

SECOND PROFESSIONAL BDS SYLLABUS & COURSES

General Pathology and Microbiology

Pharmacology and Dental Materia Medica

Community and Preventative Dentistry

Science of Dental Materials

Introduction to research methodology

Communication skills

Pre-clinical Dental Techniques

Operative dentistry

Prosthodontics

Periodontology

Orthodontics

GENERAL PATHOLOGY AND MICROBIOLOGY

Cell Injury and Cellular Adaptations

Introduction

Causes of cell injury

Ischemic and hypoxic injury

Free radicals and cell injury

Cell death (necrosis) types of necrosis; pathogenesis and clinical examples of each

Gangrene dry, wet and gas gangrene with clinical examples

Intracellular accumulations

Fatty change - pathogenesis and manifestations of fatty change in liver, heart and kidneys

Pigments endogenous and exogenous; disorders of pigmentation with special emphasis on oral pigmentation

Cellular adaptations of growth and differentiation; hypertrophy, hyperplasia, atrophy, hypoplasia, metaplasia and dysplasia

Calcification - metastatic and dystrophic

Hyaline change.

Inflammation

Introduction

Acute inflammation cellular and vascular events

Mononuclear phagocytes system

Chronic inflammation

Chronic granulomatous inflammation

Giant cells

Morphologic patterns in acute and chronic inflammation

Systemic effects of inflammation

Healing and Repair

Introduction
Regeneration
Repair by connective tissue
Healing of skin wounds
Complications of wound healing
Mechanisms involved in repair
Factors affecting healing – local as well as systemic
Repair in the CNS
Healing in specialized tissues (Bone)
Abnormalities of fracture healing.

Hemodynamics

Hyperemia and congestion
Edema
Shock – types with pathogenesis and stages
Burns
Thrombosis
Embolism
Infarction

Immunology

Introduction
Antigens
The cellular basis of immune reactions
Antibodies
Complement system
Cytokines
The Immune response
Transplantation and major histocompatibility antigen
Immune deficiency – congenital and acquired clinical significance of common immunodeficiencies
Hypersensitivity reactions; pathogenesis and clinical examples
Autoimmunity; pathogenesis and clinical examples
Amyloidosis; classification, pathogenesis and clinical examples
Vaccination

Genetic Basis of Disease

Introduction
Mutations
Mendelian disorders
Disorders of defects in structural proteins
Disorders of defects in receptor proteins
Disorders of defects in enzymes
Disorders with multifactorial inheritance
Cytogenetic disorders molecular diagnosis
Diagnosis of genetic disease

Neoplasia

Introduction

Classification of tumors

Nomenclature of tumors

Characteristics of benign and malignant tumors with emphasis on local invasion, anaplasia and metastasis

Differences between benign and malignant tumors

Differences between carcinomas and sarcomas

Biology of tumor growth

Carcinogenic agents and their cellular interactions

Chemical carcinogenesis

Radiation carcinogenesis

Viral oncogenesis

Oncogenes and cancer

Pathogenesis of cancer

Effect of malignant tumors on Host

Laboratory diagnosis of cancer.

Oral cancer and precancer

Salivary gland tumors

Recommended Books

Pathological basis of disease 6th Edition Cortan, Kumar, Collins

Text book of Pathology by Walter & Israel

Microbiology

Cell types : prokaryocytes, eukaryocytes

Structure of bacteria

Culture media

Basic properties of micro-organisms and their mechanisms of pathogenicity

Common bacteria and their pathogenicity cocci, bacilli, spirochetes

The mode of action of chemotherapeutic agents

Mechanisms of resistance in bacteria

Hospital infections

Structure and properties of fungi and an overview of common fungal infections

Structure and properties of parasites and an overview of common parasitic infections

Structure and properties of protozoa and an overview of common protozoal infections

Structure and properties of viruses and an overview of common viral infections

Disinfection and sterilization.

The spread of infectious diseases in dentistry

Recommended Books

Essentials and Applications of Microbiology Larry Mckane Judy Kandel

Microbiology by Jawetz

Misc

Cell

Micro

Cult

Basic

Com

Misc

Host

Micro

Com

PHARMACOLOGY AND DENTAL MATERIA MEDICA

This course presents the pharmacological properties of drugs and their proper use in dental therapeutics. It covers currently available drugs and the basic principles for evaluating new drugs as they become available. Special attention is given to those drugs that are relevant to the daily delivery of good dental care.

