Case study

Case Report on Thrombocytopenia

Abstract

Introduction: Thrombocytopenia is an autoimmune condition in which there is an abnormal low level of platelets. This is also called as Thrombopenia. The word Thrombocytopenia is derived from English word "Thrombocyte" which means "Platelet" and Greek word "Penia" which means "Poverty'. **Clinical Findings:** Persistent reddish lesion, generalized weakness. **Diagnostic Evaluation :** Blood test – Hb-11.2 %,RBC -6.06 million /cu mm , Total WBC Count – 10400 /cu mm , Platelet -0.25 lacs /cu mm , Monocyte – 0.6, Granulocyte – 44 % Lymphocyte -48 % , RDW -15.2 % , HCT-35.8%,Prothrombin Time -1.02 (12.8), APTT (Patient Count) 30.7 % , RBS -104 mg/dl. **Peripheral Smear:** RBCs-Predominantly normocytic mildly hypochromic with few microcytic RBCs seen. Platelets –Reduced on smear. APC -37000 cells / mm cu as per cell counter no haemoparasit seen. Antinuclear Antibodies (ANA) by Enzyme - linked Immunoassay Lactate Dehydrogenase. Method -0.69 LDH – 205 **Ultrasonography –** Grade 1 fatty liver. **Therapeutic Intervention:** 5 unit platelet concentrate transfusion, Inj. Methyl Prednisolone 500 mg × (2 Days), Tab. Prednisolone 30 mg Tab. Autrin , Tab. Metformin 1 gm , Tab. Glipizide 5 mg. **Outcome:** After treatment, patient show improvement. His platelet count was improved and sugar level were normal and his platelet count increased from 0.45 lacs /cu mm to 0.25 lacs / cu mm after platelet transfusion. **Conclusion:** My patient was admitted in High Dependency Unit. Archya Vinobha Bhave Rural Hospital with a case of Thrombocytopenia and he had complaint of persistent reddish lesion, generalized weakness. After getting appropriate treatment, his condition was improved.

Keywords: Thrombocytopenia, Autoimmune, Thrombopenia.

Introduction:

Thrombocytopenia is defined as a hematocrit levels less than 150 109/L, or the 2.5th lower % of the standard plate count dispersion. Plasma concentrations upwards of 50 109/L rarely elicit clinical problems assuming platelet dysfunction is present; rather, they are identified on a routine complete blood count. A patient needing treatment typically has hematocrit levels of fewer than 30 109/L, is experiencing uncontrolled bleeding and pruritus, or is experiencing constant lengthy hemorrhage from traumas and injuries .Typically, clinically important uncontrolled bleeds doesn't quite happen until another platelet count falls below 10 109/L.[1]

That normal platelet count range differs by age, gender, and ethnicity. Platelet counts are slightly greater in women, young people, and non-Hispanic blacks. [2]

Platelets are often low as a result of two major reasons. Either an underlying medical issue is producing the low platelet count, or the individual is taking a prescription or substance that lowers platelet count. [3] Platelet splenic sequestration, platelet fast disintegration, or inadequate platelet production by bone marrow are the three key aspects of thrombocytopenia. Stem cells insufficiency disorders (e.g., aplastic anaemia, myelodysplastic disease) or blood cell activities (e.g., lymphoma, leukemia, multiple myeloma, metastases, and bone marrow granulomas) are typical examples of ineffective thrombocyte production, while diseases also including coagulant microangiopathies, disseminated coagulation (DIC), and immune thrombocytopenia cause greater degradation (ITP).Red blood cell deficit reduction occurs in chronic pancytopenia caused by cardiogenic shock, which can be caused by cardiac failure, hepatic vein thrombosis or venous system thrombosis (Budd-Chiari syndrome), cirrhosis (caused by chronic viral hepatitis or alcoholic liver disease), and, in rare cases, central venous deformity of the spleen vessels. The migration of platelets from the circulatory pool to the hepatic reserve is referred to as platelet sequestration.[1]

The severity and precise cause of the condition are used to guide treatment. Therapy depends on solving the underlying problem, whether it is discontinuing medications accused of causing that or received important infection. A hematologist is usually in charge of diagnosing and treating severe thrombocytopenia. Corticosteroids could be utilized to boost platelet production. Magnesium bicarbonate or folic might well be given to enhance platelet production in the bone marrow.

