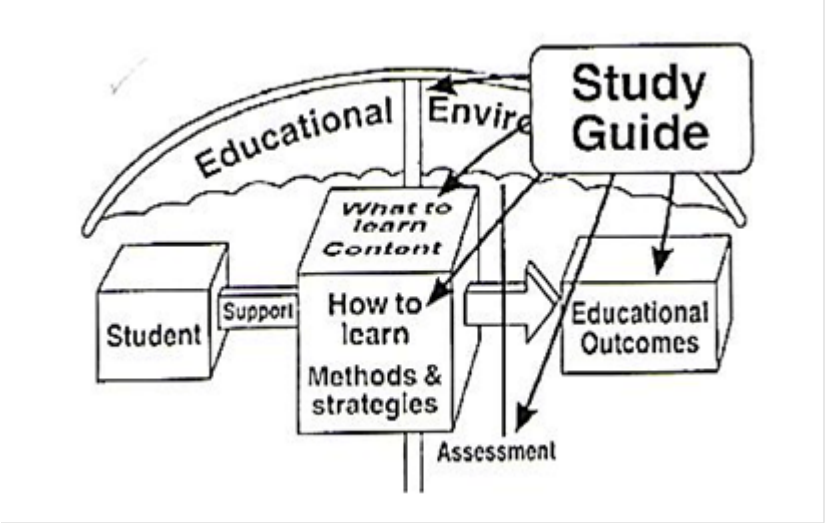
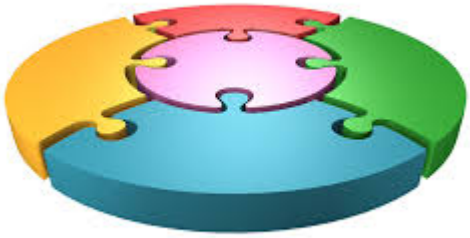



*Figure 1 Objectives of study guide by Harden*

# Curriculum Integration



Medical college curriculum shall be organized in blocks of modules. The modules are named after body system for example a module of blood in a block. The key details are as follows:

1. There shall be three blocks in first year MBBS comprising modules.
2. The blocks shall be labeled as1, 2 and 3.
3. Each module in a block shall have a title. The name of the module shall represent the content taught and learned the majority of time in that module. Module shall be named after body systems.
4. The duration of three blocks shall vary between 10-12 weeks according to syllabus.
5. The syllabus shall be integrated horizontally around systems of the body.
6. There shall be vertical integration to the extent decided by the curriculum coordination committee.
7. Vertical integration shall be in case based learning sessions and in clinical lectures of basic sciences, scheduled in the structured training program.

# Teaching and Learning Methods

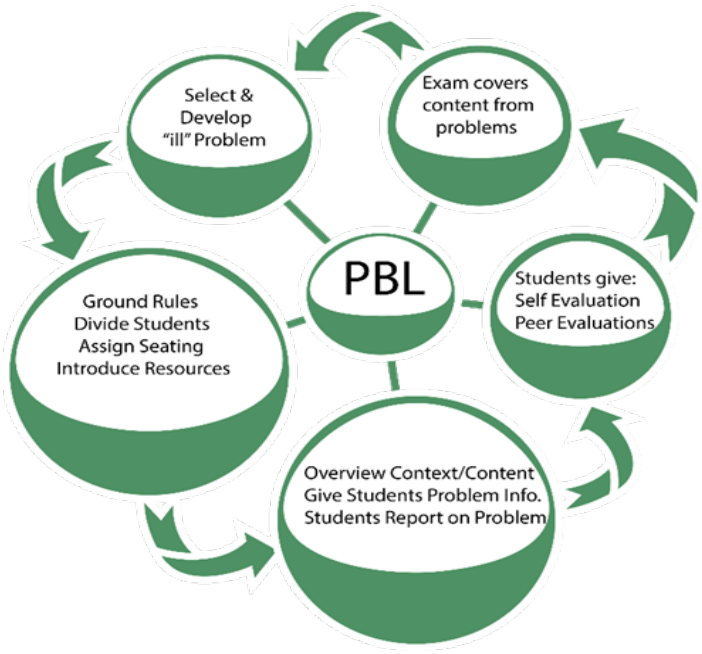
## 1: Small Group Discussions (SGD)

The topic will be taught in groups with the help of models and audiovisual aids. Pre-planned topics would help students to combine their wisdom in achieve learning objectives. Facilitator would be guiding to achieve learning objectives and making them on right track by clarify any misconception.

"Small group learning provides more active learning, better retention, higher satisfaction, and facilitates development of problem-solving and team-working abilities (Jahan, Siddiqui, AlKhouri, Ahuja, & AlWard, 2016).

## 2: Problem Based Learning (PBL)

This is group learning comprising of 8-10 students guided by a facilitator. For a specific problem given to students two sessions of 2 hours would be scheduled to achieve the learning objectives. In the first session students will discuss problem based upon their existing knowledge among the group and will produce a list of their learning objectives for further study. In the second session students share, discuss with each other to build new knowledge.




PBL is a self-directed learning and that type of educational strategy most likely produce doctors who are prepared for lifelong learning and able to meet the changing needs of their patients (Spencer & Jordan, 1999).

### 3: Large Group Interactive Session (LGIS)

These are meant to give overview of certain course content. They should be interactive so that students can not only gain knowledge but should completely understand it. Students may clarify the difficult concepts in these sessions. The lecturer introduces a topic and explains the underlying phenomena through questions, pictures, videos of patient's interviews, exercises, etc. Students are actively involved in the learning process.

## 4: Self Directed Learning (SDL)

In this modern era of medical education, students assume responsibilities of their own learning according to the principles of adult learning. They can study independently, can share and discuss with peers, can take information from the sources of information college have like library, internet and teachers. Students will be provided time within the scheduled college hours for self-study.

## 5: Hands on Training

- **Lab session**

Practical, being the most basic and effective tool for imparting knowledge, goes hand in hand with theory for better understanding and concept building. In view of the complexities in the basics and fundamentals of Medical sciences, a good practical demonstration of the underlying concept is a must to simplify the subject. Pharmacology, microbiology and forensic medicine practical will build skills in students of 3rd year and there would be test of these skills in OSPE exam.

- **Clinical Rotations**

The students will rotate in the clinical departments to see integration of knowledge into clinical practices.

Teaching and learning activities are meant to help students to gain new knowledge. It should be kept in mind that they are not meant to fully cover the objectives of the subject. It is therefore responsibility of students to attain more information to cover all objectives given in the overall objectives.

Class attendance and participation is of most important in gaining knowledge. If any help is needed module team can be contacted without any hesitation. Attendance will be strictly checked in different teaching activities. If attendance is less than 75%, students would not be allowed to sit for the examination.

Attendance in the examination is must and no students would be allowed to enter

the examination area after starting the examination. In case of sickness, sick leaves from government/private hospitals or the emergency of the college hospital will only be entertained.

## Assessment Format

Assessment is a goal-oriented process (Angelo, 1995). We assess in order to check whether the learning objectives set at the initiation of the program are met or not and to what extent (Amin, 2007).

**No student will be allowed to sit in the annual examination if attendance is below 75% in theory and practical separately.**

### Assessment types

The assessment will be continuous. The purpose of continuous assessment is formative and summative.

**Summative Assessment:**

The marks of this type of assessment contribute in the final university result through internal assessment. It comprises:

- CBL/tutorial assessment
- Scheduled tests
- Sub-stages
- End of block exam
- Pre-annual exam

Scheduled tests and sub-stages will be conducted intermittently throughout the block. Their schedule will be intimated through the time tables.

**The end of the block exam** will be conducted after completion of weeks of instruction. It will comprise one theory paper and one practical exam for Anatomy, Physiology and Biochemistry. (Table of specifications (TOS) for exam has been provided)

**Formative Assessment:** Tests may be quizzes, surprise tests/written assignments/self-reflection by students during the teaching time but their marks will not be added to internal

evaluation marks. The purpose of formative assessment is to provide feedback to the students, for the purpose of improvement and to teachers to identify areas where students need further guidance.

**Internal Assessment**

*(Will be submitted to the university before professional exam)*

- The weightage of internal assessment shall be 10 % in the annual professional examination (or 10 marks for 100 marks in theory and practical each)
- Scheduled tests, sub-stages, CBLs/tutorials, block examinations and pre-annual examinations, conducted by the college shall contribute towards internal assessment for professional examination.

**Annual Professional Examination:**

- The professional examinations schedule will be provided by NUMS.
- There will be two components of the final result

  (i) Examination-90 % (ii) Internal Assessment- 10 %
- There will be one theory paper and one Practical exam for Pharmacology, General Pathology & Microbiology and Forensic Medicine each. For practical the class will be divided into batches. Each batch will have practical exam of one subject on the specified day, according to schedule.
- Annual Theory & Practical Examination shall be of 300 marks each in Gen Pathology/Microbiology; Pharmacology/Therapeutics and 200 marks in Forensic Medicine/Toxicology. The pass score shall be 50% in theory and practical separately
- The Annual Theory paper shall be of 135 marks for each Pharmacology/ Therapeutics and General Pathology/ Microbiology. 15 marks of internal assessment papers, conducted throughout the year will be added to it, to make annual theory assessment of 150 marks.
  Similarly, the annual practical examination will be of 135 marks. 15 marks of internal evaluation of practical exams, conducted throughout the year will be added to it, to make annual practical assessment of 150 marks.
- The pass score shall be 75 out of 150, in theory and practical separately.
- The Annual Theory paper shall be of 90 marks for Forensic Medicine. 10 marks of internal assessment papers, conducted throughout the year will be added to it, to make annual theory assessment of 100 marks.
  Similarly, the annual practical examination will be of 90 marks. 10 marks of internal evaluation of practical exams, conducted throughout the year will be added to it, to make annual practical assessment of 100 marks.

- The pass score for Forensic Medicine shall be 50 out of 100, in theory and practical separately.

