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Paper: physiology

Q no.1

Write the function and composition of blood?

Function of blood

Nutrition function

Nutritive substances like glucose, amino acids, lipids and vitamins derived from digested food are absorbed from gastrointestinal tract and carried by blood to different parts of the body for growth and production of energy.

Respiratory function

Transport of respiratory gases Id done by the Blood. It carries oxygen from alveoli to lungs to different tissues and carbon dioxide from tissues to alveoli.

Excretory function

Waste products formed in the tissues during various metabolic activities are removed by blood and carried to the excretory organs like kidneys, skin, liver, etc for excretion.

Transport of hormones and enzymes

Hormones which are secreted by ductless (endocrine) glands are released directly into the blood. The Blood transport these hormones to their target organs/ tissues. Blood also transport enzymes.

Regulation of water balance

This helps in the regulation of water balance content of the body.

Regulation of acid-base balance

Plasma proteins and hemoglobin act as buffer and help in the regulation of acid-base balance

Regulation of body temperature

Because of high specific heat of blood. It is responsible for maintaining the thermoregulatory mechanisms in the body, I.e the balance between heat loss and heat gain in the body.

Storages function

Water and some important substances like proteins, glucose, sodium and potassium are constantly required by the tissues. Blood serves as a readmade source for these substances. And these substances are taken from blood during the condition like starvation, fluid loss, electrolyte loss etc

Defensive Function

Blood plays an important role in the defence of the body. The white blood cells are responsible for this function. Neutrophils and monocytes engulf the bacteria by phagocytosis. Lymphocytes are involved in development of immunity. Eosinophils are responsible for detoxification; disintegration and removal of foreign proteins

Composition of blood

Blood is mainly composed of Blood cells and plasma

1. White blood cells (wbc) or lymphocytes
2. Red blood cells (RBC) erythrocyte
3. Platelets or leukocyte

Red blood cells

Red blood cells are the non- nucleated formed elements in the blood. Red blood cells are also know as erythrocyte. Red color of the red blood cells is due to the presence of of the coloring pigment called hemoglobin. RBC play a vital role in transport of respiratory gases. RBC are larger in number compare to the other two blood cells, namely white blood cells and platelets. RBC count range between 4 and 5.5 millions/cu mm

White blood cells

White blood cell or leukocyte are the colorless and nucleated formed elements of blood. Alternate spelling for leukocyte is leucocyte. Compared to RBC the wbc are large in size and lesser on number. Yet functionally, these cells are important like RBS because of their role in defence mechanisms of body and protect the body from invading organisms by acting like soldiers

Platelets or thrombocytes

Platelets are the formed elements of blood. Platelets are small colorless, non nucleated and modratively refractive bodies. These formed elements of blood ara consider to be the fragment of cytoplasm. Normally. Platelets are several shape , spherical or rod shape

Plasma

Plasma is a straw-colored cleat liquid part of blood. it contains 91 to 92 percent of water and 8 to 9 of solids the solids are organic and inorganic substances

Q no. 2 what is erythrocyte, erythropoiesis, erythrocytosis and erythropenia.?

Erythropoiesis

Erythropoiesis is the process of the origin, development and maturation of erythrocyte. Hemopoiesis or hematopoiesis is the process of origin, development and maturation of all the blood cells.

Erythrocyte

Erythropoiesis is red blood cells. Which is biconcave disc in shape without a nucleus. Erythrocyte contain a red pigment called hemoglobin. Due to the presence of hemoglobin Blood appears red in colour.

Erythrocytosis

Erythrocytosis is defined as increased in number of red blood cells mass usually absolute and is also associated with an increased hematocrit and hemoglobin concentration.

Erythropenia

The decrease in number of red blood cells are called erythropenia. Erythropenia also called anemia.

Q no. 3 what is platelets and write about clotting mechanisms and it's all steps?

Platelets or thrombocytes are the formed elements of blood. Platelets are small colorless, non-nucleated and modratively refractive bodies.these formed elements of blood are considered to be the fragment of cytoplasm. Normally, platelets are are of several shapes , viz spherical or rod shape and become oval or disc shape when inactivated.

Sometimes the platelets have dumbbell shape, comma shape, cigar shape or any other unusual shape.inactivated platelets are without processes or filopodia and the activated platelets developed processes or filopodia.

Life span

10 days

Function

- Stop bleeding
- Maintain hemostasis
- Clotting mechanisms

Mechanisms of blood clotting

- Coagulation/clotting means-blood changes from liquid to gel.
- Clotting mechanisms stop bleeding from damage vessels- maintain hemostasis

Mechanisms involves

- Adhesion
- Activation
- And aggregation of platelets
- Deposition and maturation of fibrin.

Steps of mechanisms

1. Injury to the blood.
2. Endothelium lining the vessel damage

3. Blood comes into space under endothelium.
4. Underlying collagen exposed to circulating platelets.
5. Platelets binds with surface receptor of collagen and adhere tightly
6. This is adhesion.

Activation

1. Platelets change shape
2. Turn on receptor and secrete chemical Messenger to activate and invite additional platelets.
3. Activated platelets adhere tightly at injury site.

   #### Aggregation

   - Platelets comes to each other through receptor bridges.
   - Platelets plug formed at injury site unless the interruption is physically too large.

Fibrin deposition

- Formation of platelets plug Will ensure primary hemostasis.
- Now fibrin deposition start and thus started secondary hemostasis.

Now clot retraction and platelets inhibition.

Q no. 4 Write note on ABO blood group system?

Blood group system

More than 20 genetically determined blood group system are known today. But landsteiner discovered two blood group system called the ABO system and RH system. These two blood group system are the most important ones that are determined before Blood transfusion.

ABO system

on the presence or absence of antigen A and antigen B, blood is divided into four groups.

1. A group
2. B group
3. AB group
4. O group

Blood having antigen A belong to A group. This blood group has B antibody in the serum. Blood with antigen Band a antibody belong to B group.if both the antigens are present blood group is called AB group and serum of this group does not contain any antibody. If both antigen Are absent the blood group are called O group and both a and b antibodies are absent in the serum. Antigens and antibodies present in different groups of ABO system. Percentage of people among Asian and European population belonging to different Blood group.

Q no. 5

Part. A ans

For the fell down patient first we have to stop his bleeding if bleeding are are start and second step we have to start CPR pumping for to be in normal conditions and to start breathing.

Part. 2

If we meet with covid 19 positive friend we have to wash our hands for at least 30 seconds with soap and detol max in water and take shower with that water and we have to do our covid test for checking and if text covid positive so be confidence and worry about test positive. We have to quarantine for 15 days in a room social distance is must for covid 19 patient.