

UNIVERSITY OF JORDAN
FACULTY OF MEDICINE
DEPARTMENT OF PATHOLOGY, MICROBIOLOGY &
FORENSIC MEDICINE
OUTLINE OF INTRODUCTION TO PATHOLOGY
FOR SECOND YEAR MEDICAL STUDENTS
No. (0504205), (2) CREDIT HOURS

Instructors

Dr. Maha Shomaf -

DEFINITIONS

CAUSES OF CELL INJURY

MECHANISMS OF CELL INJURY

Ischemic and hypoxic injury

Free radical mediation of cell injury

Chemical injury

FORMS AND MORPHOLOGY OF CELL INJURY

Patterns of acute cell injury

Reversible injury

Necrosis

Apoptosis

Subcellular Responses o injury

Intracellular accumulations

Pathologic calcification

CELLULAR ADAPTATIONS OF GROWTH AND DIFFERENTIATION

Atrophy

Hypertrophy

Hyperplasia

Metaplasia

CELLULAR AGING

ACUTE AND CHRONIC INFLAMMATION

ACUTE INFLAMMATION

Vascular changes

Changes in vascular flow and caliber

Increased vascular permeability (Vascular leakage)

Leukocyte Cellular Events

Margination and rolling

Adhesion and transmigration

Chemotaxis and activation

Phagocytosis and degranulation

Leukocyte-induced tissue injury

Defects in leukocyte function

Summary of the acute inflammation response

Chemical mediators of inflammation

Vasoactive amines
Plasma protease
Arachidonic acid metabolites
Prostaglandin's and leukotrienes
Platelet- Activating factor, cytokines
Nitric oxide and oxygen- derived free radicals
Lysosomal constituents

Summary of the chemical mediators of acute inflammation

Outcomes of acute inflammation

ROLE OF LYMPHATICS AND LYMPH NODES IN INFLAMMATION

MORPHOLOGIC PATTERNS IN ACUTE AND CHRONIC

INFLAMMATION

SYSTEMIC EFFECTS OF INFLAMMATION

REPAIR: CELL REGENERATION, FIBROSIS, AND WOUND HEALING

REGENERATION

Control of cell growth and differentiation at sites of injury

Cell cycle and the proliferative Potential of different cell types

Molecular events in cell growth

Growth inhibition

Growth factors

Extracellular matrix and cell-matrix

Interactions

REPAIR BY CONNECTIVE TISSUE

Angiogenesis

Fibrosis (Fibroplasia)

Scar Remodeling

WOUND HEALING

Healing by first intention

Healing by second intention

Wound strength

PATHOLOGIC ASPECTS OF REPAIR

OVERVIEW OF THE INFLAMMATORY-REPARATIVE RESPONSE

NEOPLASIA

DEFINITIONS

NOMENCLATURE

CHARACTERISTICS OF BENIGN AND MALIGNANT NEOPLASMA

Differentiation and anaplasia

Rate of growth

Local invasion

Metastasis

EPIDEMIOLOGY

Cancer incidence

Geographic and environmental factors

Age
Hereditiy
Acquired preneoplastic disorders

CARCINOGENESIS: THE MOLECULAR BASIS OF CANCER

Oncogenes and cancer

Protein products of Oncogenes
Activation of Oncogenes
Cancer suppressor genes
Protein products of tumor suppressor
Genes
Genes that regulate Apoptosis
DNA repair genes
Molecular basis of multistep
Carcinogenesis
Karyotypic changes in tumors

BIOLOGY OF TUMOR GROWTH

Kinetics of tumor cell growth
Tumor angiogenesis
Tumor progression and heterogeneity
Mechanisms of local and distant spread
Invasion of extracellular matrix
Vascular dissemination and homing of tumor cell
Molecular genetics of metastases

ETIOLOGY OF CANCER: CARCINOGENIC AGENTS

Chemical carcinogens
Direct- acting agents
Indirect- acting agents
Mechanisms of action of chemical
Carcinogens
Radiation Carcinogenesis
Viral oncogenesis
RNA oncogenic viruses
DNA oncogenic viruses

CLINICAL FEATURES OF NEOPLASIA

Effects of tumor on host
Cancer cachexia
Paraneoplastic syndromes
Grading and staging of cancer
Laboratory diagnosis of cancer
Morphologic and molecular methods
Biochemical assays

GENERAL PATHOLOGY OF INFECTIOUS DISEASES

CATEGORIES OF INFECTION AND HOW THEY BREAK DOWN

Skin
Urogenital tract
Respiratory tract

Intestinal tract

Spread of microbes throughout the body

Release of microbes from the body

HOW INFECTIOUS AGENTS CAUSE DISEASE

Mechanisms of Virus- induced injury

Mechanisms of bacteria- induced injury

Bacterial adhesions and toxins

IMMUNE EVASION BY MICROBES

SPECIAL TECHNIQUES FOR DIAGNOSIS OF INFECTIOUS AGENTS

INFLAMMATORY RESPONSE TO INFECTIOUS AGENTS

Recommended textbook:

Kumar, Cotran and Robbins

Basic pathology

Saunders