**Homework**

* **Describe Immune thrombocytopenic purpura (ITP) in term of pathology and management S and S and what is the nursing role.**

**Pathology:**

The pathophysiology of ITP is complex and abnormalities of both the B-cell and the T-cell compartments have been identified. our understanding of the pathophysiology of ITP leads us to 2 central mechanisms: either immune-mediated increased destruction of platelets or decreased production of platelets that results in an overall decrease in circulating platelets.

Total platelet mass in the body is regulated by the balance between production and clearance of platelets. In ITP, platelet mass shrinks as a result of accelerated platelet clearance, which is mainly due to autoantibody-mediated destruction by macrophages in spleen (is an essential site of autoantibody production), and moderately impaired platelet production due to antibody- and/or cytotoxic T cell-mediated megakaryocytic damage.

B and T cells are an integral part of the cascade involved in platelet destruction. Antiplatelet antibodies opsonize the platelets and then are attached to antigen-presenting cells with the help of Fcγ receptors. Opsonized platelets are finally phagocytosed by macrophages. T cells, at the same time, stimulate B cells to produce more antiplatelet antibodies, and new research shows that some cryptic epitopes from platelet antigens stimulate platelet-specific T cells.

**Management:**

Treatment of ITP can be divided into medical and surgical management. Medical management is further divided into first-line and second-line pharmacotherapy.

-Medical options for first-line drug therapy are:

Corticosteroids: act by reducing antibody production and preventing platelet destruction by macrophages in bone marrow and peripheral organs and reducing autoantibody levels in the body.

Intravenous Immunoglobulin G: is thought to saturate Fc receptors in the reticuloendothelial system, acts by impairing the clearance of opsonized platelets -that have bound autoantibodies-, probably mediated through the FcγRIIb receptor.

Anti-D immune globulin: IV anti-D coats the RBCs that are positive for D antigen, it is thought to saturate macrophage Fc receptors, and these opsonized RBCs in turn compete with opsonized platelets in the spleen for sequestration.

-Second-line pharmacotherapy mainly comprises immunosuppressants and rituximab:

Rituximab: is a human-murine monoclonal antibody against the CD20 antigen on B lymphocytes. It acts by reducing the number of B cells that produce autoantibodies.

TPO-Ras: work by activating TPO receptors on megakaryocytes and inducing platelet production via the JAK2 and STAT5 kinase pathways.

-Surgical Management:

splenectomy provides an effective treatment option for ITP, but it is limited by the risk of surgical complications -bleeding associated with the surgical procedure-. The risk of these complications versus the benefit of an increased platelet count should be considered.

**Signs and Symptoms:**

The lower the platelet count, the greater the risk of bleeding, because platelets help stop bleeding, the symptoms of ITP are related to increased bleeding. Symptoms may include:

-Purple bruises (purpura) that you can see on your skin after blood has "leaked" under it.

-Very small red or purple dots (petechiae) on your skin that may look like a rash.

-Bleeding in the mouth and/or in and around the gums

-Hematoma (clotted blood under your skin).

-Heavy menstrual bleeding.

-Feeling tired.

-Bleeding that’s hard for you to stop.

-Blood in the vomit, urine, or stool

-Nosebleeds.

-Bleeding in the brain (very rare), This is the most dangerous symptom of ITP.

**Nursing role:**

-Patient and family teaching: that may make the difference in the ability of the patient and family to adapt to chronic conditions.

-Supporting patients and families when making treatment decisions.

-Pain/comfort management: assess for pain, promote sleep.

-Hydration: ensuring safe administration of prescribed IV fluids, monitor fluid balance, and medications and documenting their administration and effects.

-Monitoring for complications and side effects of treatment and reporting them promptly.

-Nutrition: encourage eat green vegetables they promote clotting, and monitor stool and urine for blood.

-Assessment of psychological status.

* **References:**

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