

Course Overview

Functional Pathology

Course code :	NMT404
Course title:	Functional Pathology
Level/semester:	Forth Semester
Preceding Courses & Main Subjects	Biology , -Human Anatomy & Physiology
Credit hours: 3	Theoretical: 2
	Practical: 1

تعريف موجز بالمقرر: تركز هذه المادة على فهم المرض كاضطراب وظيفي، كما تمكن المادة الطلبة من فهم آليات التشكل المرضي لتفسير سبب وكيفية ظهور أعراض المرض. وتركز المادة على آليات التنظيم والتعويض الوظيفية التي تضبط التوازن كاستجابة للتغيرات التي تحدث في بيئتي الجسم الداخلية والخارجية، وتمكن المادة الطلبة من الفهم العميق لآلية المرض ومؤشراته السريرية وصلتها بالمداخلة التمريضية والعلاجية.

Objectives

Upon the completion of the course, the student should be able to:

1. define pathology and cellular pathology.
2. understand the concept of disease and healing and repair.
3. define morbidity and mortality and distinguish between them and have a general understanding of which diseases/disorders cause the greatest mortality and morbidity.
4. understand and be able to define some of the commonly used terms and vocabulary used to describe various aspects of disease (e.g. signs, symptoms, etiology, pathogenesis, manifestations, prognosis).
5. discuss broadly the causes of disease and the categories under which they can be considered.
6. describe pathological mechanisms underlying disease processes (cell injury, inflammation, immunity, neoplasia, vascular disturbances (congestion, hyperemia, edema, thrombosis, ischemia, shock and hemorrhage), metabolic and nutritional diseases, congenital and genetic diseases.

7. Understand some of the clinical manifestations of pathological processes.

Main Teaching Strategies:

Main teaching method

Modified lecture, group discussion, written assignment, internet application ,
Demonstration and Practical Training

Main teaching aids

Data show, overhead projector, slides, video & TV
Flip chart, Models

Methods of Assessments:

Participation, Attendance, Quizzes, Mid term exam, Final exam, Practical Exam .

General pathology:

This course is intended to cover the capabilities of knowledge (understanding the general principles, terminology, diagnostic procedures, and basic concepts of pathology ,(identifying pathological processes at the cellular and gross anatomical level and correlating these with the clinical symptoms and signs). The course will introduce the concepts of injury and the changes from normal structure and function in the human body, as occurs in disease. The various pathological processes (cellular adaptations, tissue injury and renewal, neoplasia, environmental and nutritional pathology) and their importance in the basis of human disease will be studied.

Course Title: Introduction to Pathology (Theory)

No.	SUBJECT
1.	<u>Introduction to pathology</u>
2.	<u>Cell injury & adaptation</u> <ul style="list-style-type: none">- Causes & mechanisms- Morphology of cell injury- Sub cellular responses to injury- Lysosomes: heterophagy & autophagy<ul style="list-style-type: none">- Intracellular accumulations- Lipids & other intracellular accumulations- Cellular adaptations of growth & differ-entiation<ul style="list-style-type: none">- Pathologic calcification
3.	<u>Inflammation</u> <ul style="list-style-type: none">- Acute inflammation- Vascular changes & cellular events- Chemical mediators of inflammation- Chronic inflammation- Definition & causes- Chronic inflammatory cells

	<ul style="list-style-type: none"> - Granulomatous inflammation - Role of lymphatics & lymphoid tissue - Morphologic patterns in: acute & chronic inflammation - Systemic manifestations of inflammation
4.	<u>Repair</u> <ul style="list-style-type: none"> - Cell growth - Regeneration - Wound healing
5.	<u>Disorders of vascular flow, shock</u> <ul style="list-style-type: none"> - Oedema - Hyperemia or congestion - Haemorrhage - Thrombosis - Embolism - Infarction - Shock
6.	<u>Genetic defects</u> <ul style="list-style-type: none"> - Single gene defect - Multifactorial defects - Molecular diagnosis - Other diagnostic applications
7.	<u>Disorders of immune system</u> <ul style="list-style-type: none"> - Cells of immune system - Histocompatibility genes (Antigens) - Immune mechanisms of tissue injury - Auto-immune diseases - Immunodeficiency diseases
8.	<u>Tumours</u> <ul style="list-style-type: none"> - Characters of benign & malignant tumours - Etiology of cancer - Carcinogenic agents - Invasion & metastasis - Nomenclature of benign & malignant tumours
9.	<u>Environmental diseases</u> <ul style="list-style-type: none"> - Environmental pollution - Injury by chemical agents - Injury by physical agents - Nutritional diseases
10.	<u>The response to infection</u> <ul style="list-style-type: none"> - Categories of infectious agents - Host barriers to infection & how they break down - How infectious agents cause disease - Inflammatory response to infectious agents -

Course Title:-Introduction to Pathology (Practical)

No.	SUBJECT
1.	<u>Introduction to pathology techniques</u> <ul style="list-style-type: none"> - Machines & reagents used - Types of specimens received
2.	<u>Demonstration of slides</u> <p>A- Morphology of cell injury</p> <ul style="list-style-type: none"> - Necrosis - Intracellular accumulations - Fatty changes - Cellular adaptations - Hypertrophic tissue - Hyperplastic tissue <p>B- Acute inflammation</p> <ul style="list-style-type: none"> - Margination of leucocytes - Cellular elements of exudates, Neutro-phils, Eosinophils <p>C- Chronic inflammation</p> <ul style="list-style-type: none"> - Monocytes, macrophages, lymphocytes, plasma cells, giant cells. - Granuloma & tuberculosis granuloma <p>D- Steps of repair in wound healing</p> <ul style="list-style-type: none"> - Granulation tissue <p>E- Oedema</p> <p>F- Congestion – tissues</p> <p>G- Thrombus</p> <p>H- Infarction – tissue</p> <p>I- Embolism</p> <p>J- Phagocytosis- lymph node</p> <p>K- Benign tumors</p> <ul style="list-style-type: none"> - Lipoma, fibroma, adinoma, leiomyoma, papilloma, osteoma, etc.. .

	<p>L- Malignant tumours</p>
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- Carcinoma stomach, breast
- Metastasis to lymph nodes