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**Programme: BS(MLT) 4th semester**

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**Subject: WBC and Platelets Disorder**

**Attempt all questions .Each question carry 10 marks.**

**Q1. Write a note on Hodgkin lymphoma?**

**Q2.What is Hemostasis , also explain steps and clotting factors?**

**Q3.Explain Hemophilia its types, symptoms, and lab diagnosis ?**

**Q4 .Describe Von Wille Brand disease?**

**Q5.Explain Hemolytic uremic syndrome and its types?**

 **\*\*\*QUESTION NO 1 ANSWER\*\*\***

 **Hodgkin Lymphoma**

Hodgkin's lymphoma formerly known as Hodgkin's disease is a cancer of the lymphatic system, which is part of your immune system. It may affect people of any age, but is most common in people between 20 and 40 years old and those over 55.

In Hodgkin's lymphoma, cells in the lymphatic system grow abnormally and may spread beyond it.

Hodgkin's lymphoma is one of two common types of cancers of the lymphatic system. The other type, non-Hodgkin's lymphoma, is far more common.

 ###**Causes###**

* It begins when an infection-fighting cell called a lymphocyte develops a genetic mutation. The mutation tells the cell to multiply rapidly, causing many diseased cells that continue multiplying.
* The mutation causes a large number of oversized, abnormal lymphocytes to accumulate in the lymphatic system, where they crowd out healthy cells and cause the signs and symptoms of Hodgkin's lymphoma.
* Various types of Hodgkin's lymphoma exist. Your diagnosis is based on the types of cells involved in your disease and their behaviour. The type of lymphoma you are diagnosed with determines your treatment options.

 **###Symptoms###**

Signs and symptoms of Hodgkin's lymphoma may include:

* Painless swelling of lymph nodes in your neck, armpits or groin.
* Persistent fatigue.
* Fever.
* Night sweats.
* Unexplained weight loss.
* Severe itching.
* Increased sensitivity to the effects of alcohol or pain in your lymph nodes after drinking alcohol.

 **###Risk Factors###**

 Factors that can increase the risk of Hodgkin's lymphoma include:

* **Your age.** Hodgkin's lymphoma is most often diagnosed in people between 15 and 30 years old and those over 55.
* **A family history of lymphoma.** Having a blood relative with Hodgkin's lymphoma or non-Hodgkin's lymphoma increases your risk of developing Hodgkin's lymphoma.
* **Being male.** Males are slightly more likely to develop Hodgkin's lymphoma than are females.
* **Past Epstein-Barr infection.** People who have had illnesses caused by the Epstein-Barr virus, such as infectious mononucleosis, are more likely to develop Hodgkin's lymphoma than are people who haven't had Epstein-Barr infections.

 **###Diagnosis###**

* **A physical exam.** Your doctor checks for swollen lymph nodes, including in your neck, underarm and groin, as well as a swollen spleen or liver.
* **Blood tests.** A sample of your blood is examined in a lab to see if anything in your blood indicates the possibility of cancer.
* **Imaging Tests.** Tests may include X-ray, CT and positron emission tomography.
* **Removing a lymph node for testing.** Your doctor may recommend a lymph node biopsy procedure to remove a lymph node for laboratory testing.
* **Removing a sample of bone marrow for testing.**A bone marrow biopsy and aspiration procedure involves inserting a needle into your hipbone to remove a sample of bone marrow.

**####Treatment###**

### **Chemotherapy**

* Chemotherapy is a drug treatment that uses chemicals to kill lymphoma cells.

### **Radiation therapy**

* Radiation therapy uses high-energy beams, such as X-rays and protons, to kill cancer cells. For classical Hodgkin's lymphoma, radiation therapy is often used after chemotherapy.

### **Bone marrow transplant**

* Bone marrow transplant, also known as stem cell transplant, is a treatment to replace your diseased bone marrow with healthy stem cells that help you grow new bone marrow. A bone marrow transplant may be an option if Hodgkin's lymphoma returns despite treatment.

