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**Department MLT**

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**Section. B**

**Assignment. Pathology**

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**Question no.1**

**What is shock? Explain it with types.**

**Answer:**

**Shock:**

Shock is the state of insufficient blood flow to the tissues of the body as a result of problems with the circulatory system.

**Symptoms :**

Initial symptoms of shock may include:

* Weakness
* Fast heart rate
* Fast breathing
* Sweating
* Anxiety
* Increased thirst

This may be followed by:

* Confusion
* Unconsciousness
* Cardiac arrest

**Causes:**

Following are the common causes of shock:

* Heart failure
* Infection
* Spinal injury
* Severe burns
* Severe bleeding
* Nerve injuries
* Dehydration

**Types of shock:**

**Septic shock:**

* It results from bacteria multiplying in the blood and releasing toxins.
* Common causes of this are pneumonia, urinary tract infections, skin infections (cellulitis), intra abdominal infections ( such as a ruptured appendix) and meningitis.

**Anaphylactic shock:**

* It is a type of severe hypersensitivity or allergic reactions.
* Causes include allergy to insects stings, medicines, or foods(nuts , berries, sea food etc).

**Cardiogenic shock:**

* It happens when the heart is damaged and unable to supply sufficient blood to the body.
* This can be the end result of a heart attack or congestive heart failure.

**Hypovolemic shock:**

* This is caused by severe blood and fluid loss , such as from traumatic bodily injury, which makes the heart unable to pump enough blood to the body.
* Or severe anemia where there is not enough blood to carry oxygen through the body.

**Neurogenic shock:**

* Neurogenic shock is caused by spinal cord injury , usually as a result of a traumatic accident or injury.
* Neurogenic shock is the most difficult to treat as spinal cord damage is often irreversible.

**Psychogenic shock:**

* Shock due to emotional stress or to seeing an injury or accident.
* Psychogenic shock causes fainting probably by initiating dilation of the blood vessels that perfuse the muscles.
* This shock causes the vessels in the body to to dilate reducing blood flow to the brain

**Respiratory shock:**

* The state resulting when the respiratory process fails( due to illness or an obstruction) and the body is deprived of oxygen.
* It causes dypsnea and elevated respiratory rate.

**Treatment of shock:**

* Epinephrine and other drugs to treat anaphylactic shock.
* Blood transfusions to replace lost blood and treat hypovolemic shock.
* Medications , heart surgery , or other interventions to treat cardiogenic shock.
* Antibiotics to treat septic shock.

**Question no.2:**

**What do you know about Granulomatous inflammation. Explain in detail.**

**Answer:**

**Granulomatous inflammation:**

Granulomatous inflammation may be defined as a type of chronic inflammation in which a compact collection of cells of the mono nuclear phagocyte system , chiefly activated macrophages and cells derived from them are predominant.

These cells are aggregated into well demarcated focal lesions and the designation granuloma derives from this peculiar aspect.

**Granuloma:**

* A granuloma is a structure formed during inflammation that is found in many diseases.
* It is a collection of immune cells known as macrophages.
* Granulomas form when the immune system attempts to wall off substances it perceives as foreign but is unable to eliminate.

**Types of granuloma:**

**Foreign body granuloma:**

A foreign body granuloma forms in response to the introduction of exogenous material to the skin or in response to modified endogenous material that the immune system identifies as foreign.

**Immune granuloma:**

It forms in response to a persistent antigen. They are caused by insoluble particles , typically microbes, that are capable of inducing a cell mediated immune response.

In these responses , macrophages engulf the foreign material and become activated.

**Phases of granuloma formation:**

* Initial phase:- macrophages attracted to persistent inflammatory stimulus, nucleate granulomatous lesion.
* Accumulation phase:- CD4+T cells accumulate at the site and recruit other effector cells ( T cells , macrophages, eosinophils).
* Effector phase:- during the effector phase , various effector cells attempt to reduce the pathogen load through diverse mechanisms.
* Resolution phase:- once treat from pathogen is eliminated infiltrating cell population is reduced and the formation of scar tissue occurs.

**Diseases with granulomas:**

* Tuberculosis
* Leprosy
* Schiatosomiasis
* Histoplasmosis
* Crypotococcosis
* Cat- scratch disease

**Treatment:**

* Chronic granulomatous disease is usually managed with antibiotics and antifungal medications to treat and prevent infection.
* Corticosteroids may be used to shrink granulomas( area of inflamed tissues).
* Treatment may also include a medication called act immune ( also known as interferon gamma -1b).