**Schedule of examinations:**

**a) Continuous assessments schedule**
Schedule provided by each department in Time table.

**b) Formative tests:** Throughout the block

## Block Development Committee

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| **Chairperson curriculum committee** | Principal Brig (Retd) Shoaib Nayyar Hashmi |
| **Director Medical education** | Dr Aasma Qaiser |
| **Block Planner** | Dr Aasma Qaiser |
| **Resource Persons** | **Pharmacology:Dr Hammad Ahmed Butt**<br>**G. Pathology: Prof. Inam Qadir**<br>**Forensic Medicine: Prof. Dr. Talat**<br>**Medicine: Brig Khalid**<br>**Surgery: Col Nisar** |
| **Study Guide Developed By** | Department of Medical Education<br>CMH Kharian Medical College Kharian |

# Structured Summery of Y3B2

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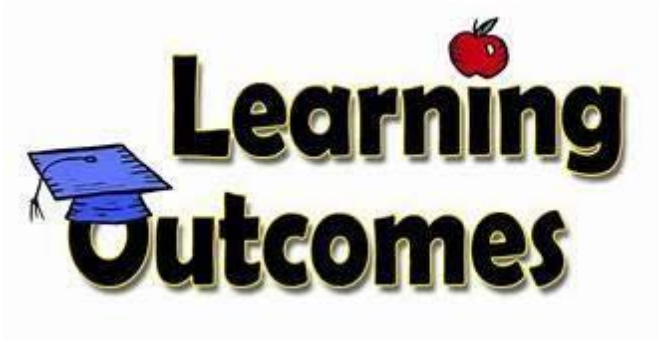
| **Block Code** | Y3B2 |
| **Pre requisite Block** | Y3B1 |
| **Duration** | 10 weeks |
| **Rationale** | The Y3B2 block is taught as the 2nd block after the students clear their Y3B1 modular ex am. In a period of 10 weeks, the block aims to form a basis for knowledge and skills related to use of therapeutic agents in treatment of diseases, understand pathophysiology of infectious diseases with various test used for investigation and how to perform autopsy and medicolegal examination in forensic context. |
| **Pharmacology** | Central nervous system, autacoids (prostaglandins, histamine, serotonin) NSAIDs, DMARDs, H1 receptors blockers, drugs used to treat gout, chemotherapy 1. |
| **General Pathology** | Gram positive bacteria, atypical bacteria, Medically important viruses Introduction to Genetics, Biochemical & molecular basis of Mandelian disorders. Cytogenetic disorders. Diagnosis of genetic disorders. Immunology. |
| **Forensic Medicine** | Asphyxia, Sexual offences, Forensic Psychiatry, General Toxicology, DEA |
| **Surgery** | Organ transplant, Surgery in tropics I&II, Bone & Joint infection, Sterilization & dis infection, Central Nervous System, Local & /General Anesthesia |
| **Medicine** | Fever, Loss of consciousness, fits, T.B, Locomotors system, Hepatitis A, B, C & E , Dengue fever, Asthma |
| **BSP** | Communication skills, professionalism, leadership and management, ethics |

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| **Knowledge** | • Critique on the pharmacological effects of sedative /hypnotics.<br>• Correlate the patho-physiology of psychiatric illnesses to their management.<br>• Differentiate between various pharmacological agents (opioids, NSAIDs, local & general anesthetics) used in pain management<br>• Justify the use of anti-parkinsonism drugs correlating it to the underlying pathophysiology of the disease.<br>• Analyze the effects of anti-seizure drugs in relation to neuro-excitatory illnesses.<br>• Strategize the management of migraine in accordance with the underlying disease mechanism.<br>• Correlate the effects of substance abuse (alcohol, opioids, heroin) on body to its plan for aversion therapy Chemotherapy -I<br>• Justify the treatment modalities for various bacteria according to mode of action, resistance |

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| | patterns and regional current practices.<br>• Appraise the principles of cancer chemotherapy in relation to its current therapeutic modalities.<br>• Correlate the mechanisms of disease production with clinical manifestations, diagnostic modalities, treatment and preventive strategies of Gram positive rods, atypical bacteria and medically important viruses.<br>• Describe the etiology, clinical features, pathogenesis, laboratory findings, morphological features ad clinic-pathological consequences of major diseases related to the genetics & pediatrics and immune system.<br>• Violent death due to Asphyxia, sexual offences (Sexual forensic medicine), reproduction, forensic psychiatry & general toxicology.<br>• General Toxicology is the basic concept of poison, defining its recourse, characterization, fatal dose, fatal period, treatment, postmortem findings, medico legal importance & its clarification |
| | • Correlate the mode of action and pharmacological effects of Anti seizure drugs to their therapeutic uses.<br>• Correlate the mode of action and pharmacological effects of opioids to their therapeutic uses.<br>• Correlate the mode of action and pharmacological effects of NSAIDs & |

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| **Skill** | DMARDs to their therapeutic uses.<br>• Correlate the mode of action and pharmacological effects of anti gout drugs to their therapeutic uses.<br>• Correlate the mode of action and pharmacological effects of bacterial cell wall inhibitors to their therapeutic uses.<br>• Calculate various parameters of biostatistics.<br>• Write a suitable prescription/ select appropriate P-drug according to the given case scenario.<br>• Establish diagnosis of given slides of General Pathology lesions, correlating histopathological findings.<br>• Establish diagnosis of given topics of General Pathology by correlating findings of given slides and photomicrographs with gross findings |
| **Attitude** | • Demonstrate the effective attitude towards the colleagues<br>• Analyze and address problems collaboratively.<br>• Execute analytic, communicative and collaborative skills along with content knowledge<br>• Demonstrate a professional attitude, team building spirit and good communication skills<br>• Observe lab safety rules |

## Course content:

**3rd YEAR MBBS**
**Block 1 CODE Y3B1**

**In case of online classes MIT and Assessment will be online via zoom meeting and Google classroom**

# Course Content

## Pharmacology

### Learning outcomes:

**Drugs acting on Central Nervous System (CNS):**

- Critique on the pharmacological effects of sedative /hypnotics.
- Correlate the patho-physiology of psychiatric illnesses to their management.
- Differentiate between various pharmacological agents (opioids, NSAIDs, local & general anesthetics) used in pain management
- Justify the use of anti-parkinsonism drugs correlating it to the underlying pathophysiology of the disease.
- Analyze the effects of anti-seizure drugs in relation to neuro-excitatory illnesses.
- Strategize the management of migraine in accordance with the underlying disease mechanism.
- Correlate the effects of substance abuse (alcohol, opioids, heroin) on body to its plan for aversion therapy

**Chemotherapy** -I

- Justify the treatment modalities for various bacteria according to mode of action, resistance patterns and regional current practices.
- Appraise the principles of cancer chemotherapy in relation to its current therapeutic modalities.

| S.# | Topics | Learning objectives | MIT | Mode of assessment |
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| | At the end of the block, the student should be able to | | LGIS/ SGD/ CBL/ Practical/ Tutorial | Theory/ Viva Voce/ Quiz OSPE/ |
| 1. | Introduction to the Pharmacolog y of CNS drugs. | • Recall functional organization of CNS.<br>• Classify neurotransmitters in CNS.<br>• Describe major types of ion channels/ receptors in CNS.<br>• Summarize the events involved in synaptic neurotransmission in CNS.<br>• Identify criteria for neurotransmitter status.<br>• Enlist characteristics of different neurotransmitters. | LGIS | Theory (MCQs, SEQ)<br><br>Viva voce |
| | | • Enumerate the signaling substances other than neurotransmitters.<br>• Identify sites and mechanisms of drugs action in CNS. | | |

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| 2. | □ Sedative Hypnotics | • Define anxiolytic/ sedative/ hypnotic.<br>• Classify drugs used as anxiolytic/ sedative/ hypnotic.<br>• Describe the pharmacokinetics of commonly used benzodiazepines / barbiturates. Relate the variability in the pharmacokinetics to their clinical uses<br>• Describe MOA of benzodiazepines / barbiturates/ newer anxiolytic/ sedative/ hypnotic drugs & enlist their therapeutic uses<br>• Describe the pharmacologic effects of benzodiazepine / barbiturates.<br>• Justify use of various groups of anxiolytic/ sedative/ hypnotics in anxiety & sleep disorders.<br>• Identify the advantages of benzodiazepines over barbiturates.<br>• Describe the advantages of newer anti-anxiety drugs over benzodiazepine.<br>• Summarize the adverse effects (acute/ chronic) & D/I of BZs/ Barbiturates.<br>• Design a management plan for over dosage of benzodiazepines /barbiturates. | LGIS | Theory (MCQs, SEQS)<br>Quiz<br>Viva voce |

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| 3. | Alcohols | • Enlist different types of alcohols.<br>• Describe pharmacokinetics, pharmacodynamics & uses of alcohol (ethanol).<br>• Outline drug interactions of alcohol.<br>• Describe the consequences of acute / chronic alcohol consumption.<br>• Plan management of acute alcohol intoxication.<br>• Describe alcohol withdrawal syndrome and design its management plan.<br>• Describe drug treatment of alcoholism. | LGIS | Theory (MCQs, SEQS)<br><br>Viva voce |
| 4. | Anti seizure drugs. | • Define seizures & epilepsy.<br>• Categorize types of seizures.<br>• Classify anti-epileptic drugs according to type of seizures.<br>• Describe various anti-epileptic drugs regarding their MOA, clinical indications, adverse effects, drug interactions & contraindications.<br>• Plan management of a patient of status epilepticus.<br>• Identify the teratogenic effects of anti-epileptic drugs.<br>• Enlist the advantages of newer anti-epileptic drugs over the older ones. | LGID /CBL | Theory (MCQs, SEQS),Quiz<br><br>Viva voce |

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| 5. | Pre Anesthetic Medication. | • Classify the agents used in “pre-anesthetic medication”.<br>• Evaluate the importance of pre-anaesthetic medication.<br>• Describe mode of action and pharmacological effects of various agents used in preanaesthetic medications. | LGIS | Theory (MCQs, SEQS),Quiz<br><br>Viva voce |
| 6. | General Anesthesia. | Classify general anesthetics.<br>• Identify principles of balanced surgical anesthesia.<br>• Describe stages of general anesthesia.<br>• Relate the pharmacokinetic characteristics of inhalational anesthetics to their induction & recovery time.<br>• Describe MOA of inhalational anesthetics.<br>• Identify the advantages & disadvantages of individual inhalational general anesthetics.<br>• Describe acute & chronic toxicity of inhalational general anesthetics. | LGIS | Theory (MCQs, SEQS)<br><br>Viva voce |
| 7. | Intravenous General Anesthesia | • Explain MOA, specific uses & adverse effects of I/V general anesthetics.<br>• Enlist the advantages & disadvantages of individual I/V general anesthetics.<br>• Describe briefly,<br>• Neuroleptanesthesia/Analgesia<br>• Monitored Care Anesthesia<br>• Conscious sedation | LGIS | Theory (MCQs, SEQS)<br><br>Viva voce |