### **Other drug therapy**

* Other drugs used to treat Hodgkin's lymphoma include targeted drugs that focus on specific vulnerabilities in your cancer cells and immunotherapy that works to activate your own immune system to kill the lymphoma cells. If other treatments haven't helped or if your Hodgkin's lymphoma returns, your lymphoma cells may be analyzed in a laboratory to look for genetic mutations.

 **\*\*\* QUESTION NO 2 ANSWER\*\*\***

 **Hemostasis**

* Hemostasis is the process of how the body stops bleeding from a cut or injury. This involves forming a clot to close the hole in the blood vessel and repairing the blood vessel.
* When a blood vessel is injured, platelets stick together to form a plug. Proteins, called clotting factors, interact to form a fibrin mesh to hold the platelets in place. This allows the injury to heal while preventing blood from escaping the blood vessel.

 **###Steps###**

 Hemostasis has the following three steps.

1. **Vasoconstriction**

 Vasoconstriction is the narrowing (constriction) of blood vessels by small muscles in their walls. When blood vessels constrict, blood flow is slowed or blocked. Medication may be used to treat vasoconstriction or to cause vasoconstriction.

1. **Platelets Plug Formation**

 Platelets create the “platelet plug” that forms almost directly after a blood vessel has been ruptured. Within twenty seconds of an injury in which the blood vessel’s epithelial wall is disrupted, coagulation is initiated. It takes approximately sixty seconds until the first fibrin strands begin to intersperse among the wound. After several minutes, the platelet plug is completely formed by fibrin.

1. **Coagulation Of Blood**

Coagulation also known as clotting, is the process by which blood changes from a liquid to a gel, forming a blood clot. It potentially results in hemostasis, the cessation of blood loss from a damaged vessel, followed by repair. The mechanism of coagulation involves activation, adhesion and aggregation of platelets, as well as deposition and maturation of fibrin.

 ### **Clotting Factors###**

 There are about thirteen known clotting factors....

* Fibrinogen
* Prothrombin
* Thromboplastin (tissue factor)
* Calcium
* Labile facto
* Presence not proved
* Stable factor
* Antihemophilic
* Christmas
* Stuart power factor
* Plasma thromboplastin or antecedent
* Hageman Factor
* Fibrin stabilizing factors

**\*\*\*QUESTION NO 3 ANSWER\*\*\***

 **Hemophilia**

 Hemophilia is a rare condition in which the blood does not clot properly. It mostly affects men.

Proteins called clotting factors work with platelets to stop bleeding at the site of an injury. People with hemophilia produce lower amounts of either Factor VIII or Factor IX than those without the condition. This means the person tends to bleed for a longer time after an injury, and they are more susceptible to internal bleeding.

 **###Types###**

There are two major types of hemophilia, type A and type B.

In hemophilia A, there is a lack of clotting factor VIII. This accounts for about 80 percent of hemophilia cases. About 70 percent of people with hemophilia A have the severe form.

In hemophilia B, also known as “Christmas disease,” the person lacks clotting factor IX. Hemophilia occurs in around 1 in every 20,000 born worldwide.

Both A and B can be mild, moderate, or severe, depending on the amount of clotting factor that is in the blood. From 5 to 40 percent of normal clotting factor is considered mild, 1 to 5 percent is moderate, and less than 1 percent is severe.

 **###Symptoms###**

* Hemophilia symptoms include excessive bleeding and easy bruising. The severity of symptoms depends on how low the level of clotting factors is in the blood.
* Bleeding can occur externally or internally.
* Any wound, cut, bite, or dental injury can lead to excessive external bleeding.
* Spontaneous nosebleeds are common.
* There may be prolonged or continued bleeding after bleeding previously ceased.
* Signs of excessive internal bleeding include blood in the urine or stools, and large, deep bruises.
* Bleeding can also happen within joints, like knees and elbows, causing them to become swollen, hot to the touch, and painful to move.
* A person with hemophilia may experience internal bleeding in the brain following a bump on the head.
* Symptoms of brain bleeding can include headache, vomiting, lethargy, behavioural changes, clumsiness, vision problems, paralysis, and seizures.

