CASE REPORT

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Kidney transplantation in a patient with severe von Willebrand disease

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ABSTRACT

Only a few cases of kidney transplantation have been reported in patients with bleeding disorders, as these are considered to be somewhat of a contraindication for performing transplantation. In the following report we describe successful kidney transplantation in a patient with severe von Willebrand disease type 2A. This type is usually an autosomal dominant disease characterised by several qualitative abnormalities of von Willebrand factor, expressed as moderate or severe bleeding. Moreover, transplantation in patients with von Willebrand disease and bleeding disorders is reviewed below.

Key-Words:
Autosomic dominant polycystic kidney disease; kidney transplantation; peritoneal dialysis; von Willebrand disease.

INTRODUCTION

Von Willebrand disease (vWD) is a heterogeneous group of bleeding disorders with different clinical manifestation and genetic and biological expression. However, in all forms there is a qualitative and quantitative defect of von Willebrand factor. This factor facilitates platelet adhesion to endothelium in primary haemostasis and is the plasma carrier for factor VIII.

Kidney transplantation in a patient with bleeding disorders is somewhat contraindicated and frequent bleeding often complicates dialysis. The purpose of this case report is to show that kidney transplantation can be performed successfully in a patient with severe vWD with proper administration of factor VIII concentrates and platelet transfusions and a long graft survival is possible despite this bleeding disorder.

CASE REPORT

The patient was a 46-year-old female diagnosed with autosomic dominant polycystic kidney disease, on chronic peritoneal dialysis since June 1999. The patient was additionally diagnosed at the age of eight with inherited vWD after severe bleeding as a result of dental extraction. The von Willebrand factor assays were factor VIIIc 55%, factor VIII RAG 76%, factor VIII RCOF 10%, abnormally crossed. The remainder of the coagulation tests was normal. Liver biopsy revealed mild chronic hepatitis C. She had a history of several episodes of gross haematuria that on one occasion resulted in urinary tract obstruction during the predialysis stage. Several spontaneous haemoperitoneum episodes were resolved with factor VIII concentrates during her peritoneal dialysis treatment period. Previous surgical procedures included left nephrectomy, as a result of renal rupture due to renal haematoma.

A deceased donor kidney transplant was performed after transfusion of factor VIII concentrates. A pulse of 500 UI/kg of factor VIII was prescribed prior to surgery and 2000 UI/kg every six hours was provided during the first 48 hours postsurgery as were platelet transfusions. On days three and four posttransplant she received 200 UI/kg of factor VIII concentrates with only mild haematuria. On the ninth day the delayed graft function persisted but graft biopsy was not performed due to the high risk of bleeding. Our decision was to administer methylprednisolone (250 mg intravenously for two days), which led to a partial response and a decrease in serum creatinine level.

Approximately seven months after kidney transplantation a pigtail catheter was placed due to renal tract obstruction caused by juxtarenal spontaneous haematoma along with several transfusion of factor VIII concentrates. Five and a half years posttransplantation she was diagnosed with cutaneous necrosis on the left knee and a skin graft was performed. Her inmmunosuppressive drugs were changed and the laboratory tests revealed that the patient´s serum creatinine level was 1.68 mg/dl.

DISCUSSION

vWD is the most common inherited bleeding disorder, occurring in 1% of the population. It is a heterogeneous group of bleeding disorders with a qualitative and quantitative defect of von Willebrand factor.

The type 2A variant of vWD accounts for 10-15% of cases and is inherited as an autosomal dominant trait. Mutations in a localised region of the von Willebrand factor A-2 domain have been identified, associated with a deficiency in the high and medium molecular weight forms of von Willebrand multimer.

A single large von Willebrand factor precursor subunit is synthesised in endothelial cells and megakaryocytes where it is cleaved and assembled into the disulphide-linked multimers presents in plasma, platelets and vascular subendothelium and as the plasma carrier for VIII factor[1,2].

A von Willebrand factor is also synthesised in hepatocytes. Thus, liver transplantation is often increases the von Willebrand factor levels, with clinical improvement. However, in one case of vWD type 3 after liver transplant, the levels of von Willebrand factor did not improve and in another case it changed the clinical expression from type 1 to type 3[3-5].

Experimental studies with liver transplantation in pigs with vWD induce a slight increase in von Willebrand factor function during the first two weeks[6]. Research into whether a cardiac transplant will produce increased levels of von Willebrand factor is currently under way. In the renal transplant recipient, increased levels of von Willebrand factor have been associated with the use of calcineurin inhibitors (ciclosporin). We have not found any other reference to modifications of von Willebrand factor levels with other immunosuppressors. Less severe bleeding was noted in our patient, with no change in the type of disease.

In this case induction therapy was performed with basiliximab, corticosteroids and mycophenolate mofetil. Sirolimus was introduced some days later and replaced by tacrolimus when the patient was suspected of a corticosteroid-sensitive renal rejection (nonbiopsed). The introduction of calcineurin inhibitors was delayed and high levels were avoided, to eliminate situations of doubt (renal rejection or toxicity). The bleeding was controlled with factor VIII concentrates and platelet transfusions. Avoiding risk situations in which bleeding may occur (renal biopsy and haemodialysis) was the main aim. Patient underwent peritoneal dialysis for three years until kidney transplant was performed. There were some spontaneous haemoperitoneum episodes, but these apart, we feel this technique could be routinely recommended for these patients instead of haemodialysis, although the later has been successfully performed by others[7].

In conclusion, renal transplant can be performed in a patient with vWD type 2A if we provide enough factor VIII concentrates. In fact, kidney transplant may be the first line treatment to avoid bleeding complications as a result of dialysis.

Conflict of interest statement. None declared.

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