Transfusions of platelets: Plasma infusions might well be advised for those with thrombocytopenia and an elevated liver enzymes.

Patient Identification: A male of 70 years old from Wardha,Potter Bagicha admitted to High Dependency Unit. in Archya Vinobha Bhave Rural Hospital on 21st May 2020 with a case of Thrombocytopenia .He is 65 kg and his height is 151 cm.

Present Medical History: A male patient of 70 years old was brought to Archya Vinobha Bhave Rural Hospital on 21st 2020 with a complaint of reddish spot on left arm and right arm and generalized weakness admitted to High Dependency Unit. and diagnosed as Thrombocytopenia. At the time of admission his platelet count was 0.25lacs /cu mm, R.B.S. was 6.06 million /cu mm .And the patient is weak and inactive on admission.

Past Medical History: My patient had similar complaints 2 years back. He is known case of Type II D.M. on Tab. Metformin 1gm ×BD and Tab. Glipizide 5 mg T.D.S. since 15 years.

Family History: No significant history.

Clinical Findings: Persistent reddish lesion and generalized weakness.

Etiology: Platelet splenic sequestration, platelet rapid degeneration, or inefficient, platelet synthesis by bone marrow.

Physical Examination: There is not much abnormality found in head to foot examination. The patient look very weak and having reddish spot on left arm and right arm and grade 1 fatty liver from ultrasonography .It is palpable.

Diagnostic Assessment: Blood test – Hb-11.2 %,RBC -6.06 million /cu mm , Total WBC Count – 10400 /cu mm , Platelet -0.25 lacs /cu mm , Monocyte – 0.6, Granulocyte – 44 % Lymphocyte -48 % , RDW -15.2 % , HCT-35.8%,Prothrombin Time -1.02 (12.8), APTT (Patient Count) 30.7 % , RBS -104 mg/dl.

Therapeutic Intervention: 5 unit platelet concentrate transfusion , Inj. Methyl Prednisolone 500 mg × OD (2 Days) , Tab. Prednisolone 30 mg ×OD , Tab. Autrin ×OD , Tab. Metformin 1 gm ×BD , Tab. Glipizide 5 mg × TDS.

Medical Management :

Book Picture	Patient Picture
Platelet infusion is used to gives better results thrombo concentrations in the body.	Given
Steroids (prednisolone or dexamethasone), immunoglobulins (antibody proteins), and certain other drugs that decrease platelet breakdown while increasing platelet synthesis.	Given
To increase platelet generation in the bone marrow, magnesium bicarbonate or folic may be administered.	Not given
Serum transfer thrombocytopenic purpura can cause a serious illness that necessitates plasma exchange.	Not given

Therapeutic treatment :-

- First line treatment :- Since many years Prednisone 1mg/kg/d for 2 to 4 weeks has been the standard first line treatment.However, recent work has investigated in adults with Immune Thrombocytopenia ,by using high -dose dexamethasone (HDD) ,rituximab may result in increased remission rates.[5]
- Second line treatment:- In the ASH (American Society of Hematology) guidelines , splenectomy was recommended as second - line therapy for Immune Thrombocytopenia with recommendation to try to delay splenectomy to 6 months to 1 year after diagnosis.[5]

Nursing Management:

1 .Reddish spot on right and left arm:

Nursing Diagnosis: Risk for impaired skin integrity related to decreased circulation secondary to type 2 diabetes.

Intervention	**Rationale**
Assess skin integrity on a frequent basis, taking note of colour, wetness, structure, and pulses.	Baseline data is needed for prompt evaluation after interventions are made. It will also help in the regular assessment in the progress of nursing care.
Maintain a normal blood sugar level by monitoring and controlling it.	Hyperglycemia and Hypoglycemia can both affect vascular health.
When washing your arms, check the temperature of the water.	Patient may not notice if the water is too hot due to reduced sensation.
Promote forearm moisture to the skin on a daily basis.	Moisturizing feet everyday provides opportunity to assess the integrity of the arms daily. Also

	moisturizing the feet helps keep its intact skin integrity.

