

Course Title: General Pathology (MLT 2nd Semester Sec A and B)

Final term assignment

TIME: 6HRS

Marks:50

Name: MANZOOR KHAN

Class ID: 16291

Section: MLT SEC A

Note:

- **Write in your own words, do not copy paste.**
 - **Use only MS word to attempt questions.**
-

Attempt all questions.Each question carry equal marks.

Q1.What are the circulating cells in acute inflammation?Also write the characteristics of Acute inflammation.

Q2. Write a note on infraction and on its types and write a note o mast cells.

Q3. Which are the cells having proliferative capacity?Explain them,also write about the characteristics of Benign tumor?

Q4. What is hypovolumic shock?Explain along with its conditions.

Q5.What is Edema?Explain its types also write about the classification of Thrombosis.

Q1.What are the circulating cells in acute inflammation?Also write the characteristics of Acute inflammation.

ANS 1:

INFLAMMATION

Inflammation is the response of tissue to injury and is a series of processes initiated to limit damage to tissue. Acute inflammation is an innate, immediate and stereotyped response that occurs in the short term following tissue injury.

CIRCULATING

CELLS

The main immune cells involved in acute inflammation are neutrophils. The stasis of circulation allows neutrophils to line up along the endothelium near the site of injury, known as margination. Next, they roll along the endothelium, sticking intermittently.

Acute inflammation is of relatively short duration, lasting for minutes to hours to days, depending on the extent of injury. Its main characteristics are the exudation of fluid and plasma proteins (edema) and the emigration of leukocytes (predominantly neutrophils).

Some other characteristics are,

- 1. Rubor – Rubor or a redness of the injured or infected area is caused by increased blood flow.*
- 2. Calor – Calor or an increase in heat is also a product of the increased blood flow.*
- 3. Tumor – Tumor refers to a swelling of the area caused by a build-up of fluid.*
- 4. Dolor – Pain is a factor because of the chemicals released that stimulate the nerve endings.*
- 5. Functio laesa – Due to the four signs above, there is often a loss of function of the area.*



Q2. Write a note on infraction and on its types and write a note o mast cells.

ANS 2:

Myocardial infarction

Myocardial infarction (MI), commonly known as heart attack, is a dangerous and disabling condition that can take away people ' s lives. It occur when blood supply is interrupted, causing damage or death of the heart cells.

Symptoms

Patients suffering from myocardial infarction complain of chest pains and are often anxious. Other symptoms are nausea, shortness of breath, sweating, palpitations, and vomiting. Chest pain has been seen as one of the most common associated symptom.

Types of Myocardial Infarction

Type 1:

Spontaneous myocardial infarction o Due to atherosclerotic plaque rupture, ulceration, fissuring, erosion or dissection with resulting intraluminal thrombus leading to decreased myocardial blood flow or distal platelet emboli with ensuing myocyte necrosis.

Type 2:

Myocardial infarction secondary to an oxygen supply-demand mismatch o A condition other than CAD contributes to an imbalance between myocardial oxygen supply and/or demand, e.g. coronary artery spasm, anemia, respiratory failure, hypotension, sepsis, etc.

Type 3:

Myocardial infarction resulting in death when biomarkers values are unavailable o Ex: a patient passes in the ED before lab work can be drawn

Type 4a:

Myocardial infarction related to percutaneous coronary intervention (PCI) o Acute post-PCI troponin elevation > 5 times the 99th percentile of upper reference limit (URL) plus one of the following: Symptoms suggestive of myocardial ischemia

Type 4b:

Myocardial infarction related to stent thrombosis

Type 5:

Myocardial infarction related to coronary artery bypass grafting (CABG) o Acute post-CABG troponin elevation > 10 times the 99th percentile URL plus one of the following: New Q waves or new LBBB Angiographic documented new graft or new native coronary artery occlusion Imaging demonstration of new loss of viable myocardium or new wall motion abnormality.

MAST CELLS

Mast cells are a type of white cell that resemble basophils (at least with regards to cytoplasmic granules) - as described in 1878 by the Nobel prize-winning German-Jewish Physician, Paul Ehrlich.

As compared to other white cells, mast cells are long-lived cells that can survive for several months (2- 3 months).

In addition to being widely distributed in the boundaries between body tissues and the external environments

They are capable of communicating with other immune cells thereby mediating the appropriate immune response. For this reason, they play an important role in both innate and adaptive immunity in the body.



Q3. Which are the cells having proliferative capacity? Explain them, also write about the characteristics of Benign tumor?

ANS 3:

PROLIFERATIVE CAPACITY

The proliferative capacity of lymphocytes is a key event in the adaptive immune response, and the host capacity to respond to an immunological challenge can be significantly compromised if lymphocyte proliferation is not adequate.

Type of cell according to proliferative capacity

~Labile cell (continuously dividing cells , going continuously from one cycle to another cycle)

~Stable cell(low replication)

~Permanet cell(non dividing cells

We will explain the following types

1: Labile cell(continuously dividing cells)

The cells are alive for only a short period of time. Due to this, they can end up reproducing new stem cells and replace functional cells. Especially if the cells become injured through a process called necrosis, or even if the cells go through apoptosis. The way these cells regenerate and replace themselves is quite unique.

2: Stable cells (quiescent cells):

These cells have ability to regenerate but in normal condition donot acitvely replicate. However they can undergo rapid divisoin in responce to a variety of stimulus or activation of a stimulus. Low proliferating ability.

Regeneration can occur in labile cells and stable cells.

xmapple

Paranchymal cells of liver , kidney and pancreas.

Mesenchymal cells, e.g smooth muscle , cartilage, connective tissue, fibroblast and vascular endothelial cells.