General Pharmacology

Definition of drug and drug nomenclature

Branches / divisions of pharmacy

Sources of drugs

Active principles of drug and pharmacy

Dosage forms and doses of drugs

Drug administration

Absorption of drugs and processes involved in drug absorption

Factors modify absorption of drugs

Transport of drugs across cell-membrane

Bio-availability its clinical significance and factors affecting bio-availability

Drugs reservoirs, distribution and redistribution of drugs, plasma protein binding

Plasma half-life of drugs, steady state concentration, its clinical importance and factors affecting it.

Excretion of drugs.

Mechanisms of drug action.

Dose response curves, structure activity relationship

Factors modifying action and doses of drugs

Pharmacokinetics, pharmaco-dynamics and receptors

Central Nervous system

Sedatives and hypnotics

Anti-epileptics

Central muscle relaxants

Anti-psychotics

Anxiolytics

CNS stimulants

Autonomic Nervous system

Parasympathomimetics

Parasympatholytics

Sympathomimetics

Sympatholytics

Ganglion blocking agents

Analgesics

- Narcotic analgesics
- Non-steroidal anti-inflammatory drugs

Anesthetics

- Preanesthetic medication
- General anesthetics
- Local anesthetics

Chemotherapeutic Agents

- Antibiotics
- Antifungals
- Anti-virals

Autocoids

- Cancer chemotherapeutic agents

Cardiovascular Drugs

- Anti-anginal drugs
- Cardiac glycosides
- Anti-arrhythmic drugs
- Anti-hypertensives
- Thrombolytics
- Anti-hyperlipidemics

Drugs acting on Blood

- Drug treatment of iron deficiency anemia
- Drug treatment of megaloblastic anemia
- Anticoagulants
- Coagulants

Drugs acting on Kidneys

- Diuretics
- Inhibitors of tubular transport of water

GIT Drugs

- Emetics
- Anti-emetics
- Ant-acids
- Purgatives
- Laxatives

Dental Pharmacology:

Pharmacology and therapeutic of drugs employed in dental practice:

Antimicrobial agents used in dentistry

Analgesics used in dentistry

Antiseptics and disinfectants

Agents used for the prevention of dental caries

Agents used for maintenance of oral hygiene

Dentin desensitizing agent

Agents used in root canal therapy

Local anesthetics used in dentistry

Artificial salivary preparations

Hemostatic agents used in dentistry

(Dental pharmacology shall be taught at a dental institution and paper setter should select a question from dental pharmacology)

Practical Pharmacology :

Pharmacy

Measurements systems

Common drug preparations: lotion, liniment, ointment, solution, emulsion, powder, mixture suspension etc.

Recommended Books

- Ag Lippincott's pharmacology by Champ & Harvey
- Ag Basic Pharmacology by RW Foster
- Ag Pharmacology by L.S Jacob
- Ag Principles of pharmacology and therapeutics by Goodman & Gillman.
- De Lectures note on drug for dental students by Wilkin & Davidson
- Ag Clinical pharmacology in dental practice by S.V Holroyd
- Lo Pharmacology by Dr. Maqsood Cheema
- Ar Clinical dental pharmacology Kamran Ali

COMMUNITY AND PREVENTIVE DENTISTRY

Role of the preventive dentistry in community health

Fluorides and water fluoridation, pure water, drinking water,

Nutrition, care of the teeth of the child during all stages of growth right from infancy.

Role of dental health education in preventive dentistry, elaborate discussion covering all aspects

Administration of dental Services, indices, epidemiological surveys clinical trials.

Primary health care approach:

Concepts of primary health, oral health in PHC principles, implications

Society and oral health:

Sociological perspective, social classes and society, family socialization and health, research methods in social sciences.

Health needs assessment: impairment, disability and handicap, development of socio-dental indicators, use of health needs assessment to plan oral health care.

Basic principles and methods of oral epidemiology:

Diagnostic testing, measures of disease frequency, variable and bias, type of studies.

Public health aspect of oral disease and disorders:

Dental caries, periodontal disease, oral cancer, dental trauma, developmental enamel defects, dentofacial irregularities.

Community based strategies for preventing dental caries:

Fluoride tooth paste, water fluoridation, fluoridated salts, dietary fluoride, fluoride mouth washes, fluoride varnishes, pit and fissure sealant.

Trends in oral health:

The primary dentition, the permanent dentition, international comparison, root caries, changes associated with caries diagnosis.

Principles in community oral health:

Introduction, design of study and calculation of sample size determination, analysis, issues, common statistic methods.