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| 8. | Local Anesthetics | • Define local anesthetic.<br>• Classify local anesthetics.<br>• Compare chemistry & pharmacokinetics of ester & amide local anesthetics.<br>• Justify use of vasoconstrictors with local anesthetics.<br>• Describe MOA & Pharmacologic effects of local anesthetics & enlist the factors affecting their action.<br>• Justify use of local anesthetics in various clinical indications with examples of drugs & route of administration.<br>• Summarize adverse effects produced by local anesthetics.<br>• Enlist other drugs with local anesthetic activity. | LGIS | Theory (MCQs, SEQS)<br><br>Viva voce |
| 9. | Drug used to treat Migraine. | • Define migraine.<br>• Describe patho-physiologic basis of migraine.<br>• Enumerate drugs used in the treatment & prophylaxis of migraine.<br>• Describe the MOA of various drugs and enlist their adverse effects / contraindications. | LGIS | Theory (MCQs, SEQS)<br><br>Viva voce |
| 10. | Opioids Agonist & antagonist | • Identify types of analgesics.<br>• Outline afferent & efferent pain pathways.<br>• Enlist opioids receptors specify their distribution & effects mediated through these receptors.<br>• Describe briefly endogenous opiopeptides.<br>• Classify opioids.<br>• Describe the mechanism of analgesic action of opioids.<br>• Differentiate narcotic analgesics (opioids) & nonnarcotic analgesics (NSAIDs). | LGIS | Theory (MCQs, SEQS)<br><br>Viva voce |

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| | | • Enlist the therapeutic uses of opioids with example of one drug used.<br>• Evaluate the role of opioids as analgesics.<br>• Identify adverse effects & contraindication of opioids. | | |
| 11. | Autacoids. | • Define & Classify Autacoids<br>• Differentiate between autocoids & hormones<br>• Describe the pathways for formation of PG, LT & TX<br>Discuss their actions regarding regulation of different body tissues functions<br>• Enlist their Therapeutic Uses | LGIS | Theory (MCQs, SEQS)<br>Viva voce<br>OSPE |
| 12. | Non-steroidal Antiinflammator y Drugs (NSAIDs). | • Classify Non-steroidal Antiinflammatory Drugs (NSAIDs).<br>• Describe the role of cyclooxygenase (COX) / prostaglandins in the homeostatic regulation of gastric function, renal function, and regulation of vasomotor tone & platelet functions.<br>• Describe general properties of Non-steroidal AntiInflammatory Drugs (NSAIDs)<br>• Describe MOA of NSAIDs as anti-inflammatory agents.<br>• Outline chemistry, doses & pharmacokinetics of aspirin.<br>• Describe MOA of aspirin as anti-inflammatory /antipyretic/ analgesic/ antiplatelet agent.<br>• Enlist/Describe therapeutic uses of aspirin.<br>• Enlist/Describe adverse effects, D/I & contraindications of aspirin. | LGIS / CBL | Theory (MCQs, SEQS)<br>Quiz<br>Viva voce |

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| | | • Design the management of aspirin over-dosage.<br>• Evaluate role of selective COX-2 inhibitors in therapeutics.<br>• Differentiate between selective COX-2 & nonselective COX inhibitors.<br>Describe acetaminophen in detail & enlist its advantages over aspirin.<br>• Plan the management of acetaminophen toxicity.<br>• Describe the pharmacokinetics, pharmacological actions, therapeutic uses & adverse effects of various groups of NSAIDs.<br>• Summarize the general adverse effects/ shared toxicities of NSAIDs.<br>• Identify the therapeutic advantages / disadvantages of COX-2 inhibitors over COX-1 inhibitors. | | |
| 13. | □ Drugs used to treat Gout. | • Classify drugs used in gout.<br>• Describe MOA, therapeutic uses & adverse effects of the drugs used in gout.<br>• Design a management plan for acute gout/ chronic gout. | LGIS | Theory (MCQs, SEQS)<br><br>Viva voce |
| 14. | □ Histamine & Anti histamine | • Describe histamine, its release & Receptors<br>• Enumerate effects of histamine on different organs of body<br>• Design a management plan for histamine over dosage or toxicity<br>• Classify H1 receptor antagonists<br>• Describe pharmacological effects, therapeutic uses & adverse effects of antihistamine drug. | LGIS | Theory (MCQs, SEQS)<br>Quiz<br>Viva voce |

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| | | • Differentiate first generation anti histamine with second generation anti histamine. | | |
| 15. | □ Disease Modifying Anti Rheumatic drugs (DMARDs) | • Classify DMARDs & biological agents.<br>• Describe MOA, therapeutic uses & adverse effects of various DMARDs & biological agents. | LGIS | Theory (MCQs, SEQS)<br>Viva voce<br>OSPE |
| 16. | Drug Dependance | • Define & differentiate drug dependence/ addiction/substance abuse.<br>• Outline the neuro-biochemical mechanisms underlying drug dependence.<br>• Enlist the drugs that can produce dependence.<br>• Describe the components of drug dependence.<br>• Summarize the approaches for management of drug dependence.<br>• Enlist controlled substances. | LGIS | Theory (MCQs, SEQS)<br>Viva voce |

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| 17. | □ Anti Parkinsonian Drugs. | • Classify the drugs used in Parkinsonism.<br>• Describe details of levodopa / other anti-parkinsonian drugs regarding their chemistry, pharmacokinetics, mechanism of action, pharmacologic effects, therapeutic uses, adverse effect, drug interactions & contraindications.<br>• Describe management of fluctuation in response produced by levodopa.<br>• Justify use of levodopa in combination with carbidopa.<br>• Plan the management of drug – induced parkinsonism / extrapyramidal symptoms (EPS) | LGIS | Theory (MCQs, SEQS)<br><br>Viva voce<br><br>OSPE |
| 18. | □ Anti depressant drugs. | • Define depression & outline its types.<br>• Identify main neurotransmitters involved in the pathogenesis of depression.<br>• Classify anti-depressant drugs.<br>• Describe the MOA, therapeutic uses & adverse effects of various antidepressant drugs.<br>• Tabulate the differences between selective serotonin reuptake inhibitors & tricyclic antidepressants.<br>• Identify the advantages of selective serotonin reuptake inhibitors over tricyclic antidepressants.<br>• Indicate the important drug/ food interactions of antidepressant. Enlist their contraindications. | □ Anti depressant drugs. | Theory (MCQs, SEQS)<br><br>Viva voce |

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| 19. | □ Antipsychotic Drugs. | • Outline different theories of psychosis.<br>• Classify antipsychotic drugs.<br>• Describe various antipsychotic agents including MOA, pharmacologic effects, therapeutic uses & adverse effects.<br>• Enlist the advantages of atypical antipsychotic over typical antipsychotic agents. | LGIS | Theory (MCQs, SEQS)<br>Viva voce |
| 20. | □ Drugs used in bipolar disorders & Mania. | • Enlist drugs used in bipolar effective disorder.<br>• Describe MOA/ adverse effects of lithium. | LGIS | Theory (MCQs, SEQS)<br>Viva voce |
| 21. | □ CNS Stimulants. | • Classify CNS stimulants.<br>• Describe their MOA, therapeutic uses and misuses.<br>• Describe hallucinogens/ convulsants/ analeptics. | LGIS | Theory (MCQs, SEQS)<br>Viva voce |

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| 22. | □ Introduction to Chemotherapy. | • Define chemotherapy, antimicrobial, antibiotic.<br>• Compare bacteriostastic & bactericidal antimicrobials.<br>• Describe concentration /time dependent killing & post antibiotic effect with examples of drugs exhibiting these properties.<br>• Differentiate between narrow, extended & broad spectrum antibiotics.<br>• Evaluate the role of empirical therapy in therapeutics.<br>• Enlist principles of chemotherapy.<br>• Describe the mechanisms by which microorganism can acquire resistance with examples.<br>• Classify antimicrobials according to their MOA. | LGIS | Theory (MCQs, SEQS)<br>Viva voce |
| 23. | □ Bacterial Cell Wall Inhibitors. | • Classify bacterial cell wall inhibitors.<br>• Classify penicillins.<br>• Outline history of penicillins.<br>• Describe chemistry of penicillins.<br>• Describe MOA of penicillins.<br>• Describe mechanism by which bacteria can develop resistance to penicillins.<br>• Describe pharmacokinetics & antimicrobial spectrum of various groups of penicillins.<br>• Justify uses of various penicillins in specific clinical indications.<br>• Enlist adverse effects of penicillins. Describe anaphylaxis in detail.<br>• Describe other beta lactam & non-beta lactam drugs briefly | LGIS/ CBL | Theory (MCQs, SEQS)<br>Quiz<br>Viva voce |

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| 24. | □ Cephalospor ins. | • Classify cephalosporins.<br>• Differentiate chemistry of cephalosporin from penicillins<br>• Describe pharmacokinetics, mechanism of action / resistance, antimicrobial spectrum, therapeutic uses &adverse effects of various generations of cephalosporins. | LGIS | Theory (MCQs, SEQS) Viva voce |
| 25. | Sulphonamides. | • Outline the chemistry of sulphonamides.<br>• Classify sulphonamides according to duration of action.<br>• Describe MOA / resistance, pharmacokinetics, antimicrobial spectrum, clinical indications & adverse effects of sulphonamides / cotrimoxazole.<br>• Enlist the various combinations of sulphonamides &their clinical uses.<br>• Justify use of combination of trimethoprim & sulphamethoxazole. | LGIS | Theory (MCQs, SEQS)<br>Viva voce |
| 26. | □ Macrolides. | • Enlist macrolides.<br>• Describe mechanism of action / resistance, spectrum of activity, therapeutic uses & adverse effects of macrolides.<br>• Compare newer macrolide agents to erythromycin regarding their pharmacokinetics, clinical uses & adverse effects. | LGIS | Theory (MCQs, SEQS)<br><br>Viva voce |