3: Non dividing cells (permanent cells)

These cells are incapable of division and regeneration. If they are destroyed , the loss is permanent and repair occure only by the proliferation of connective tissue(scar formation).

Example

Nerve cells(neuron)

Cardaic muscle

Skeletal muscle

Regeneration and repair aslo depends on extent of injury and also on inflammation

.

Characteristics of Benign tumors :

#Well differentiated

#low mitosis

#no necrosis

#Slow growing

#Well demarcated

#Encapsulated

#Do not infiltrate or metastasize

#May not recurrence

#Low dysplasia

Normally all benign tumors grow as cohesive masses and remain localized. They grow and expand and develop a rim of compressed connective tissue known as capsule. Growth of cancer is rapid with infiltration and damage to surrounding structure. Carcinoma in situ remains localized.



Q4. What is hypovolumic shock? Explain along with its conditions.

ANS 4:

SHOCK

Shock is a state of physical shutdown. In this condition there is not enough circulating blood.

HYPOVOLUMIC SHOCK

Severe bleeding or loss of body fluid from trauma, burns, surgery, or dehydration from severe nausea and vomiting. Blood pressure decreases, thus blood flow is reduced to cells, tissue, and organs.

OR

Reduced circulating blood volume with secondary decreased cardiac output.

CONDITIONS:

1.Hemorrhagic

2.Non-hemorrhagic

Non-hemorrhagic

> Vomiting

> Diarrhea

> Bowel obstruction, pancreatitis

> Burns

> environmental (dehydration)

Hemorrhagic

> GI bleed

> Trauma

> Massive hemoptysis

> AAA rupture

> Ectopic pregnancy, post-partum bleeding



Q5.What is Edema?Explain its types also write about the classification of Thrombosis.

ANS 5:

EDEMA

Edema is swelling caused by excess fluid trapped in your body's tissues. Although edema can affect any part of your body, you may notice it more in your hands, arms, feet, ankles and legs.

Edema can be the result of medication, pregnancy or an underlying disease — often congestive heart failure, kidney disease or cirrhosis of the liver.

Taking medication to remove excess fluid and reducing the amount of salt in your food often relieves edema. When edema is a sign of an underlying disease, the disease itself requires separate treatment.

Symptoms

Signs of edema include:

Swelling or puffiness of the tissue directly under your skin, especially in your legs or arms

Stretched or shiny skin

Skin that retains a dimple (pits), after being pressed for several seconds

Increased abdominal size

Causes

Edema occurs when tiny blood vessels in your body (capillaries) leak fluid. The fluid builds up in surrounding tissues, leading to swelling.

Mild cases of edema may result from:

Sitting or staying in one position for too long

Eating too much salty food

Having premenstrual signs and symptoms

Being pregnant

Types

There are 4 types of edema:

=Pulmonary edema

is the type where fluid leaks to the air spaces of alveoli which is found in lungs.

=Peripheral edema

is a most common type of edema as this is noticeably visible in arms and legs or distal parts of the body.

=Pleural edema

is when excess fluids are contained in abdominal area, pleural space or peritoneal cavities inside the body.

=Anasarca

is a condition where edema, from the body is widespread and generalized. Fluid accumulation is present for both interstitial tissues and inside cavities of the body such as the above mentioned.

There are still different types of edema in addition to the ones mentioned above but are less common.

Thrombosis Classification

There is mainly two classification of thrombosis based according to the site of clot formation and these are:

Venous Thrombosis

The blood clot formation is concentrated in the vein and the concern of this type of thrombosis is the development of pulmonary embolism which is life threatening. There are different types of thrombosis classified under venous thrombosis and these are:

Deep Vein Thrombosis

Blood clot formation from this type of thrombosis forms deep within the vein and commonly affecting the leg vein. The clot goes through the vein and cannot be seen through the skin. It occurs mostly in the calf except during pregnancy when the clot lies within the pelvis and thigh.

Portal Vein Thrombosis.

This type of thrombosis affects the hepatic portal vein that may lead to portal hypertension resulting to a decrease blood flow in the liver. It is known to be a complication of splenectomy. The cause of thrombosis is due to cancer in the liver, pancreas and stomach. It is also the result of liver abscess. Umbilical infection is the common cause of portal vein thrombosis in newborn.

Renal Vein Thrombosis.

It occurs mostly to patient with nephritic syndrome. The clot formation in this type of thrombosis is formed in the vein that drains blood in the kidney.

Cerebral Venous Sinus Thrombosis.

It is a rare and potentially fatal form of thrombosis affecting young to middle aged individual and most commonly women. The occurrence of this thrombosis is difficult to determine and this thrombosis is believed to be the uncommon cause of stroke.

Jugular Vein Thrombosis.

A form of thrombosis in the internal jugular or external jugular. The occurrence is uncommon and affects mostly hospitalized patient and mostly due to intravenous intervention, infection and malignancy.

Arterial Thrombosis

The blood clot formation is situated in the artery and is mostly preceded by a rupture of atheroma. The thrombosis can embolize potentially resulting to infarction to any organ of the body.

Stroke.

A formation of the thrombus in large or small part of the brain causing a rapid decline in the brain function as a result of decrease supply of blood.

Myocardial Infarction

Thrombus formation in the coronary vessel resulting to insufficient blood supply in the myocardium causing necrosis of the heart muscle. Myocardial infarction is commonly known as heart attack.

Hepatic Artery Thrombosis

It is a major complication of orthotopic liver transplantation usually occurring more than 30 days after the surgery.

Thrombosis can occur in different parts of the body and can affect almost all individual.