2. Generalized weakness:

Nursing Diagnosis: Activity intolerance related to general malaise.

Intervention	**Rationale**
Asses the physical activity level and mobility of the patient.	Provides baseline information for formulating nursing goals during goal setting.
Investigate the patient's perception of causes of activity intolerance.	Causative factors may be temporary or permanent as well as physical or psychological.
Assess the patient's nutritional status.	Adequate energy reserves are needed during activity.
Observe and monitor the patient's sleep pattern and the amount of sleep achieved over the past few days.	Sleep deprivation and difficulties during sleep can affect the activity level of patient these need to be addressed before successful activity progression can be achieved.
Asses emotional response to limitations in physical activity.	Depression over the inability to perform activities can be source of stress and frustration.

Discussion:

A male patient of 70 years old Wardha, admitted to High Dependency Unit. In Archya Vinobha Bhave Rural Hospital on 21st may 2020 with a complaint of president reddish spot and generalized weakness and diagnosed as Thrombocytopenia and further treatment was given. After getting appropriate treatment, he showed great improvement.

The frequency and prognosis of thrombocytopenia in adults were investigated in a study of 103 people were treated in the hospital for a 5-month observation period.During the trial, 329 patients were examined, in which 136 having the lowest platelet count, i.e. 150109/L. The incidence of bleeding increased from 4.1 percent in individuals with a platelet count of 100109/L to 4.1 percent in participants with either a platelet level of 100109/L. The rate of bleeding rose from 4.1 percent in people with platelet counts of 100109/L to 5.1 percent in people with hemoglobin levels of 100109/L.A reduced nadir platelet count and a significant fall in hematocrit levels both indicate a worse essential result in adult ICU patients.[6]

The research was carried out over a six-month period, from January to June 2015. Laboratory Medicine received blood samples, which were analyzed on a Mindray BC 5300 and 5600 Automated Hematology Analyzer.

The trial included all patients having a platelet count of fewer than 150103/L, as determined by a peripheral blood smear. The patients' clinical histories were researched, with an emphasis on etiological correlations.

The cases were classified into four categories based on platelet count: µL (micro liter)

Grade 1: 75-150×$10^{3/}$µL

Grade 2: 50-75×10^{3}/µL

Grade 3: 25-50×10^{3}/µL

Grade 4: $<25\times10^3/\mu L$

The results of the clinicopathological correlation were tabulated.

Between January and June 2015, a total of 300 patients were randomly selected and categorized according to their age, sex, and thrombocytopenia etiology, with their corresponding percentages computed.

The age group 20-39 years had the most patients (157 cases, or 52.3 percent), followed by the age group 0-19 years (63 cases, or 21 percent), while the age group over 80 years had the least (six cases, 2.1 percent). In this study, 68 percent of the participants were men and 32 percent were women.

The most common cause was infectious etiology, with malaria (173, 57.7%) being the most common. Dengue fever (83.7%), liver disorders (23.7%), and sepsis were also prevalent causes (14, 4.7 percent)

Grade 1 (75-150) thrombocytopenia was the most common (48.4%), whereas Grade 4 (25%) was the least common (8.3 percent).

Clinical indications are usually modest and restricted to easy bruising, and hemorrhage period is not prolonged until platelet counts exceed 20,000/L. At fewer than 10,000/L, the risk of spontaneous mucocutaneous bleeding (epistaxis, gingival bleed, menorrhagia, petechaie, and ecchymoses) and potentially fatal spontaneous cerebral haemorrhage or gastrointestinal bleeding rises rapidly.[7]

Conclusion: Thrombocytopenia is a frequent medical condition that is sometimes linked to life-threatening bleeding problems. Early detection and aggressive treatment can improve outcomes. My patient show great improvement after getting the treatment.[8]

Reference:

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