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| 27. | □ Tetracyclines. | • Classify tetracyclines.<br>• Outline the pharmacokinetics, spectrum of activity & mechanism of resistance of tetracyclines.<br>• Describe MOA, therapeutic uses, adverse effects, drug interaction & contraindications of tetracyclines.<br>• Enlist the advantages of tigecycline over tetracycline. | LGIS | Theory (MCQs, SEQS)<br>Viva voce |
| 28. | □ Chloramphe nicol. | • Describe MOA of chloramphenicol.<br>• Identify antimicrobial spectrum, clinical uses & adverse effects of chloramphenicol.<br>• Explain the reason for the decline in use of chloramphenicol for systemic infections. | LGIS | Theory (MCQs, SEQS)<br>Viva voce |
| 29. | □ Aminoglycosides | • Classify aminoglycosides.<br>• Identify important pharmacokinetic characteristics of aminoglycosides.<br>• Describe MOA, mechanism of resistance, spectrum of activity, clinical uses &adverse effects of aminoglycosides. □ Justify the following:<br>a) Administration of aminoglycosides by daily single high dose injection.<br>b) Combining penicillin / cephalosporin with aminoglycosides | LGIS | Theory (MCQs, SEQS)<br>Viva voce |

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| 30. | □ Fluoroquinol ones. | • Classify quinolones /fluoroquinolones.<br>• Differentiate fluoroquinolones from simple quinolones.<br>• Describe pharmacokinetics, spectrum of activity, MOA & mechanism of resistance of fluoroquinolones.Enlist clinical indications, adverse effects & contraindications of fluoroquinolones. | LGIS | Theory (MCQs, SEQS)<br><br>Viva voce |
| 31. | Beta lactam Antibiotics. | Describe MOA, pharmacokinetics, clinical uses & adverse effects of clindamycin, vancomycin & linezolid.<br>• Signify the clinical importance of methicillin resistant staphylococcus aureus (MRSA).<br>• Enlist urinary antiseptics.<br>• Describe MOA, pharmacokinetics, clinical uses & adverse effects of agents used as urinary antiseptics. | LGIS | Theory (MCQs, SEQS)<br><br>Viva voce |
| 32. | Anti Cancer/Neop lastic Drugs | • Classify anti-cancer agents on the basis of cell cycle specific & non cell cycle specific actions.<br>• Describe the general adverse effects produced by anticancer agents.<br>• Describe MOA, development of resistance, pharmacokinetics, therapeutic uses & adverse effects of cyclophosphamide.<br>• Enlist antimetabolites.<br>• Describe MOA, mechanism of resistance, pharmacokinetics, therapeutic uses & adverse effects of methotrexate.<br>Describe MOA, therapeutic uses & adverse effects of vinca alkaloids, hormones/ hormonal antagonists, & anthracyclines. | LGIS | Theory (MCQs, SEQS)<br><br>Viva voce |

# Pharmacology CBLs

1. A young male patient Yasir brought to the emergency department in unconscious state. His mother said that he was found unconscious in his room with frothing from mouth. She also gave history of tongue biting and urination.
   He was unconscious for last 30min and also has another epileptic fit while her mother was giving the history.

## LEARNING OUTCOME:

Students should be able to:

- Correlate the mode of action and pharmacological effects of Anti seizure drugs to their therapeutic uses.

## LEARNING OBJECTIVES:

Students should be able to:

- Design a management plan for this patient.
- Classify antiepileptic drugs.
- Briefly describe the MOA of older antiepileptic drugs.
- Signify the use of antiepileptic drugs according to the seizures type.

2. A 25 year old male is brought to emergency department after having a road traffic accident with complaints of severe pain in right lower limb & inability to walk. There is no head injury. After complete workup, he is having fracture of right femur. The management includes injection of Morphine (an opioid), which relieved his pain and sedated him.

## LEARNING OUTCOME:

Students should be able to:

- Correlate the mode of action and pharmacological effects of opioids to their therapeutic uses.

## LEARNING OBJECTIVES:

Students should be able to:

- Define opioids.
- Classify opioids.
- Justify the role of morphine in relieving his pain?
- Describe other pharmacological effects of Morphine.
- Summarize the therapeutic uses of opioids with example of one drug used.
- Enlist the contraindications to use of opioids / Morphine.
- Design a management plan for a case of acute opioid poisoning. Evaluate the role of opioid antagonists in this case.

3. A 68-year-old woman presents with complaints of morning stiffness and pain in her wrist and knee joints which increases on exercise. On physical examination, these joints are slightly swollen. The rest of the examination is unremarkable. Her laboratory findings show anemia, elevated erythrocyte sedimentation rate, and positive rheumatoid factor.
She is given a non steroidal anti inflammatory drug (NSAID) which reduced her symptoms. She revisits after two weeks, although her symptoms have reduced, but she complains of significant epigastric pain.

## LEARNING OUTCOME:

Students should be able to:

- Correlate the mode of action and pharmacological effects of NSAIDs & DMARDs to their therapeutic uses.

## Learning Objective:

By the end of the CBL discussion students should be able to:

- Classify NSAIDs
- Select and justify the group / drug for her and describe its mode of action
- Differentiate the merits and demerits of various groups
- Summarize the causes of epigastric pain along with their management
- Enlist other common adverse effects of NSAIDs
- Design a long term treatment plan for her on revisit
- Specify the advantages of DMARDs over NSAIDs in patient of Rheumatoid arthritis.

4. A 50 year-old male presents to OPD with complaints of rapid onset of pain and swelling in his right big toe. Patient gives history of two similar episodes previously lasting for 4-5 days. He was treated successfully by General Practitioner. His drug history reveals hydrochlorothiazide therapy for hypertension. On examination his right metatarsophalangeal joint is red, hot and swollen. Lab investigations reveal raised serum uric acid (10 mg/dl).

## LEARNING OUTCOME:

Students should be able to:

- Correlate the mode of action and pharmacological effects of anti gout drugs to their therapeutic uses.

## Learning objectives:

a) Formulate a provisional diagnosis for this patient.
b) Relate the pathophysiology of gout to its clinical manifestations.
c) Classify drugs used to treat acute & chronic gout.

d) Design a management plan for a case of acute gout.

e) Summarize strategies for management of chronic gout.

5. Mr Qsim 62 years is brought to emergency department in confused & delirious state with H/O high grade fever, nausea, vomiting & severe headache. Gram stain of CSF has revealed G positive diplococci; MIC for Penicillin G is 20mcg/ml. Diagnosis of purulent pneumococcal meningitis is made. The relative gives H/O rash with ampicillin.
The patient is treated with I/V Ceftriaxone & Vancomycin.

**LEARNING OUTCOME:**

Students should be able to:

- Correlate the mode of action and pharmacological effects of bacterial cell wall inhibitors to their therapeutic uses.

**Learning objectives:**

- Name the penicillins which may be used to treat pneumococcal infection& Identify reasons for not being used in this patient.
- Describe the relevance of pencillin allergy. Enlist allergic reaction produced by various penicillins. Plan management of anaphylaxis.
- Describe mode of action of Cetriaxone & Justify its use of in this patient.
- Justify use of vancomycin with ceftriaxone. Describe its important characteristics

# Practical work

**Learning Outcomes:**

After completion of practical work, students should be able to:

- Calculate various parameters of biostatistics.
  Write a suitable prescription/ select appropriate P-drug according to the given case scenario.

| S.# | Topics | Learning Objectives<br>At the end of the block, the student should be able to | MIT | Mode of assessment |
|---|---|---|---|---|
| 1. | | • Define statistical data.<br>• Arrange data in ascending/ descending order.<br>• Calculate median, mode, mean.<br>• Calculate SD& SEM. | Practical work | OSPE |
| 2. | | • Identify the abbreviations used in prescriptions.<br>• Describe parts of a prescription.<br>• Write suitable prescription / select the appropriate Pdrug according to given scenario for the following conditions:<br>• Anaphylactic shock<br>• Hypertension<br>• Cardiac failure<br>• Iron deficiency anemia<br>• Pneumonia<br>• Acute streptococcal pharyngitis<br>• Gouty arthritis<br>• Migraine<br>• Epilepsy<br>• Parkinsonism | Practical work | OSPE |

# General Pathology
# MICROBIOLOGY

## MICROBIOLOGY LEARNING OUTCOMES:

At the end of second module, the student of 3rd year MBBS should be able to:
Correlate the mechanisms of disease production with clinical manifestations, diagnostic modalities, treatment and preventive strategies of Gram positive rods, atypical bacteria and medically important viruses.

| S. No | Topic | LEARNING OBJECTIVES | MIT | Mode of assessment |
|---|---|---|---|---|
| | At the end of the block, the student should be able to | | LGIS/ SGD/ CBL/ Practical/ Tutorial | MCQs/SEQs /OSPE/ Structured Viva |
| **Special Bacteriology** | | | | |
| **Gram positive rods (Spore formers)** | | | | |
| | | | | |
| 2 | | Clostridium perferengis & Clostridium difficile | • Describe general characteristics of Clostridium perferengis & Clostridium difficile.<br>• Explain the mechanisms of disease production caused by above | LGIS | MCQs/SEQs / Structured Viva |

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| | | mentioned bacteria.<br>• Interpret the diagnostic modalities of infections caused by above mentioned bacteria.<br>• Analyze treatment options available for Clostridium perferengis & Clostridium difficile.<br>• Apply the preventive measures for control of infections caused by above mentioned bacteria. | | |
| 3 | Bacillus anthracis & Bacillus cereus | Describe general characteristics of Bacillus | LGIS | MCQs/SEQs / Structured Viva |

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| | | anthracis & Bacillus cereus.<br>• Explain their mechanisms of disease production.<br>• Interpret the diagnostic modalities of infections caused by above mentioned bacteria.<br>• Analyze the treatment options available for anthrax and infections caused by Bacillus cereus.<br>• Apply the preventive measures for control of anthrax and infections caused by Bacillus cereus. | | |
| **Gram positive rods ( Non Spore formers, Non filamentous)** | | | | |
| 4 | Corynebacteri um diphtheria & Listeria monocytogene s | • Describe the general characteristics of Corynebacterium and Listeria.<br>• Explain the mechanisms of disease production caused by Corynebacterium diphtheriae and | LGIS | MCQs/SEQs / Structured Viva |

