***Case report***

**Refractory autoimmune thrombocytopenic purpura and renal transplantation: a success story**

**Abstract**

Immune thrombocytopenic purpura (ITP) is an exceptional autoimmune hematological abnormality in renal transplantation, marked by isolated thrombocytopenia and a high hemorrhagic risk [1].

We report in the form of a clinical case, A 24-year-old man with no notable pathological history was managed in 2013 for CKD of undetermined etiology on chronic hemodialysis. In 2014, an isolated thrombocytopenia was incidentally found, fluctuating between 23,000 and 45,000/ μL. The etiological workup (infectious, immunological, myelogram) came back normal, arguing for a diagnosis of primary ITP.

The patient remained asymptomatic (no bleeding), without specific treatment until a kidney transplant was planned with a living donor related to his semi-identical HLA father. Oral corticosteroid therapy (1 mg/kg/d for 4 weeks) was initiated, with no effect on platelet count. Treatment with eltrombopag 50 mg/d resulted in rapid normalization (260,000/μL) within eight days.

Transplantation was performed under thymoglobulin induction, followed by maintenance with tacrolimus, mycophenolate mofetil and prednisone. Treatment with eltrombopag was maintained for three weeks postoperatively. Graft function was stable (creatinine 14 mg/L) and platelets remained within normal limits.

Key words: renal transplantation, immune thrombocytopenic purpura, eltrombopag

**Introduction**

ITP is an autoimmune disorder marked by accentuated platelet destruction and sufficient production by the bone marrow, associated with isolated thrombocytopenia (platelet count &lt;150,000/μL) [1]. The diagnosis is made by ruling out other causes. The occurrence of thrombocytopenia in patients with chronic end-stage renal disease (ESRD) is rare, as are data on renal transplantation in this context [2,3].

The major clinical issues are the risk of intraoperative bleeding, poor response to first-line treatment (corticosteroids), and uncertainty about the interaction of ITP treatment with post-transplant immunosuppression [4]. We report here a case of successful renal transplantation in a patient with ITP refractory to corticosteroids, with satisfactory control by eltrombopag.

**Clinical observation**

A 24-year-old man was diagnosed with end-stage renal disease (ESRD) of undetermined etiology in 2013, requiring hemodialysis. His disease history dates back to 2014 with the onset of peripheral thrombocytopenia, for which an etiological workup was performed including a blood smear, liver workup, hemostasis workup, thyroid workup, EPP, hepatitis C, B, HIV serology, as well as a myelogram +BOM, and an immunological workup containing AAN, AcAnti DNA, APL all returned negative. Thrombocytopenia secondary to heparinization during the session was excluded after analysis of the anticoagulation protocol and confirmation of the use of biocompatible membranes.



**Figure 1: Platelet count trends**

The patient was referred to our center for renal transplantation from a related living donor: his HLA semi-identical father. Given the hemorrhagic risk of the surgical procedure, a well-designed therapeutic strategy was recommended to prevent potential complications. Corticosteroid therapy was administered (1mg/kg/d for 4 weeks) without any improvement in his platelet count. He was then treated with eltrombopag, a thrombopoietin receptor agonist, at a dose of 50 mg/d, with normalization of the platelet count to 260000 u/l. After 8 days of treatment, the patient underwent renal transplantation and was put on immunosuppressive therapy with thymoglobulin, tacrolimus, prednisolone and mycophenolate mofetil as initial treatment.

The peri- and post-transplant period was uneventful, with good graft function and a final creatinine level of 14mg/l.

Treatment with eltrombopag was continued for 3 weeks post-transplant with normal platelet count.

**Discussion**

Traditionally, ITP has been treated with corticosteroids in the first-line setting [1,2]. If this fails, alternatives include IV immunoglobulin, splenectomy, anti-CD20 drugs (rituximab) and thrombopoietin receptor agonists such as eltrombopag [2,5]. Eltrombopag stimulates megakaryopoiesis and platelet expansion [6].

The use of eltrombopag in renal transplantation is rarely described but has been reported successfully in a few exceptional cases [4,7]. Indeed, Agarwal et al (2019) reported on a 27-year-old patient with ITP resistant to conventional treatment combining corticosteroids and intravenous immunoglobulins. The start of treatment with eltrombopag at a dose of 50 mg/d resulted in a significant increase in platelet count after eight days, enabling a kidney transplant to be performed without any major haemorrhagic problems [9]. Another case recently described involved a 29-year-old man with chronic ITP. Transplantation was carried out after four weeks' treatment with eltrombopag, supplemented by IV immunoglobulins[10].

In our case, eltrombopag enabled rapid and effective normalisation of platelets without adverse effects, and the transplant was performed in a safe haematological context.

The use of thrombopoietin receptor agonists such as eltrombopag in the treatment of adult immunological thrombocytopenic purpura (ITP) has proved highly effective in resistant patients. Ten years after their clinical launch, these compounds have become a second-line therapeutic agent with proven efficacy in increasing platelet counts in most patients. Although generally well tolerated, they are nevertheless subject to certain adverse effects, such as hepatotoxicity, thromboembolic risk and, in extremely exceptional cases, bone marrow fibrosis. And the possibility, in certain patients with a long response, of gradual discontinuation of treatment without relapse . [10]

This case contributes to the rare data concerning the combined use of eltrombopag and renal transplantation, in favour of a personalised, multidisciplinary approach.

**Conclusion,**

This case calls into question the possibility of renal transplantation in a patient with steroid-refractory ITP, and proves the value of a combination based on eltrombopag for rapid control of thrombocytopenia without delaying transplantation or the occurrence of adverse events. This experience serves as a reminder of the importance of an individualised therapeutic strategy and of networking between haematologists and nephrologists.

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