Case Report

Case Report on Immune Mediated Thrombocytopenia and Newly Diagnosed Type-II Diabetes Mellitus

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ABSTRACT

Immune mediated Thrombocytopenia is a disorder that affects the overall number of blood platelets rather than their function. Platelet counts below 50,000 mm^3 leads to increased risk of serious bleeding from trauma; counts below 20,000/mm^3 increase the risk of spontaneous bleeding. A geriatric patient came to hospital with a complaint of epigastric pain, radiating to back since 3- 4 days, generalized weakness and fever. He was newly detected with Type-2 Diabetes Mellitus (HBA1C – 12%). Other examinations done were bone marrow aspiration and biopsy which revealed Idiopathic thrombocytopenic purpura. Thrombocytopenia was managed by steroids and platelet transfusion.

Keywords: Platelets, Thrombocytopenia, Immune, Bleeding and steroids.

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INTRODUCTION

Idiopathic or immune thrombocytopenic purpura (ITP) is a hematologic disorder characterized by low platelet count with absence of bone marrow abnormalities, and other clinically apparent causes.[1] As most causes appear to be related to antibodies against platelets, it is often known as immune thrombocytopenic purpura. ITP is a disorder that affects the overall number of blood platelets rather than their function. The normal platelet count in adults is ranged between 150,000 and 450,000/mm^3.Platelet counts below 50,000 mm^3 leads to increased risk of serious bleeding from trauma; counts below 20,000/mm^3 increase the risk of spontaneous bleeding. The incidence of ITP is 50-100 new cases per million per year, with children accounting for half of those cases. The median age of adultsat the diagnosis is 56-60. [3] ITP could be acute or chronic. Acute ITP patients generally experiencebruising; petechiae, nosebleeds and bleeding gums may occur if the platelet count is below 20,000/mm^3. [4] In extreme cases, patients with ITP may bleed into the lungs, brain, or other vital organs, leading to subarachnoid, intracerebral haemorrhage or other internal bleeding. The etiology is more often autoimmune rather than idiopathic, with antibodies against platelets being identified in about 60% of patients.[5] These antibodies a typically belong to immunoglobulin G (IgG) type and are directed against the platelet membrane glycoproteins IIb-IIIa or Ib-IX.[6] Platelets are prone to opsonization and phagocytosis by splenic macrophages because of their IgG coating. Recent data suggests that platelet antigens on the surface of antigen-presenting cells are the source of thestimulation for autoantibody synthesis in ITP.[7] This important finding suggests that therapies directed toward T cells may be effective in treating ITP.

CASE PRESENTATION

A 70 years male patient, 60 kg, came to hospital with complaints of epigastric pain, radiating to backsince 3- 4 days, generalized weakness and fever. He was newly detected with Type-2 Diabetes Mellitus (HBA1C – 12%). The patient had a history of fever last month. Other examinations done were bone marrow aspiration and biopsy which revealed Idiopathic thrombocytopenic purpura. Serial monitoring of platelet count was done. 4-pint random donor platelet and 1 pint single donor platelet was transfused.

On day 1, the patient came with the complaints of epigastric pain which was radiating to back from past some days and Vit B12 and folate levels were low. Since the patient is having epigastric pain,he was prescribed Pan-D and syp. Sucrafil. On day 2, the doctor asked the patient to undergo for screening where he found that platelet count was extremely low at 0.18 lakhs/cumm and TWBC was at 1250 cells/microlitre. The following treatment was given: IV Normal Saline / Ringer Lactate, IV Piptaz 4.5g Q6H, IV Paracetamol 1g OD, IV Optineuron 1amp IV in 100ml NS OD, Tab. Folvite 5mg OD and advised for routine CBC. The patient was referred to gastroenterologist for the epigastric pain and the patient was advised to do USG abdomen and pelvis. The reports

revealed mild jejunitis, simple hepatic and renal cysts and prostatomegaly. Suspicious of polypoidal lesions in sigmoid colon, he was advised conservative management currently and laparoscopic cholecystectomy after 6 weeks because his less platelet count. On day 3, bone marrow aspiration and biopsy were done. The same medication continued along with Romiplastim 250 mcg S/C BD. On day 4, his vitals were normal and platelet count increased gradually to normal. The patient GRBS level was recorded as 258mg/dl. Inj. Tresiba 10 units S/C was given as a stat medication. On day 5, the patient was confirmed with Idiopathic thrombocytopenia purpura and was on medications like Inj. Dexa 4mg IV TID, Inj. Lantus 16 units S/C OD, Inj. H. Actrapid S/C (14U- 14U-12U) TID. On day 6 the patient improved symptomatically and his platelet count was 0.95 lakhs /cumm and was discharged with the following advice: Tab wysolone 10 mg BD, Tab Pan 40 mg OD, Tab Dolo 650 mg SOS, Tab Udiliv 300 mg BD, Tab Folvite 5 mg OD, Tab Gluconorm G2 BD, Inj Lantus S/C (0-0-10 units), Tab Volibo 0.3 mg BD. The patient was informed to review after a week. Management for mild jejunitis, simple hepatic and renal cysts and prostatomegaly was planned after 6weeks from the day of discharge.