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| | | Listeria monocytogenes.<br>• Enlist the methods of diagnosis of diphtheria and listeriosis.<br>• Analyze the treatment options available for diphtheria and listeriosis.<br>• Apply the preventive measures for control of above mentioned infections. | | |
| **Gram positive rods ( Non Spore formers, Filamentous)** | | | | |

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| 5 | Nocardia & Actinomyces | • Describe the general characteristics of Nocardia and Actinomyces.<br>• Explain the mechanisms of diseases production caused by Nocardia asteroides and Actinomyces israellii.<br>• Interpret the diagnostic modalities of infections caused by Nocardia asteroides and Actinomyces israellii. | LGIS | MCQs/SEQs / Structured Viva |
| | | • Analyze the treatment options available for infections caused by above mentioned bacteria<br>• Apply the preventive measures for control of infections caused by Nocardia asteroides and Actinomyces israellii. | | |
| **Mycobacteria:** | | | | |

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| 6 | Mycobacterium tuberculosis | • Describe the general characteristics of Mycobacteria.<br>• Classify Mycobacteria<br>• Explain principle of Ziehl Neelsen staining and interpret the results of this procedure.<br>• Correlate the mechanisms of disease production caused by Mycobacterium tuberculosis with different clinical presentation of tuberculosis.<br>• Analyze different diagnostic | LGIS | MCQs/SEQs / Structured Viva |

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| | | modalities for detection of tuberculosis.<br>• Enlist rapid diagnostic tests for diagnosis of M.tuberculosis.<br>• Compare and contrast MDR and XDR tuberculosis.<br>• Apply the preventive measures for control of infections caused by M.tuberculosis. | | |

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| 7 | Atypical Mycobacteria/ Mycobacteria other than tuberculosis (MOTT) | • Describe general characteristics of atypical mycobacteria.<br>• Compare and contrast atypical mycobacteria with Mycobacterium tuberculosis.<br>• Explain the mechanisms of disease production caused by atypical mycobacteria.<br>• Enlist the methods of diagnosis of infections caused by atypical mucobacteria. | LGIS | MCQs/SEQs / Structured Viva |
| | | • Analyze the treatment options available for infections caused by above mentioned atypical mycobacteria.<br>• Apply the preventive measures for control of infections caused by atypical mycobacteria | | |

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| 8 | Mycobacterium leprae | • Describe general characteristics of Mycobacterium leprae.<br>• Explain the mechanisms of diseases production caused by M. leprae.<br>• Enlist the methods of diagnosis of infections caused by M. leprae.<br>• Analyze the treatment options available for leprosy.<br>• Apply the preventive measures for control of leprosy. | LGIS | MCQs/SEQs / Structured Viva |
| **Spirochetes** | | | | |

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| 9 | Leptospira & Borrelia | • Describe general characteristics of Leptospira and Borrelia.<br>• Explain the mechanisms of disease production<br>• Enlist the methods of diagnosis of infections caused by Leptospira and Borrelia.<br>• Apply the preventive measures for control of infections caused by Leptospira and Borrelia. | LGIS | MCQs/SEQs / Structured Viva |
| **Spirochetes** | | | | |

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| 10 | Treponema pallidum | • Describe general characteristics of Treponema pallidum.<br>• Explain the mechanisms of disease production caused by Spirochetes.<br>• Compare and contrast the nonspecific and specific serological tests used for diagnosis of treponemal infections. | LGIS | MCQs/SEQs / Structured Viva |
| | | • Analyze the various treatment options available for infections caused by Spirochetes.<br>• Apply the preventive measures for control of infections caused by Spirochetes. | | |
| **Chlamydia, Rickettsia & Mycoplasma** | | | | |

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| 11 | Chlamydia, Rickettsia & Mycoplasma | • Describe the general characteristics of Chlamydia, Rickettsia & Mycoplasma.<br>• Justify that above mentioned bacteria can't be stained with Gram method.<br>• Explain the mechanisms of disease production caused by Chlamydia, Rickettsia & Mycoplasma.<br>• Describe different clinical presentations of above mentioned bacteria.<br>• Enlist the methods of diagnosis of infections caused by Chlamydia, | LGIS | MCQs/SEQs / Structured Viva |

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| | | Rickettsia & Mycoplasma.<br>• Analyze the various treatment options available for infections caused by above mentioned bacteria.<br>• Apply the preventive measures for control of infections caused by above mentioned bacteria. | | |
| **Virology:** | | | | |
| 12 | General Virology | • Describe the general principles governing virus structure and multiplication.<br>• Classify medically important viruses.<br>• Interpret different methods of detection of viruses in the laboratory | LGIS | MCQs/SEQs / Structured Viva |

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| 13 | Rabies | • Describe the structure of rabies virus.<br>• Review the elements of the viral life cycle.<br>• Correlate the mechanisms of | LGIS | MCQs/SEQs / Structured Viva |
| | | disease production by rabies virus with clinical features of the disease.<br>• Interpret different methods of detection of rabies viruses in the laboratory.<br>• Identify pre- and post-exposure prophylaxis regimens for rabies.<br>• Analyze the treatment plan for rabies.<br>• Apply the preventive measures for control of rabies. | | |

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| 14 | Human immunodefici ent virus | • Restate the structure of HIV.<br>• Compare and contrast its replication mechanisms with other medically important viruses.<br>• Explain the mechanisms of disease production by HIV.<br>• Contrast AIDS with HIV.<br>• Differentiate clinical stages of HIV infection. | LGIS | MCQs/SEQs / Structured Viva |
| | | • Predict the opportunistic infections in patients of AIDS.<br>• Explain the methods used for laboratory diagnosis of HIV infection.<br>• Apply the preventive measures for HIV infection. | | |

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| 15 | Hepatitis viruses | • Define hepatitis and enlist the causative agents of hepatitis.<br>• Describe the structure of Hepatitis viruses.<br>• Discuss the mode of transmission of Hepatitis viruses.<br>• Explain the replication and mechanisms of disease production by Hepatitis viruses.<br>• Elaborate the clinical manifestations of hepatitis.<br>• Analyze the complications associated with Hepatitis viruses.<br>• Interpret the outcomes of serological | LGIS | MCQs/SEQs / Structured Viva |
| | | markers for diagnosis of hepatitis.<br>• Analyze the treatment options for hepatitis viruses.<br>• Identify the vaccines which are available for hepatitis viruses. | | |

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| 16 | Enteroviruses | • Classify Enteroviruses and describe their modes of transmission.<br>• Descibe their mechanisms of disease production and clinical manifestations.<br>• Interpret the methods used for diagnosis of enteroviral infections in the laboratory.<br>• Analyze the treatment strategies used for enteroviral infections<br>• Apply the preventive measures for enteroviral infections. | LGIS | MCQs/SEQ s / Structured Viva |
| 17 | Herpes Viruses | □ Classify Herpes viruses and describe their | LGIS | MCQs/SEQ s / Structured Viva |

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| | | modes of transmission.<br>• Correlate their mechanisms of disease production and clinical manifestations.<br>• Interpret the methods used for diagnosis of infections caused by herpes viruses.<br>• Analyze the treatment strategies used for herpes infections<br>• Apply the preventive measures for infections caused by herpes viruses. | | |

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| 18 | Papilloma viruses | • Describe the modes of transmission of papilloma viruses.<br>• Descibe their mechanisms of disease production and clinical manifestations.<br>• Interpret the methods used for diagnosis of infections and cancers caused | LGIS | MCQs/SEQs / Structured Viva |
| | | by papilloma viruses.<br>• Analyze the treatment strategies used for infections caused by papilloma viruses.<br>• Apply the preventive measures for diseases linked to Human papilloma viruses. | | |

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| 19 | Pox viruses | • Enlist the viruses included in poxviridae.<br>• Descibe their mechanisms of disease production and clinical manifestations.<br>• Interpret the methods used for diagnosis of infections caused by pox viruses.<br>• Analyze the treatment strategies used for infections caused by pox viruses.<br>• Apply the preventive measures for control of infections caused by pox viruses. | LGIS | MCQs/SEQs / Structured Viva |
| | | • Identify the factors which were responsible for elimination of small pox. | | |

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| 20 | Respiratory viruses | • Classify respiratory viruses.<br>• Identify their modes of transmission and mechanisms of disease production.<br>• Interpret the methods used for diagnosis of respiratory infections in the laboratory. | LGIS | MCQs/SEQs / Structured Viva |
| | | • Analyze the treatment strategies used for respiratory infections.<br>• Apply the preventive measures for respiratory infections. | | |
| 21 | Viral Haemorrhagic fevers | • Enlist the causative agents of Viral Haemorrhagic fever.<br>• Describe the structures of dengue, Crimean Congo and Ebola viruses<br>• Discuss the modes of | LGIS | MCQs/SEQs / Structured Viva |

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| | | transmission of haemorrhagic viruses.<br>• Explain their mechanisms of disease production and elaborate the clinical manifestations of viral haemorrhagic fevers.<br>• Interpret different methods for detection and confirmation of viral haemorrhagic fevers.<br>• Analyze the treatment plans for viral haemorrhagic fevers.<br>• Apply strategic measures for prevention and control of haemorrhagic viruses. | | |

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| 22 | Oncognic viruses | • Classify the oncogenic viruses based on their nucleic acid composition.<br>• Describe the modes of transmission and clinical manifestations of | LGIS | MCQs/SEQs / Structured Viva |
| | | oncogenic viruses.<br>• Explain the oncogenic mechanisms of these viruses which lead to deregulation of cell cycle pathway.<br>• Analyze different methods for laboratory diagnosis of oncogenic viruses.<br>• Apply the preventive measures for oncogenic viruses. | | |