**Question no.3:**

**What are the effects of use of tobacco on health?**

**Answer:**

**Effects of tobacco on health:**

* Every year more than 8 million people die from tobacco use.
* Most tobacco related deaths occur in low and middle income countries, which are often targets of intensive tobacco industry interference and marketing.
* Nicotine contained in tobacco is highly addictive and tobacco use is a major risk factor for cardiovascular and respiratory diseases.
* Tobacco can also be deadly for non smokers .
* Second hand smoke exposure has also been implicated in adverse health out-comes.
* Smoking while pregnant can lead to severe life long health conditions for babies.
* Heated tobacco products contain tobacco and expose users to toxic emission , many of which cause cancer and are harmful to health.
* Smokeless tobacco use is highly addictive and damaging to health.
* Smokeless tobacco contains many cancer causing toxins and its use increase the risk of cancers of the head, neck , throat, oesophagus and oral cavity.
* Tobacco growing farmers are also exposed to a number of health risks , including the “the green tobacco sickness”.
* Smoking also increases risk of tuberculosis, certain eye diseases, and problems of the immune system, including rheumatoid arthritis.
* It also causes emphysema and chronic bronchitis.

**Question no.4:**

**What do you know about malignant tumor? How to diagnose and what is its treatment?**

**Answer:**

**Malignant tumor:**

Malignant tumors are cancerous growths. They are often resistant to treatment, may spread to other parts of the body and they sometimes recur after they were removed.

Malignant tumors cells can penetrate and destroy adjacent tissue, and can metastasize, or travel through the circulation to distant parts of the body and form new tumors.

**Types:**

* Carcinoma
* Sarcoma
* Leukemia
* Lymphoma

**Diagnosing of malignant tumor:**

The most common diagnostic methods include:

**Biopsy:**

This is a test where a small sample of tissue is taken from the suspected cancer with the help of a fine tipped needle ( fine needle aspiration ) or with a thicker hollow needle (core biopsy ) or by surgical excision.

**Sentinel node biopsy:**

This is a procedure where the closest and most important nodes near the cancer are surgically excised and examined. Since sentinel nodes are the first location that cancer is likely to spread.

**Endoscopy:**

In this imaging technique a thin, flexible tube with a tiny camera on the end is inserted into the body cavities. This allows the doctor to view the suspicious area.

**Blood tests:**

Blood tests can be performed to detect the normal blood cells as well as for specific tumor markers. Some tumors release substances called tumor markers, which can be detected in the blood.

**Imaging studies:**

There are several imaging techniques . these include X-rays, CT-scans, MRI scans of various parts of the body.

**Treatment:**

Many cancers treatment are available. Your treatment options will depend on several factors, such as type and stage of your cancer, your general health, and your preferences.

Cancer treatment options include:

* Surgery
* Chemotherapy
* Radiation therapy
* Bone marrow transplant
* Immunotherapy
* Hormone therapy
* Targeted drug therapy
* Clinical trials etc

**Question no.5**

**Write a detail note about hemorrhage.**

**Answer:**

**Hemorrhage:**

Bleeding also known as hemorrhage, is blood escaping from the circulatory system from damaged blood vessels. It can refer to blood loss inside the body called internal bleeding, or to blood loss outside of the body called external bleeding.

**Types:**

**Capillary:**

Bleeding oozes steadily but slowly.

**Venous:**

Flow steadily under less pressure. Does not spurt.

**Arterial:**

Bleeding spurts with each heart beat. Difficult to control due to pressure.

**Symptoms:**

* Restlessness and anxiety
* Feeling faint
* Coldness
* Pallor
* Patient feels thirsty
* Extremely low blood pressure
* Air hunger
* Rapid thredy pulse

**Causes:**

* Multiple trauma
* Injury to high vascular area involving lungs, liver ,spleen or prostate.
* Any surgical or obstetric emergency
* Aneurysms
* Hypertension
* Widespread carcinomas
* Bleeding disorders
* Septicemia ( gram negative and meningococcal)

**Treatment:**

Stop of hemorrhage:- first aid treatment by packing , pressure, position, and tourniquets.

Restore blood volume:- by lactated ringer solution, and blood transfusions to correct deficit according to the class of hemorrhage.