Letter to the editor

A case of unusually refractory immune thrombocytopaenia treated with splenic artery embolization and Rituximab

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Introduction

Refractory immune thrombocytopaenia is found in less than 20 percent of adult patients initially diagnosed with immune thrombocytopaenia (ITP) (1). They do not attain a haemostatic platelet count after first and second line medical therapy or after splenectomy.

Case Report

An 18 year old boy presented with isolated persistent low platelet count of 20×10^9 /L. Clinical and laboratory diagnosis of ITP was made. He was started on oral prednisolone 1mg/kg body weight single dose per day. After one week the platelet count rose to 240×10^9 /L and prednisolone was tailed off by 5mg/week from the initial dose. Within two weeks he was re admitted with a platelet count of 8×10^9 /L, without bleeding. While on the tailing off dose of prednisolone, he was started on intra venous (IV) methyl-prednisolone 1g/day for 3 days. After one week as the platelet count was less than 10×10^9 /L, a single dose of intra venous immunoglobulin (IVIg) 1g/kg /body weight was infused. Failing IVIg, Azathioprine 100mg /day and Mycophenolate mofetil 250mg/day were added. After one month of the initial diagnosis, the patient was transferred from the local hospital to the National Hospital of Sri Lanka (NHSL) for further management as his platelet count remained very low at 6×10^9 /L. The patient was asymptomatic on admission. The bone marrow examination demonstrated

active thrombopoiesis and confirmed ITP. The viral markers (HIV, HepB, HepC, CMV) were negative as were ANA and dsDNA. The platelet count varied between 4 to 8×10^9 /L. Splenic artery embolization was performed without complications with a platelet count of 6×10^9 /L, followed by transfusion of 6 units of platelets. Post procedure 2, 6 and 24 hour platelet counts were 70×10^9 /L, 55×10^9 /L and 20×10^9 /L respectively. Complete splenic artery occlusion by embolization was confirmed by splenic artery Doppler ultrasound scan. The platelet count remained around 20×10^9 /L and Howell-Jolly bodies appeared around 8th post procedural day. However other features of splenectomy were not identified on the peripheral blood film. A CT scan of the abdomen did not show accessory splenic tissue, instead his platelet count gradually dropped to 10×10^9 /L within two weeks. IV Rituximab 375mg/m² was given weekly for 4 weeks and the patient tolerated treatment with no side effects. He was discharged after 3 months of admission. The patient leads a asymptomatic and normal life but his platelet count remains low, at around 10×10^9 /L.

Discussion

Over 90% of patients with ITP initially respond to steroid treatment (platelet count increases up to $30-50 \times 10^9$ /L) (1). They respond within days to weeks to oral prednisolone, and in few days IV methylprednisolone (1). This patient

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responded well to steroids initially, confirming the diagnosis of an immune aetiology. However an acceptable platelet count could not be sustained. Intravenous Immunoglobulins were not useful either. Even the second and third therapeutic option of Azathioprine and Mycophenolate mofetil were not effective (1,2). Splenectomy is the surgical therapeutic intervention recommended in ITP. About 80% of patients respond to splenectomy within 1-24 days (1). Splenic artery embolization is a minimally invasive mode of splenectomy, which is done by occluding the splenic artery by thrombogenic material (coils or glue) under CT guidance with local anaesthesia. This method can be used before surgical splenectomy to reduce blood loss and facilitate the surgery or as an alternative to conventional splenectomy (3). Splenic artery embolization alone had been used as a treatment method for ITP resulting in sustained increase in platelet count for many years (4). In this patient there was a transient increase of platelet count after the procedure but it did not last for more than few hours.

Surgical splenectomy would have been considered after splenic artery embolization when the platelet count reached $70 \times 10^9/L$. It was confirmed, that there was no viable spleen after splenic artery embolization by radiological assessment. Although the appearance of Howell-Jolly bodies confirmed splenectomy, absence of other features in the blood picture suggestive of splenectomy was questionable. Rituximab, a genetically engineered human anti-CD20 monoclonal antibody is an expensive second line drug, useful in treating a proportion of patients with chronic refractory ITP and approximately 60% respond with, approximately 40% achieving a complete response, generally after 1 to 2 weeks of treatment (5). However the platelet count did

not show any increment even after 12 weeks of completing Rituximab treatment. Therefore this patient was considered to be unusually resistant to treatment but able to tolerate severe thrombocytopenia (i.e. platelet counts as low as $4 \times 10^9/L$) relatively well with near normal quality of life. The present case is a challenge to the clinician to decide on implementing further treatment methods while the patient remains totally asymptomatic, but with severe thrombocytopaenia and a potential risk of major haemorrhage.

References

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