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| 23 | Slow viruses & Prions | • Classify the slow viruses based on their nucleic acid composition.<br>• Differentiate between slow viruses and prions.<br>• Describe the modes of transmission and clinical manifestations of slow viruses and prions.<br>• Explain the mechanisms of these disease production caused by slow | LGIS | MCQs/SEQs / Structured Viva |
| | | viruses and prions.<br>• Analyze diagnostic modalities for the diseases caused by slow viruses and prions.<br>• Apply the preventive measures for control of infections caused by slow viruses and prions. | | |

**REFERENCES:**


- Review of Medical Microbiology and Immunology, Warren Levinson, 15th Edition
- Medical Microbiology, Jawetz, Melnick& Adelberg, 27th Edition

# GENERAL PATHOLOGY

General Pathology Learning Outcomes**:**

At the end of second module, the student of 3rd year MBBS should be able to

- Describe the etiology, clinical features, pathogenesis, and laboratory findings, morphological features ad clinic-pathological consequences of major diseases related to the genetics & pediatrics and immune system.

| S.# | Topic | General Pathology Learning Objectives. | MIT | Mode of Assessment |
|---|---|---|---|---|
| | At the end of the block, the student should be able to | | LGIS / SGD / CBL / Practical / Tutorial | MCQs / SEQs / OSPEs / Structured viva |
| 1. | Introduction to Genetics | • Define basic terms used in genetics.<br>• Differentiate between Hereditary, | LGIS | MCQs / SEQs / OSPEs / Structured viva |
| | | Familial & Congenital diseases.<br>• Explain types of genetic disorders.<br>• Describe mutations and nature of mutations.<br>• Explain inheritance pattern of single gene disorders. | | |

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| 2. | Biochemical & molecular basis of Mandelian disorders. | • Classify different Mandelian disorders and identify respective biochemical and molecular defects.<br>• Explain the pathogenesis, laboratory findings, morphological features and clinic-pathologic consequences of these disorders. | LGIS | MCQs / SEQs / OSPEs / Structured viva |
| 3. | Cytogenetic disorders. | • Define and classify cytogenetic disorders in autosomes and sex chromosomes.<br>• Explain the etiology, pathogenesis, morphological features and clinic-pathologic consequences of | LGIS | MCQs / SEQs / Structured viva |
| | | cytogenetic disorders. | | |

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| 4. | Diagnosis of genetic disorders. | • Explain the indications for prenatal and post natal cytogenetic analysis<br>• Enumerate and describe different cytogenetic test/ analysis available.<br>• Interpret the result of cytogenetic tests. | LGIS | MCQs / SEQs / OSPEs / Structured viva |
| 5. | Immunology. | • Name immune cells, their role in immunology.<br>• Enlist characteristics of Hapten and give two examples.<br>• Define immunity. Name the components of normal immune system along with various pathological immune response<br>• Characteristics of Immunity, Types of Immunity.<br>• Define autoimmunity and explain autoimmune disorders.<br>• Differentiate between Passive and Active immunity, give | LGIS / SGD | MCQs / SEQs / OSPEs / Structured viva |

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| | | example of each type.<br>• Define and classify hypersensitivity reactions with examples.<br>• Define the types of humoral immunity and give an example of each: active (artificial and natural) and passive (artificial and natural).<br>• Explain the involvement of genetic factors in autoimmunity.<br>• List the five classes of immunoglobulins & their role in immunity.<br>• Briefly explain Immune deficiency syndrome.<br>• Explain the etiology, pathogenesis, clinical features, opportunistic infections & diagnosis of AIDS.<br>• Enlist types of transplant and explain tissue transplantation, | | |

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| | | tolerance & autoimmunity.<br>• Enlist immunological reaction tests.<br>• Name different immunological tests and explain Lab Diagnosis of immunological diseases.<br>• Name the four major blood types (phenotypes) in the ABO system.<br>• List the three essential steps in blood compatibility testing, and the purpose of each step.<br>• Name kind of blood is given, if necessary, before typing is complete, and also what kind of blood is given, if necessary, before cross-matching is complete.<br>• Briefly discuss the importance of HLA system. | | |

## PRACTICALS

### Learning Outcomes:

At the end of second module, the student of3rd year MBBS should be able to:  Establish diagnosis of given slides of General Pathology lesions, correlating histopathological findings.

- Establish diagnosis of given topics of General Pathology by correlating findings of given slides and photomicrographs with gross findings

| S. No | Systemic Pathology Learning Objectives<br>At the end of the block, the student should be able to | MIT<br>LGIS / SGD / CBL/ Practical / Tutorial | Mode of Assessment<br>MCQs / SEQs / OSPEs / Structured viva |
|---|---|---|---|
| 1 | Identify the lesions of Congestion on histopathology slide. | Practical | OSPE / Structured Viva |
| 2 | Identify the lesions of Edema in Lung and Liver on histopathology slide. | Practical | |
| 3 | Identify the lesions of Thrombus on histopathology slide. | Practical | |
| 4 | Identify the lesions of Myocardial infarctionon histopathology slide. | Practical | |
| 5 | Identify the lesions of Amyloidosis on histopathology slide. | Practical | |

### References:

Robbins Basic Pathology, 10th ed. & Robbins and Cotran Pathologic Basis of Disease, 9th Edition.

# CASE-BASED LEARNING

## CBL/SGD – 1: Infarction

**Scenario:**

A 57 years old man presented with 4 hrs history of chest pain radiating to his neck, with associated diaphoresis and dyspnoea. His Troponin T & Myoglobin He could not survive and died due to cardiac fibrillation / arrest. His Post – mortem was performed and gross appearance of the heart shows an area of dark mottling consistent with MI in the anterior surface of the heart.

are mildly elevated, and his ECG shows ST elevation in anterior chest lead. He could not survive and died due to cardiac fibrillation / arrest. His Post – mortem was performed and gross appearance of the heart shows an area of dark mottling consistent with MI in the anterior surface of the heart.

**Learning objectives**:

1. Define infarction.
2. Explain the likely cause of dark discoloration of heart?
3. Enumerate the type of necrosis in above mentioned scenario?
4. Enlist the factors that influence development of an infarct?
5. Classify infarcts as per their etiologies?

## CBL/SGD – 2: Shock

**Scenario:**

A 30 year old male sustained injuries to his thighs when he was run over by a tractor trolley. He was evacuated to a nearby hospital.

**Examination:**

On examination he had pulse rate of 130/min and BP 60/30mm Hg. His thighs were swollen and had visible deformity.

**Learning objectives:**

1. Name various stages of this clinical condition.
2. Describe the morphological changes expected in tissues?
3. Summarize the multi organ dysfunction occurring in this condition?
4. Classify this condition/ phenomena?
5. Enumerate the pathogenic mechanism in different types of this condition.
6. Discuss the clinical course of this condition.
7. Describe the metabolic abnormalities expected in this condition?

## CBL/SGD – 3: Thrombosis

**Scenario:**

A 70 years old female presented in medical OPD with discomfort and swelling of left leg for past week. On physical examination, leg was swollen and painful on palpation. It was difficult to move.

**Investigations**:

The chest radiograph and ECG was normal. Her blood counts revealed Hb 11.2 g/dl, WBC's 15.7 × $1^{09}$/l and platelets 365 × $1^{09}$/l. Doppler ultrasonography of legs revealed deep veins thrombosis in her left leg.

**Learning objectives:**

1. Define thrombus
2. Enlist the primary event in Virchow triad?
3. Enumerate the causes in this young patient?
4. Outline the primary (genetic) and secondary causes of hypercoagulability?
5. Write the characteristic features of arterial and venous thrombus?
6. Differentiate between thrombus from postmortem clot?
7. Explain cause of his pulmonary symptoms?
8. Outline the pathogenesis of this condition?
9. Name other investigations should be done?
10. Enlist the fate of thrombus?
11. Outline the long term management of this patient?

## CBL/SGD – 4: Embolism

(Young lady with chest pain following caesarean section)

**Scenario:**

A twenty-six years old lady developed severe chest pain 36 hours after undergoing caesarean section following 37 weeks of gestation. The pain on her left side of chest, was worse by deep inspiration. History revealed that one of her first cousin developed clots in her leg veins during pregnancy.

**Examination:**

Physical examination was unremarkable apart from the reduced air entry in her left lung. She was hypoxemic with 88% $O_2$ saturation on room air (normal >96%). **Investigations:**

The chest radiograph was normal and the ECG showed a sinus tachycardia. Her blood counts revealed Hb 11.2 g/dl, WBC 15.7 x $10^9$/l and platelets 365 x $10^9$/l. The V/Q scan indicated perfusion defects consistent with an embolus in the pulmonary circulation. She was advised

Doppler ultrasonography of legs and detailed coagulation profile to find out source and underlying cause of embolism.

**Learning objectives:**

1. Define Embolism?
2. Describe the cause of these symptoms and signs?
3. Explain above symptoms and signs.
4. Describe the pathogenesis and histopathological features of this condition?
5. Enumerate different types of emboli.
6. Enumerate other investigation that should be done?

## CBL/SGD – 5: Hypersensitivity-I

**Case Scenario:**

### History:

A 15 years old female was given injection penicillin intramuscular. After 20 minutes she developed severe nauseating condition, fainting and choking sensation. She fell down in semiconscious state.

### Examination:

On examination, blood pressure was 80/40 mm Hg. Her hands were cold and sweaty, pulse was irregular. Her breathing was laborious.

### Treatment:

Considering an acute drug reaction she was immediately given injection adrenalin and solu – cortef (hydrocortisone). She gradually felt better and gained her consciousness.

### Late examination:

Her Blood pressure became 120/80 mm Hg and pulse became regular. Later on she developed rash all over her body as well.

**LearningObjectiv**
**es**

1. Define hapten.
2. Enumerate the characteristic features of hapten.
3. Identify the type of hypersensitivity reaction she developed, and what are the other types?
4. Explain above signs & symptoms.
5. Explain pathogenesis of above symptoms particularly responsible mediators and immunoglobulins in this condition and in other types of hypersensitivity reactions.
6. Differentiate the features of systemic disorder and a local reaction in type 1 hypersensitivity reaction.
7. Describe the morphological changes in these reactions?

## CBL/SGD – 6: Hypersensitivity-IV

### Case Scenario:

A 45 years old male, labor by profession, presented in medical OPD with low grade fever, night sweats, weight loss, productive cough, and mild chest pain for 3 weeks. His detailed systemic examination was unremarkable except for pallor. A set of investigations was carried out including complete blood picture, ESR, X-ray chest and an intradermal test.

