**Assignment**

**Course Title: Human Physiology Instructor: Dr Sara Naeem Total Marks: 80**

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Q1. Explain any respiratory disease of your own choice. You have to write signs and symptoms, chest X-ray and treatment as well.

*Pulmonary Edema***:**

* Pulmonary edema is a condition in which excess fluid gets collected in the lungs.
* It is the rapid leakage of fluid and plasma protein into the interstitial spaces and alveoli of the lungs.
* That fluid gets collected in the multiple sacs in the lungs and makes it difficult to breathe.

*Causes:*

* Left side heart failure
* Mitral Valve Disease

In most cases Heart problems are the cause of pulmonary edema but fluid can gather because of other reasons as well.

* Damage to pulmonary blood capillary membranes

Infections such as pneumonia

Toxic substances such as chlorine and sulfur di oxide gas

*Symptoms:*

Following are the symptoms of pulmonary edema:

* Shortness of breath
* A feeling of suffocating and drowning
* Wheezing
* Cold Clammy hands
* Blue Lips
* Anxiety etc.

Chest X-ray:

 A chest X-ray will likely be the first test you have done to confirm the diagnosis of pulmonary edema and exclude other possible causes of your shortness of breath.

Treatment:

* Giving **oxygen** is the first step in the treatment for pulmonary edema. The patient usually receives oxygen through a face mask.
* **Diuretics.** Doctors commonly prescribe diuretics, to decrease the pressure caused by excess fluid in your heart and lungs.
* **Morphine (MS Contin).** This narcotic may be used to relieve shortness of breath and anxiety by are not used openly and other drugs are considered first.
* **Blood pressure medications.** If the patient have high blood pressure when he develops pulmonary edema, he'll be given medications to control it. Alternatively, if the patients’ blood pressure is too low, the patient is likely to be given medications to raise it.

Q2. Take any disease of blood. Give blood tests and their results. What will be the management of the disease (treatment).

**Polycythemia:**

Polycythemia is a disease state in which the volume percentage of red blood cells in the blood and/or hemoglobin concentration are elevated in peripheral blood

Types of polycythemia:

There are two types of this disease:

Primary Polycythemia:

* It is also called polycythemia Vera.
* The RBC count may be 7 to 8 million /mm3
* The hematocrit may be 60 to 70% instead of 40 to 45%.
* It is a **genetically inherited** disease.
* It causes excess production of RBC as well as white blood cells and platelets
* It increases both the hematocrit and the blood volume
* The entire vascular system becomes intensely engorged
* The viscosity of the blood in the polycythemia increases 3 times the viscosity of water to 10 times that of water.
* Causing many blood vessels to become plugged due to the high density of the blood

(Hematocrit is the ratio of the volume of red blood cells to the total volume of blood.)

Secondary Polycythemia:

* Secondary polycythemia in which the production of erythropoietin increases appropriately in the blood.
* It is also known as physiological polycythemia.
* It happens whenever the tissues become hypoxic because of too little oxygen in the air that is breathed.
* It can be caused due to **High altitude, Cardiac Failure** in which the tissues do not receive their oxygen.
* RBC count rises to 6 to 7 million/mm3 which is 30% above normal.

**Blood Tests:**

If you have polycythemia vera, blood tests might reveal:

* More red blood cells than normal and, sometimes, an increase in platelets or white blood cells.
* A greater percentage of red blood cells that make up total blood volume (hematocrit measurement)
* Elevated levels of the iron-rich protein in red blood cells that carries oxygen (hemoglobin)
* Very low levels of a hormone that stimulates bone marrow to produce new red blood cells (erythropoietin)

**Treatment:**

There's no cure for polycythemia vera. The treatment focuses on reducing the risk of complications. These treatments may also ease your symptoms.

Treatment to reduce symptoms might include:

* Low-dose aspirin. The doctor may recommend that you take a low dose of aspirin to reduce your risk of blood clots. Low-dose aspirin may also help reduce burning pain in feet or hands.
* Therapy to reduce itching. If the patient has bothersome itching, doctor may prescribe medication, such as antihistamines, or recommend ultraviolet light treatment to relieve discomfort.

Treatments to reduce the amount of red blood cells include:

* Reducing the amount of blood in the body. Drawing some blood out of the veins in a procedure called phlebotomy is usually the main treatment for people with polycythemia vera. This decreases the blood volume and reduces the number of excess blood cells.
* Medication to decrease blood cells. If phlebotomy alone doesn't help, medications that suppress your bone marrow's ability to produce blood cells, such as hydroxyurea (Droxia, Hydrea), might be used.
* If the patient has polycythemia vera, analysis of the bone marrow or blood might show the gene mutation that's associated with the disease.