 **### Lab Diagnosis###**

* Medical history and blood tests are key to diagnosing hemophilia.
* If a person has bleeding problems, or if hemophilia is suspected, a physician will ask about the person’s family and personal medical history, as this can help to identify the cause.
* A physical examination will be carried out.
* Blood tests can provide information about how long it takes for blood to clot, the levels of clotting factors, and which clotting factors, if any, are missing.
* Blood test results can identify the type of hemophilia and its severity.
* For pregnant women who are carriers of hemophilia, doctors are able to test the fetus for the condition after 10 weeks of pregnancy.

 **\*\*\* QUESTION NO 4 ANSWER\*\*\***

 **Von wille brand disease**

 Von Wille brand disease is a lifelong bleeding disorder in which your blood doesn't clot well. People with the disease have low levels of von Willebrand factor, a protein that helps blood clot, or the protein doesn't perform as it should.

Most people with the disease are born with it, having inherited it from one or both parents. However, warning signs, such as heavy bleeding after a dental procedure, might not show up for years.

Von Willebrand disease can't be cured. But with treatment and self-care, most people with this disease can lead active lives.

 **###Symptoms###**

If you have von Willebrand disease, you might have:

* Excessive bleeding from an injury or after surgery or dental work.
* Nosebleeds that don't stop within 10 minutes.
* Heavy or long menstrual bleeding.
* Blood in your urine or stool.
* Easy bruising or lumpy bruises.

Menstrual signs and symptoms may include:

* Blood clots greater than 1 inch (2.5 centimeters) in diameter in your menstrual flow.
* The need to change your menstrual pad or tampon more than once an hour.
* The need to use double sanitary protection for menstrual flow.
* Symptoms of anaemia, including tiredness, fatigue or shortness of breath.

 **###Prevention###**

von Willebrand disease is usually an inherited disorder, consider having genetic counselling if you have a family history of this condition and you're planning to have children. If you carry the defective gene for von Willebrand disease, you can pass it on to your offspring, even if you don't have symptoms.

 **\*\*\*QUESTION NO 5 ANSWER\*\*\***

 **Hemolytic Uremic Syndrome**

 Hemolytic uremic syndrome (HUS) is a condition that can occur when the small blood vessels in your kidneys become damaged and inflamed. This damage can cause clots to form in the vessels. The clots clog the filtering system in the kidneys and lead to kidney failure, which could be life-threatening.

Anyone can develop HUS, but it is most common in young children. In many cases, HUS is caused by infection with certain strains of Escherichia coli (E. coli) bacteria. The first symptom of this form of HUS is several days of diarrhea, which is often but not always bloody.

HUS may also be caused by other infections, certain medications or conditions such as pregnancy, cancer or autoimmune disease. In some cases, HUS is the result of certain genetic mutations. These forms of HUS usually do not cause diarrhea.

HUS is a serious condition. But timely and appropriate treatment usually leads to a full recovery for most people, especially young children.

 **###Types###**

There are two types of Hemolytic uremic syndrome.....

* 1. **Typical Hemolytic Uremic Syndrome**

Typical hemolytic uremic syndrome (HUS) is an uncommon disease that occurs in 5 to 15 percent of individuals, especially children, who are infected by the Escherichia coli (E. coli) bacterium . This organism releases toxins into the gut that are absorbed into the bloodstream and may be transported by white blood cells (leukocytes) to the kidneys. This results in acute renal injury. There may also be damage to the brain with seizures and even coma, the pancreas with pancreatitis and occasionally diabetes mellitus, and other organs.

* 1. **Atypical Hemolytic Uremic Syndrome**

Atypical hemolytic uremic syndrome is a rare disease that causes too many blood clots to form in your blood vessels. Because these blood clots block regular blood flow to your kidneys, your kidneys are not able to get rid of waste in your body as well as they should. Over time, your kidneys become damaged, which can lead to kidney failure.

 **### THE END###**