

DPT SEC B PHYSIOLOGY, 2ND SEMESTER
MAM KOUSAR SHAH JEHAN

NAME: Muhammad Zavyar Khan
ID:16121

Attempt all questions. Every question carry 10 marks.

Q1. Write a note on pituitary gland, its hormones and abnormalities?

Pituitary Gland: The pituitary gland is a tiny organ, the size of a pea, found at the base of the brain. As the “master gland” of the body, it produces many hormones that travel throughout the body, directing certain processes or stimulating other glands to produce other hormones. The pituitary gland makes or stores many different hormones.

Hormones secreted by pituitary gland

1. Anterior pituitary:

- i. Growth hormone
- ii. Prolactin
- iii. Adrenocorticotropin hormone
- iv. Thyrotropin hormone
- v. Luteinizing hormone
- vi. Follicle stimulating hormone

2. Posterior pituitary:

- i. Oxytocin
- ii. Antidiuretic hormone

Growth hormone

- Somatotropin
- Increases secretions at low glucose level.
- Growth hormone promotes growth of almost all the body tissues

- It promotes increase in size of cells, increased mitosis and differentiation of certain type of cells such as bone growth cells, muscle cells

Abnormalities:

Hormone Deficient	Symptoms	Treatment
GH	<p>Children: Growth delay</p> <p>Adults: Decreased muscle mass, increased body fat, elevated cholesterol, low bone density (osteoporosis), impaired psychological well-being, poor quality of life</p>	Recombinant Human Growth Hormone - Given once daily as an injection under the skin.
LH/FSH	<p>Decreased libido, erectile dysfunction, irregular or absent menses, decreased body hair, decreased muscle strength, hot flashes, mood changes</p>	<p>Men: Testosterone - Given once daily as an injection under the skin</p> <p>Women: Estrogen & Progesterone - Given as either topical patch or pills</p>

ACTH	Poor appetite, nausea, weakness, vomiting, low blood sugar, low blood pressure, dizziness, body aches	Hydrocortisone or Prednisone - Given as daily pills
TSH	Fatigue, weakness, cold intolerance, dry skin, constipation, heavy and/or painful menses, weight gain, memory loss, mood disturbance	Levothyroxine - Given as daily pills (some examples include Synthroid or Levoxyl or Levothroid or Armour Thyroid)
Prolactin	Inability to lactate	No treatment available
Vasopressin (ADH)	Increased thirst and frequent urination	DDAVP - Given either as daily pills or nasal spray

Q2. What is erythrocyte, erythropoiesis, erythrocytosis and erythropenia?

Erythrocyte: A type of blood cell that is made in the bone marrow and found in the blood. Erythrocytes contain a

protein called hemoglobin, which carries oxygen from the lungs to all parts of the body. ... Also called RBC and red blood cell.

Erythropoiesis: It is the process by which red blood cells erythrocytes are produced. It is stimulated by decreased oxygen in circulation, which is detected by kidneys which then secrete the hormone erythropoietin, through this process erythrocytes are continuously produced in the red bone marrow of large bones.

Erythrocytosis: it is defined as the increase in the red blood cells mass than normal such a state is called erythrocytosis.

There are two types of erythrocytosis:

Primary erythrocytosis. This type is caused by a problem with cells in the bone marrow, where RBCs are produced. Primary erythrocytosis is sometimes inherited.

Secondary erythrocytosis. A disease or the use of certain drugs can cause this type.

Erythropenia: it is a state in which the number of RBCs is decreased from normal such state is called erythropenia.

Q3. What is platelets and write about clotting mechanism and its all steps?

Platelets: Platelets, also called thrombocytes are a component of blood whose function is to react to bleeding from blood vessel injury by clumping, thereby initiating a blood clot. The life span of platelets are 10 days.

functions

- Stop bleeding
- Maintain hemostasis
- Clotting mechanism

Clotting Mechanism:

Coagulation/clotting means blood changes from liquid to gel.

Clotting mechanism stop bleeding from damaged vessels
maintained hemostasis

Mechanism involves,

- Adhesion
- Activation
- and aggregation of platelets
- deposition and maturation of fibrin

Steps of adhesion

1. Injury to the blood vessel
2. Endothelium lining the vessel damaged
3. Blood comes into space under endothelium
4. Underlying collagen exposed to circulating platelets
5. Platelets binds with surface receptors of collagen and adhere tightly
6. This is adhesion.

activation

1. platelets change shape
2. turn on receptors and secrete chemical messengers to activate and invite additional platelets
3. Activated platelets adhere tightly at injury site.

Aggregation

- Platelets connect to each other through receptor bridges

- Platelet plug formed at injury site unless the interruption is physically too large

Fibrin deposition

- Formation of platelet plug will ensure primary hemostasis.
- Now fibrin deposition start and thus started secondary hemostasis.
- Thus fibrin clot formed.
- Now clot retraction and platelet inhibition.

Q4. Write a detail note on ABO system?

ABO system: The ABO blood group system is used to denote the presence of one, both, or neither of the A and B antigens on erythrocytes. In human blood transfusions it is the most important of the 36 different blood type (or group) classification systems currently recognized. A mismatch (very rare in modern medicine) in this, or any other serotype, can cause a potentially fatal adverse reaction after a transfusion, or an unwanted immune response to an organ transplant. The associated anti-A and anti-B antibodies are usually IgM antibodies, produced in the first years of life by sensitization to environmental substances such as food, bacteria, and viruses. The ABO blood types were discovered by Karl Landsteiner in 1901; he received the Nobel Prize in Physiology or Medicine in 1930 for this discovery. ABO blood types are also present in other primates such as apes and Old World monkeys.

- O 47%
- A 41%
- B 9%
- AB 3%

Agglutinogens and agglutinins

- Agglutinogens on surface of RBC
- Agglutinins in blood plasma
- Can cause blood transfusion reactions

Q5.(i) A person fell from a tree and become unconscious, with bleeding from head, what will you do as a first aid?

Ans:

- Approach them calmly and reassuringly be alert to any dangers to either you or the casualty
- Do not rush to move them. Get onto the floor so you are the same level as them and immediately assess:
 - are they responsive?
 - Not responsive – are they breathing?
 - They are breathing. Look closely how they have fallen and carefully put them into the recovery position to keep their airway clear
- Look to the wound carefully if stitches is needed then stitch the wound if not then,
- Put some payodine on goos piece and put it on the place which is bleeding(avoid use of corton because cotton always stuck on the wound)then apply then use cotton bandage on the goos piece and put stick in on the cotton bandage.

- They are not breathing: start CPR immediately and act according to your organisation's emergency policy. Request a defibrillator immediately if there is one available.

(ii) you have to meet with your friend and you came to know he is covid positive, what precautionary measures will you take?

Ans:

First of all we should not visit a friend who is covid positive because he has to be in isolation,

Secondly if we want to visit him at any cost we should take precautionary steps as follow:

We should maintain a distance of 6 feet's

We should use a mask.

We should wear surgical gloves.

We should wear the protected suit.

And

After leaving that place we should remove those masks gloves and suit(if available) and throw it in a garbage and should use a new one.