Principles of health economics:

Type of economic evaluation, stages of economic analysis, assessing the quality of economic evaluation and limitations.

Principles of Oral Health Promotion :

Principles of oral health behavior and health education : conceptualization health, health behavior and health education and health psychology perspective, determination of health education and health behavior models, theory to practice.

Nutritional dietary guideline and food policy in oral health:

Effect of nutrition and diets and value of teeth in nutrition, guideline for nutrition, sugar consumption.

Fluoridation :

History, legal framework and decision making about fluoridation, the ethics of water fluoridation, fluoridation case studies.

Approaches in oral health promotion :

Planning, development skill required in oral health promotion, identification of sources.

Principles of organization and models of delivery of oral health care:

The oral health care delivery system, policies and objectives, organization and potential for changes evaluation of opportunities.

Recommended Books

Cynthia M.Pine, community oral health

John O. Forrest, preventive dentistry.

SCIENCE OF DENTAL MATERIALS

Introduction to dental materials:

Physical properties of dental materials

Thermal and electrical properties of dental materials

Mechanical properties i.e. stress, strain, stress/ strain relationship and other related properties.

Biocompatibility

A comprehensive understanding of the composition, properties, setting reactions, manipulation, application and adverse effects of dental materials is required and the following materials are important in this regard:

Impression materials – classification, types

Gypsum product – model and Die materials

Investment materials – casting and casting defects.

Dental waxes

Separating media used in dentistry

Polymers:

Non metallic denture base materials

Tissue conditioning materials and soft liner.

Amalgam – types, composition, mercury toxicity.

Composites – development, types, acid etching

Compomers

Glass ionomers

Dental cements – different classes and usage.

Adhesives and dentin bonding materials

Materials used in endodontics

Metals and alloys – gold, Cobalt Chromium, Nicked – Chromium

Steel and Stainless steel & other wire materials,

- Ceramic materials – porcelain, metal fused porcelain, castable ceramics
- Abrasive and polishing materials
- Dental implant materials
- Soldering, welding, general principles.

Laboratory Assignments:

Identification of all dental materials

Manipulation of dental plasters

Exercises in acrylic partial dentures

Exercises in cast partial denture

Recommended Books

Restorative dental materials by Robert. Craig.

Phillip's Skinner's science of dental materials.

Notes on dental materials by Shahina Nusrat.

Clinical handling of dental materials by B.N Smith.

Notes on dental materials by E.C.Combe.

Dental chemistry by Cunnigham.

PRE-CLINICAL DENTAL TECHNIQUES

Introduction to:

- Operative Dentistry
- Prosthetic Dentistry
- Orthodontics
- Maxillofacial Appliance
- Periodontology

Operative Techniques

- Introduction to dental operator & armamentarium
- Introduction to instruments used in cavity preparation
- Principles of cavity preparation
- Cavity preparation on plaster models / phantom head using different materials
- Cavity preparation and filling on extracted teeth. using different materials
- Methods of sterilization
- Rubber dam, components, application
- Use of matrix bands, matrix band retainers, and wedges.
- Anterior crowns: porcelain fused to metal
- Posterior crowns: metal, porcelain fused to metal
- Bridges: metal, porcelain fused to metal
- Repair work of crown & bridges

Prosthetic Techniques

- Introduction of impression and denture materials
- Laboratory procedures
- Plaster slab, wire bending exercises, manipulation of dental waxes, denture exercise (partial), anterior partial denture, posterior partial denture.
- Acrylic removable partial denture
- Cast partial denture
- Complete denture
- Soldering and welding techniques

Maxillofacial Appliances

- Bite raising appliances
- Occlusal splints

Orthodontics Laboratory Procedures

- Properties of wires used in Orthodontics.
- Principles of wire bending including wire bending on wooden blocks.
- Removable appliance: interceptive, corrective, retainers appliances.

Periodontology

- Introduction of instruments
- Prophylaxis exercises on phantom head

INTRODUCTION TO RESEARCH METHODOLOGY

Introduction to philosophy of sciences and its implications.
Scientific enquiry, hypothesis, theory & law.
Introduction to Bio-statistics.
Myth of scientific methods.
Origin and categories of ideas in research.
Varieties of models.
Introduction to medical / dental writing.
Introduction to basic terminologies of research.
Illustrating presentations and publications.

COMMUNICATION SKILLS

Introduction and principles of communication skills, factors involved in communication, presentation skills, principles of presentation. Introduction of visual aids. Counseling, principles of counseling, communication with patients.

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