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

**2ndMid term assignment**

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**Note:**

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

Q1. What do you know about necrosis?Also explain its types.

Q2. Write a note on Fat Embolism.

Q3. What are the causes of Cell injury?Explain them.

**Ans1:**

***NECROSIS:: Necrosis (means 'dead' in Greek) is uncontrolled and unprogrammed death of cells due to unexpected and accidental demmage. It is alsso called 'cell murder' because the cell is killed by extracellular or external events. After necrosis, the harmful dead substances release from the dead cells cause demage and inflamation of neighbouring tissues.***

***CAUSE OF NECROSIS***

Common cause of necrosis are injury, infection,, inflamation, infection of cancer. Necrosis is induced by both physiological as well as chemical events such as heat, radiation, trauma, hypoxia, due to lack of blood flow and exposure to toxins.

**NECROTIC PROCESS**

Necrosis result in the lethal disruption of cell fuction and cell activity. The cell undergoes a seriese of characteristics changes during necrotic process.

1. Cell swells causing demage of the cell membrane and appearence of many holes in the membrane.
2. Intracellular content leak out into the surrounding enviornment.
3. intracellular enviornment id alter.
4. mitochondria is demage.
5. Presence of drastic calcium ions effects the organization and activities.
6. along with calcium, toxic materials also release in the surrounding.
7. lysosomes perform their fuction and causing degredation of the cell.

TYPES

1. **Coagulative Necrosis:**

This is first and most dangerous type of cell death. By dangerous, I mean that in this type of necrosis all the cell death happens accidently and there are very few indications before it happens. Ischemia and Infarction are known to be the main causes behind this kind of cell death. As I have already mentioned that this type of cell death happens accidently, that is why it is considered to be the one of the most dangerous types of cell death. That is because of the minor indications and then the consequences are severe. Talking about the architecture, then in this type of necrosis the architecture of the dead tissues is important to be kept reserved for at least a few days so that it can be used for further study and various other medical purposes.



**2. Liquefactive Necrosis:**

Cell death which needs to be studied is the liquefactive necrosis. This type of necrosis is completely different from the one we studies in the 1st type of necrosis. In this type the affected cells form a liquid shape which is a viscous mass. The appearance, the causes and even the pathology is completely separate and give another shape of cell death. We are going to read the definition, causes and different studies that appear during the examination of this type of necrosis. Liquefactive necrosis if not very common, doesn’t imply that it is something to be taken lightly. It has its dangerous consequences if not taken good measures so read carefully about it.



It is difficult to deal things in brain that’s why it is considered to be very dangerous. The complete architecture of the tissues gets lost and that’s why this causes a viscous mass as explained. This type of cell necrosis can also happen in lungs and that’s it should not be taken lightly.

**3. Gangrenous Necrosis:**

3rd type of the cell necrosis that should be discussed in this Gangrenous necrosis. This can’t be considered very dangerous but also can’t be taken lightly since it also has its dangerous consequences. There are less difficult measures that can be taken in order to treat this type of necrosis as compared to the above two type.

**4. Dry Gangrenous Necrosis**

This not as the name suggests. This is actually a type of coagulative necrosis but this happens due to the insufficient blood supply. The reason is similar to the gangrene but the affects it causes are those of the coagulative and that’s why it classified mainly as the type of the first type of necrosis. Fringe corridor infection is the main reason behind this type of necrosis to occur and since it is the type of 1st one, it should be taken seriously.

**5. Wet OR Contaminated Gangrenous Necrosis:**

In this type of necrosis, the major causes are those in coagulative necrosis. But it can be differentiated according to the appearance of the cell. Cells will be displayed as poorly flourished due to the insufficient blood flow and also, the sepsis are coming out of the cell.

**6. Gas Gangrenous Necrosis:**

This is another type of necrosis in which the gas get produced inside the tissue and that is due to the contamination of the bacteria present inside the tissues. Microscopic organism proceeds the further action of the spreading of this gas making it a dangerous thing to handle.

**7. Fat Necrosis:**

This happens due to the certain activities of fats inside the digestive system of the human especially women. That happens to them mainly during pregnancy and need to be dealt with since it can affect the health of the child.

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**Ans 2:**

***FAT EMBOLISM::***

***A process by which fat tissue passes into the bloodstream and lodges within a blood vessel. In general, an embolus is something that travels through the bloodstream, lodges in a blood vessel, and blocks it. A fat embolus is a fat particle or droplet that travels through the circulation and eventually blocks a blood vessel. Fat emboli tend to be small and multiple, causing numerous signs and symptoms.***

***Up to 90% of cases are associated with trauma, and fracture of or surgery on a large bone, such as the femur bone of the thigh. As a result of the broken bone, the bone marrow fat escapes into the bloodstream. Alternatively, fat embolism can also arise from with parenteral lipid infusion (a form of nutritional supplementation), pancreatitis, burns, childbirth, and other conditions. Although release of bone marrow fat into the circulation may be a cause, fat embolism may arise due to conditions such as widespread trauma or diseases that alter lipid metabolism in the body.***

***Typically, fat embolism occurs suddenly 12-36 hours after an injury. Symptoms and signs depend on the specific location of the blocked arteries. Signs and symptoms of fat embolus include central nervous system dysfunction that may progress to coma or death, irregularities in the heartbeat, respiratory distress, and fever. Anemia and thrombocytopenia (low platelet count) are common. Commonly, small hemorrhages are seen on the neck, shoulders, armpits, and conjunctiva.***

***The mortality (death) rate is 10%-20%. The elderly and those with underlying medical conditions or poor health have worse outcomes.***

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***Ans 3:***

***CAUSES OF CELL INJURY***

1. ***Oxygen Deprivation.***

***Hypoxia is a deficiency of oxygen, which causes cell injury by reducing aerobic oxidative respiration. Hypoxia is an extremely***

***important and common cause of cell injury and cell death. Causes of hypoxia include reduced blood flow (celled ischemia),***

***inadequate oxygenation of the blood due to cardiorespiratory failure, and decreased oxygen-carrying capacity of the blood make the cell to un fill.***

***2.Physical Agents.***

***Physical agents capable of causing cell injury include mechanical trauma, extremes of temperature (burns and deep cold),***

***sudden changes in atmospheric pressure, radiation, and electric shock.***

***3.Infectious Agents.***

***These agents range from the submicroscopic viruses to the large tapeworms. In between are the rickettsiae, bacteria, fungi,***

***and higher forms of parasites. The ways by which these biologic agents cause injury are diverse.***

***4.Nutritional Imbalances.***

***Nutritional imbalances continue to be major causes of cell injury. Protein-calorie deficiencies cause an appalling number of***

***deaths, chiefly among underprivileged populations.***

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