DISCUSSION

ITP is associated with variable clinical symptoms.[2] Although most cases are asymptomatic, very low platelet counts can lead to a bleeding diathesis and purpura. ITP remains a diagnosis ofexclusion. First, one has to rule out other blood abnormalities except for low platelet count and no physical signs except for signs of bleeding. Then, the secondary causes (usually 5-10% of suspected ITP cases) should be excluded. Secondary causes may be leukemia, medications (e.g., quinine, heparin), lupus erythematosus, and cirrhosis, HIV, hepatitis C, congenital causes, antiphospholipid syndrome, von Willebrand factor deficiency and others. [3,4] Patients over the age of 60, those who do not respond to treatment, and those whose diagnosis is uncertain may undergo a bone marrow examination. An increase in the production of megakaryotes detected in bone marrow examination could help in determining ITP.[3] The diagnosis of ITP is confirmed when antiplatelet antibodies are detected in blood.[3] Treatment should be restricted to those patients with moderate or severe thrombocytopenia who are bleeding or at risk of bleeding. It should be limited in duration unless demonstrated that symptomatic thrombocytopenia persists. Patients with mild, asymptomatic thrombocytopenia, discovered incidentally on a routine blood count, should not be treated.

Corticosteroids is considered the primary treatment for ITP. Dexamethasone and prednisone modulate B-cell and dendritic cell activation, leading to a decrease in immune-mediated destruction of platelets [8]. Up to 80% of patients respond to steroids, though many of those people relapse after steroids are tapered. Usual dose of prednisone for ITP is 1 mg/kg/d for two to four weeks. But several recent studies have shown that high-dose dexamethasone is even more effective. A study in Hong Kong of 125 patients with initial platelet counts of less than 20 x 10^9/L demonstrated that a single short course of dexamethasone, 40mg per day for four days, led to a stable platelet count greater than 50 × 10^9/L in 50% of responders, and remained stable six months later.[12] Corticosteroids are considered safe for pregnant patients with ITP.[11] It is clear that corticosteroids, and more specifically, high-dose dexamethasone, are an effective initial treatment for ITP. [13]

In steroid-resistant patients or patients contraindicated to the same, the addition of intravenous immunoglobulin (IVIG) or Rh_o(D) immune globulin (anti-RhD) can be used to enhance the treatmenteffect. [11] IVIG is also indicated when platelet counts need to be raised rapidly, such as in cases of active and severe bleeding, given along with corticosteroids in select patients. The typical dosing is 1 g/kg/day infusion for one-two days.

If a patient fails initial therapy and does not achieve complete remission, which happens in up to 70- 90% of patients, splenectomy, or removal of the spleen to decrease splenic sequestration of platelets, is considered the second-line treatment[15]. The ASH 2011 guidelines still recommend splenectomy as the next choice in therapy after failure of remission with corticosteroids, IVIG, and anti-RhD[11]. Some studies show a 65-70% complete response (defined as the absence of significant bleeding) with a 60-70% long-term response [14,16,17]. Splenectomy can be performed open or laparoscopically. Response rates between the two are similar. The monoclonal antibody against the CD20 antigen (anti-CD20), rituximab, is one new option for thetreatment of chronic and persistent ITP. The standard dosing for rituximab in treating ITP is 375 mg/m^2/week intravenously (IV) for four weeks.[10] Patients who fail first-line therapy and still have no response after splenectomy have chronic refractory ITP [9]. These patients are only treated if they are at risk of severe bleeding. Many of these patients are re-treated with prednisone, though long-term use of corticosteroids is intolerable due to the many side effects discussed above[9]. Studies are ongoing on many new drugs for treating chronic refractory ITP in patients where splenectomy is contraindicated or has a higher risk, such as in children and pregnant patients. These drugs include azathioprine, cyclophosphamide, cyclosporin A, danazol, dapsone, mycophenolate mofetil, vinblastine, vincristine, and the thrombopoietin receptor agonist (TPO-RA) drugs like Eltrombopag and romiplostim [11].

CONCLUSION

ITP is a common condition that can have a serious complication if not treated promptly. Its diagnosis can be accomplished by the combination of clinical assessment and lab tests, which include completeblood count and Platelet value. It's very important to diagnose ITP to prevent complications that could occur. Drug of choice for ITP include thrombopoietin receptor agonist, steroids and immune globulin.

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