### Lab Results:

- Blood complete picture revealed Hb of 12gms/dl  ESR showed 90 mm fall at the end of first hour.
- X-ray chest showed bilateral hilar lymphadenopathy and opacities in apical lobe of right lungs.
- PPD (5TU) injection was given intradermally and an area of induration of 13 mm noted at 72 hrs.

### Learning Objectives

1. Discuss the pathogenesis of hypersensitivity reaction and mention the mediators involved?
2. Enumerate the hypersensitivity reaction seen in this intradermal test?
3. Identify the test and enlist its indications?
4. Describe the morphological features of above mentioned lesion?
5. Interpret the intradermal test and mention the condition leading to false positive and false negative results?
6. Enlist specific examples of this type of hypersensitivity reactions?

## CBL/SGD – 7: TUBERCULOSIS

### Scenario:

A 30 years old male presented in medical outpatient department with complains of anorexia and evening rise of fever for the last three months. He also gave history of productive cough and weight loss of two kg during this period. He was prescribed antibiotics and antimalarials by local doctor but no improvement occurs.

On examination he has temperature of 100˚F and pulse rate of 100 beats/ minute.

Investigations revealed Hb 9.8 g/dl, WBC's: 6.5 x $10^9$/L and platelet count: 100 x $10^9$/L. ESR is 120 mm fall at the end of 1st hour. X-ray chest was advised which showed opacities in the right upper lobe.

He was put on antituberculous therapy and his symptoms improved in 2 months.

### Learning objectives:

**Must know**

The students will be able to

1. Analyze the mentioned case to reach the provisional as well as differential diagnosis.

2. Enlist the culture medias of different types used for the growth of pathogen in the laboratory.
3. Correlate the pathogenesis and histopathological changes in affected organ.
4. Describe the growth requirements of the pathogen.
5. Enumerate the organs involved in disseminated tuberculosis.
6. Interpret the intradermal test which is used in the diagnosis of tuberculosis.
7. Comprehend the significance of multidrug resistant and extremely drug resistant tuberculosis.

**Better to know**

1. Explain the measures which can be taken in preventing tuberculosis.

## CBL/SGD – 8: Immunodeficiency syndrome

### Case Scenario:

A young male of 30 years presented with history of repeated attacks of cough & diarrhea alongwith fever, fatigue & weight loss.

### History:

The young man is settled abroad for the last 10 years and also has history of intravenous drug abuse. He came back to Pakistan 01 month ago and is admitted in hospital with pneumonia, uncontrollable diarrhea, and prolonged low grade fever and weight loss of about 10 kg.

### Examination:

One examination he had:

- Low grade fever
- Generalized (weakness)
- Red rash over the trunk
- Bilateral crepitations on chest auscultation

### Investigation:

A set of investigations like blood CP, ESR and Chest X-ray were advised which revealed thrombocytopenia, low and bilateral ground glass densities on X-ray. A provisional diagnosis of AIDS Was made, patient's serum was examined for antibodies to HIV and serum was positive for antibodies. His lymph node biopsy showed marked depletion of cells in the follicles and hyalinized germinal centers.

### Learning Objective

1. Enumerate the possible provisional diagnosis and explain its association with drug abuse.
2. Discuss other risk factors and causes of this disease?
3. Enumerate other infections likely to be suspected in this disease?
4. Explain the pathogenesis of this disease?
5. Describe the different stages of this disease?

6. Enumerate the complications of the disease?

## CBL/SGD – 9: Meningitis

### Case scenario:

A patient with fever, headache and vomiting

### History:

A 15 years old male was admitted to the hospital with history of fever, headache and vomiting for two days and was in semiconscious state. A few days back he had suffered from upper respiratory infection.

### Examination:

On examination temperature was 102°F with a pulse rate of 120/min.
Bilateral sub-conjunctival haemorrhages were noted bilaterally. There was neck rigidity and Kerning's sign was positive. His breathing was laborious. Considering the diagnosis of meningitis, lumber puncture was carried out.

### Laboratory examination:

- Blood complete picture yielded leukocytosis.
- Cerebrospinal fluid analysis
  - On gross examination the fluid was turbid.
  - Chemically yielding a high protein and low glucose content.
    - Microscopy showed increased cell count, mostly neutrophils
    - Gram stain showed gram negative diplococci .
- Cerebrospinal fluid culture was carried out and blood for culture was requested.

### Treatment:

Considering meningitis, empirically injectable Cefotaxime was started. Dexamethasone was also given. The patient was treated with the antibiotic for seven days.

### Learning Objectives:

1. Identify the causative organism.
2. Explain the pathogenesis of the disease in above mentioned scenario.
3. Enumerate the precautions you will adopt during his stay in hospital?
4. Enumerate the other pathogens which can cause meningitis.
5. Explain the clinical importance of the turbidity of cerebrospinal fluid.
6. Enumerate the culture media which you will use for the culture of CSF.
7. Discuss other diagnostic tests for the diagnosis of meningitis.
8. Explain the importance of blood culture in this case.

9. Enumerate the treatment options in such patient.
10. Discuss the prophylaxis for close contacts of this patient.
11. Enumerate the possible complications of this infection.
12. Discuss the preventive measures for this disease.

## CBL/SGD – 10: Typhoid

### Case Scenario:

**(**A patient with fever, myalgia and headache)

### History:

A 20 years old student residing in a hostel is admitted to the hospital with history of fever for the last seven days. The fever was low grade initially becoming high grade later. It was accompanied with headache and malaise.

### Examination:

Examination revealed a pulse rate slower as compared to the body temperature, coated tongue and fine red colored spots on the upper body. Liver and spleen were mildly enlarged.

### Investigations:

Blood was collected for complete picture, culture, Liver function tests and Serology (Widal / Typhidot test.)

### Treatment:

After collection of the samples he was provisionally put on Tablet Ciprofloxacin-500mg twice daily (BD), to be reconsidered after sensitivity results.

### Results of Investigations:

The titre of Widal was TO-1/320, AO-1/20 and BO-1/20 and TH-1/160. The blood culture yielded growth of non-lactose fermenting, motile bacteria producing $H_2S$. It was found to possess a Vi antigen. The isolate showed following antibiogram AMP- SXT- CAP

CIP –OFX –CRO ……sensitive

### Learning Objectives

1. Enumerate your provisional diagnosis and discuss differential diagnosis.
2. Enumerate the causative organism.
3. Explain the above sings & symptoms. (Type of fever and red spots)
4. Enumerate the specimens and their appropriate time for culture to confirm the diagnosis.
5. Enumerate the selective media for the cultural identification of this organism.
6. Discuss the interpretation of Widal test.
7. Enumerate the findings when TSI is inoculated and incubated for 24 hours by this organism.
8. Discuss the advantage of Typhidot test and its interpretation.

9. Justify the statement, “The patient was provisionally put on one antibiotic and to be reconsidered”
10. Discuss the preventive measures for this disease.

## CBL/SGD – 11: Acute Dysentery

### Case scenario:

A patient with fever, loose watery blood stained stools

### History:

A tourist has reported to a clinic of a hill station with complaints of mild fever, abdominal pain and blood stained loose watery stools (> 4 episodes/ day). He developed this complaint two days ago and he has been on the station for the last one week.

### Examination:

Revealed a temperature of 101 F and pulse rate of 110/min with mild dehydration

### Investigations:

Blood was taken for complete picture. Stool was collected was collected for routine examination.

### Treatment:

Patient was advised soft diet with fluid rehydration. He was initially given 1000 ml of Ringer’s lactate solution in outdoor settings. He was sent home with advice to stick to soft diet, encouraged fluid intake and especially Oral Rehydration salt.

### Results of investigations:

- Blood CP showed a total leukocyte count of 15000/L. Rest of the parameters was within normal limits.
- Stool RE showed:
- Consistency: loose watery
- Colour: brown with traces of blood
- Mucus: present
- Microscopy: RBC’s 15-20 /HPF, Pus cells: 25-30 /HPF, No Ova/cysts seen

### Learning Objectives

1. Explain the possible source of infection in this case.
2. Discuss the pathogenesis of this infection.
3. Explain the management of such patients.
4. Discuss the importance of stool culture in such cases.
5. Justify the use of antibiotic treatment in such cases.

# CBL/SGD – 12: Acute Watery Diarrhoea

**Scenario:**

Patient with severe watery diarrhea)

## History:

A 30 years old women presented to hospital `with 10 hours of sudden onset of voluminous diarrhea and vomiting. Since onset the patient had experienced seven episodes of diarrhea and two episodes vomiting, and has taken ingested approximately 2 liters of oral rehydration solution at home. She had not urinated since of onset of illness. The family would often drink unboiled tap water stored in open large containers, and shared a toilet with approximately 20 other families. The patient's past medical history was unremarkable.

## Examination:

On examination, the patient was lethargic and thirsty, and had sunken eyes, dry buccal mucosa, reduced skin turgor, deep and rapid breathing, and a feeble pulse. She had nor urinated since onset of illness. Other systemic examination findings were normal.

## Investigations:

Stool was taken for culture and routine examination. On direct microbiology rapidly motile organisms were seen. Culture was done on a special medium.

## Learning Objectives

1. Enumerate your provisional diagnosis.
2. Identify the organisms causing acute diarrhea.
3. Discuss the pathogenesis of this disease.
4. Enumerate the laboratory tests for this organism.
5. Discuss the treatment options for this patient.
6. Explain the preventive measures for this disease.

# CBL/SGD – 13: UTI

## Scenario:

A 14 years old girl studying in school is brought to the hospital by her mother with a 2 day history of fever, flank pain and dysuria. Her mother has noticed that she has been going to the toilet more often and complaining of pain when she passes urine. She has not been eating well but has had no episodes of vomiting. There was no previous urinary frequency or dysuria that her mother can remember and has no relevant medical history. She is not taking any medicine and no known allergies.

## Examination:

on examination her pulse is 100 beats per minute and temperature is $37.8^0$ C. On palpation her abdomen is soft and bladder is not palpable. She has slight suprapupic tenderness and complains of flank pain on examination.

## Learning Objectives

1. Explain the above signs and symptoms
2. Enumerate the organisms causing UTI.
3. Discuss the expected findings of Urine RE in this case.
4. Explain the management of this case before the result of urine culture and sensitivity comes.
5. Enumerate the culture medium which should be used for culture in this patient. Justify the selection of culture medium.
6. Enumerate other investigations which would you order in this case.
7. Discuss the expected findings of Urine RE in this case.

# Forensic Medicine

## Learning outcomes:

- Violent death due to Asphyxia, sexual offences (Sexual forensic medicine), reproduction, forensic psychiatry & general toxicology.
- General Toxicology is the basic concept of poison, defining its recourse, characterization, fatal dose, fatal period, treatment, postmortem findings, medico legal importance & its clarification

| S.No | Topics | Learning Objective<br>At the end of the block, the student should be able to | MIT | Mode of Assessment |
|---|---|---|---|---|
| 1. | Asphyxia | The students should define, classify, causes of, Asphyxia. They should detect the anatomical, physiological & pathological signs of violent asphyxial deaths. | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 2. | Asphyxia | The students must describe its types like mechanical, chemical, environmental & its medico legal importance. | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 3. | Asphyxia | They should differentiate between drowning / immersions, sea water & fresh water drowning, café-coronary syndrome, sexual asphyxia etc. | LGIS | MCQs/ SEQs OSPE/ VIVA |

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|---|---|---|---|---|
| 4. | Sexual offences | Sexual offences; The student should be able to describe sexual offence & relevant sections of law (zina &hudood ordinance). Natural &unnatural sexual offences &its examinations. . | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 5. | Sexual offences | Collection of specimen preservation, dispatch & certification. | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 6. | Sexual offences | Impotence, virginity, pregnancy, delivery, miscarriage, (abortion) & ITS Reportings. | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 7. | Sexual offences | Infanticide. Caffey syndrome, live and still birth, domestic violence, etc. | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 8. | Forensic Psychiatry | Forensic psychiatry. Distinguish between True & feigned insanity, Advise on procedure of restraint of the mentally ill. Criminal responsibility. Etc. | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 9. | General Toxicology | The students should be able to describe the scope of toxicology's forensic aspect, its classification &common Toxicants in our environment. | LGIS | MCQs/ SEQs OSPE/ VIVA |

| | | | | |
|---|---|---|---|---|
| 10. | General Toxicology | Be able to diagnose acute & chronic toxicological cases in living & dead. Its fatal dose, fatal period its exception | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 11. | General Toxicology | The student should utilize geuoral principal of treatment &. | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 12. | General Toxicology | The student must prepare & interpret the chemical examiner report, autopsy technique with | LGIS | MCQs/ SEQs OSPE/ VIVA |
| | | collection, preservation, & dispatch of specimen. | | |
| 13. | General Toxicology | The student must differentiate between different identical poison regarding its presentation & its signs & symptom. And should acquire knowledge to manage such cases | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 14. | General Toxicology | The students must describe the poisoning cases to be received in hospital, its protocol, itsmedicailegal importance & its certification. | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 15. | General Toxicology | The students should define the different treatment techniques like, Emersion, gastrilavege , rehydrnlingcathartion & other methods used for treatment of poising | LGIS | MCQs/ SEQs OSPE/ VIVA |

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|---|---|---|---|---|
| 16. | DEA | Domestic and environment accidents, its classification, causes, and medico legal aspects. | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 17. | DEA | The students must describe the injuries due to Burns, both dry burn and wet burns (scald). | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 18. | DEA | Injuries due to temperature , hypothermia and hyperthermia, | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 19. | DEA | The students should have enough knowledge of injuries due to electricutions and | LGIS | MCQs/ SEQs OSPE/ VIVA |
| | | lightening and its types and medicolegal aspects. | | |
| 20. | DEA | Road traffic accidents including motor vehicles and railway accidents, | LGIS | MCQs/ SEQs OSPE/ VIVA |
| 21. | DEA | Blast and explosion injuries, its types, its medico legal aspects and its compensations including police torture and its legal issues. | LGIS | MCQs/ SEQs OSPE/ VIVA |

# Medicine

| S. No | Topic | Learning Objective | MIT | Mode of Assessment |
|---|---|---|---|---|
| | At the end of the block, the student should be able to | | | |
| 1. | Approach to patient with fever | • Describe its Etiology<br>• Discuss pathophysiology related to clinical presentation<br>• Identify its Clinical presentation<br>• Formulate its Investigation plan<br>• Plan its management | LGIS | MCQ/ SEQ |
| 2. | Approach to patient with loss of consciousness | • The difference between awake & unconscious state<br>• The controlling centre of consciousness in control vervous system RAS<br>• The patophysiological mechanisms leading to unconsciousness<br>• The different groups of etiologies leading to unconsciousness | LGIS | MCQ/ SEQ |

| | | | | |
|---|---|---|---|---|
| | | vascular, metabolic, traumatic etc<br>• The investigational workup on bed side and later<br>• Clinical assessment an management as first responder, in emergency department indoor plumbing rehabilitation care care<br>• The concept of parallel performance o assessment and management in emergencies ABC approval | | |
| 3. | Approach to patient with fits | • The pathophysiological and clinical definition of Fits<br>• The different etiological groups of fits<br>• The investigational workup in case of fit and recurrent fits on bed side and later.<br>• The arrangement and management of patient having a fit. Emergency ABCD approvable<br>• The basic concept of drug treatment in emergency and later | LGIS | MCQ/ SEQ |

| | | | | |
|---|---|---|---|---|
| 4. | Plumonary T.B clinical features & diagnosis | □ | LGIS | MCQ/ SEQ |
| 5. | Symptomatology of Locomotor System | • Define different terms related to musculoskeletal system<br>• Take detailed history in a patient of musculoskeletal disease | LGIS | MCQ/ SEQ |
| 6. | Hepatitis A&E clinical features, transmission & diagnosis | □ | LGIS | MCQ/ SEQ |
| 7. | Asthma clinical features & diagnosis | • What is Bronchial Asthma / Definition<br>• Describe etiology, pathogenesis & types of Asthma<br>• Clinical manifestations and complications<br>• How to diagnose Asthma | LGIS | MCQ/ SEQ |
| 8. | Dengue fever C/F + Diagnosis | • Introduction<br>• Epidemiology<br>• Symptoms / Signs<br>• Classification of Dengue fever acc to severity<br>• Diagnosis of Dengue fever | LGIS | MCQ/ SEQ |

| | | | | |
|---|---|---|---|---|
| 9. | Hepatitis B&C clinical features, transmission & diagnosis | • Learn about Clinical features of Hepatitis B and C<br>• Learn about Transmission of Hepatitis B and C<br>• Learn about Diagnosis of Hepatitis B and C | LGIS | MCQ/ SEQ |

## Surgery

| S. No | Topic | Learning Objective | MIT | Mode of Assessment |
|---|---|---|---|---|
| | At the end of the block, the student should be able to | | | |
| 1 | Organ transplant | • Appreciate the indication of organ transplant.<br>• Know the surgical principle of organ transplant and its outcome.<br>• Give and account of the causes of graft dysfunction. | LGIS | MCQ/ SEQ |
| 2 | Surgery in tropics I and II | • Aware of common condition that occurs in tropics.<br>• Know clinical presentations of the various conditions occur in tropics.<br>• Diagnose these conditions.<br>• Understand the surgical management of these conditions. | LGIS | MCQ/ SEQ |

| | | | | |
|---|---|---|---|---|
| 3 | Bone and joint infection | **Understand:**<br>• Characteristic features in history and examination of infection in the bone and joint.<br>• Treatment of infection in the bone and joint.<br>**Know :**<br>• Diagnostic investigation for bone and joint infection. | LGIS | MCQ/ SEQ |
| 4 | Sterilization and disinfection | • Understand definition of sterilization and disinfections.<br>• Know different method of sterilization and disinfection | LGIS | MCQ/ SEQ |
| 5 | Central Nervous System Infection. | **Understand :**<br>• Characteristic features in history and examination of Central Nervous System Infection.<br>• Treatment of Central Nervous System Infection.<br>**Know :**<br>• Diagnostic investigation Central Nervous System Infection. | LGIS | MCQ/ SEQ |

| | | | | |
|---|---|---|---|---|
| 6 | Local Anesthesia | **Know :**<br>• Drugs involve in local anesthesia.<br>• Indication of these drugs.<br>• Local and regional anesthesia technique. | LGIS | MCQ/ SEQ |
| 7 | General Anesthesia | **Know :**<br>• Drugs involve in general anesthesia.<br>• Indication of these drugs.<br>• General anesthesia technique. | LGIS | MCQ/ SEQ |


# Learning Resources

## Pharmacology

### Recommended Books

- Lippincott Illustrated Pharmacology, Richard a Harvey Karen Whalen, 7th Edition
- Basic and clinical Pharmacology by Bertram G Katzung 14th Edition.  Lippincott Illustrated Reviews Pharmacology 6th Edition.
- Katzung & Trevor's Pharmacology Examination & Board Review 11th Edition.
- The Pharmacological Basis of Therapeutics by Goodman & Gilman Latest Edition.
- Current Medical Diagnosis and treatment- latest Edition.
- Hand Book of applied Pharmacology by Muzammil Hassan Najmi / Munir Ahmad Khan
- Goodman & Gilman's The Pharmacological Basis of Therapeutics, 13th Edition

### General Pathology/ Microbiology

- Robbins and Cotran. Pathological Basis of Disease. 9th Edition.
- Review of Medical Microbiology and Immunology, Warren Levinson, 15th Edition
- Medical Microbiology, Jawetz, Melnick& Adelberg, 27th Edition
- Robbins and Cotran. Pathological Basis of Disease. 9th Edition

- Monica Cheesbrough District Laboratory Practice in Tropical Countries

## Feedback on the study guide

We value your feedback and will use it for improvement of this Study guide.

Kindly provide feedback for this study guide. At the email:

dme@ckmc.edu.pk

## References:

HARDEN, J.M. LAIDLAW, E.A. HESKETH, R. M. (1999). AMEE Medical Education Guide No 16: Study guides-their use and preparation. *Medical Teacher, 21*(3), 248–265. https://doi.org/10.1080/01421599979491