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Case report

Anaemia and fever in kidney transplant. The role of human parvovirus B19☆

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ABSTRACT

Infections remain an issue of particular relevance in renal transplant patients, particularly viral infections.

Human parvovirus B19 infection causes severe refractory anaemia, pancytopenia and thrombotic microangiopathy. Its presence is recognised by analysing blood polymerase chain reaction (PCR) and by the discovery of typical giant proerythroblasts in the bone marrow.

We report the case of a 65 year-old man with a history of deceased donor renal transplant in September 2014. At 38 days after the transplant, the patient presented progressive anaemia that was resistant to erythropoiesis-stimulating agents. At 64 days after transplant, hyperthermia occurred with progressive deterioration of the patient's general condition. The viral serology and the first blood PCR for human parvovirus B19 were both negative. At 4 months and 19 days after, a bone marrow biopsy was conducted, showing giant erythroblasts with nuclear viral inclusions that were compatible with parvovirus; a PCR in the tissue confirmed

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the diagnosis. A second blood PCR was positive for parvovirus. After treatment with intravenous immunoglobulin and the temporary discontinuation of mycophenolate mofetil, a complete remission of the disease occurred, although the blood PCR for parvovirus B19 remained positive, so monitoring is necessary for future likely recurrence.

Anemia y fiebre en el postrasplante renal: su relación con el parvovirus humano B19

Palabras clave:
Trasplante renal
Parvovirus B19 humano
Anemia postrasplante

RESUMEN

Las infecciones continúan siendo un problema relevante en el paciente trasplantado renal, en especial las infecciones virales.

La infección por el parvovirus humano B19 causa anemia refractaria grave, pancitopenia y microangiopatía trombótica. Dicha infección se diagnostica mediante el análisis de la reacción en cadena de la polimerasa (PCR) en sangre y por la presencia de proeritroblastos gigantes típicos en la médula ósea.

Presentamos el caso clínico de un varón de 65 años con trasplante renal de donante cadáver en septiembre de 2014. A los 38 días del trasplante comienza con anemia progresiva y resistente a los agentes estimulantes de la eritropoyesis. A los 64 días se produce hipertermia, con deterioro progresivo de su estado general. La serología vírica resultó negativa, al igual que la PCR inicial en sangre del parvovirus humano B19. A los 4 meses y 19 días se realiza una biopsia de médula ósea en la que se observan eritroblastos gigantes con inclusiones víricas nucleares compatibles con parvovirus, por lo que se realiza una PCR en dicho tejido que confirma el diagnóstico. Una segunda PCR en sangre resultó positiva. Tras el tratamiento con inmunoglobulinas intravenosas (IGIV) y la suspensión temporal del micofenolato de mofetilo, se produce una remisión completa de la enfermedad, aunque persistía positiva la PCR para el parvovirus B19 en sangre, lo que hace necesario vigilar probables recidivas.

Introduction

Factors involved in the development of post-transplant anaemia are: blood loss, iron and folate deficiency, low erythropoietin, and also hyperparathyroidism, neoplasms, angiotensin-converting enzyme inhibitors, and angiotensin II receptor blockers, immunosuppressive drugs, valganciclovir, co-trimoxazole, and chronic graft dysfunction[1] infections caused by cytomegalovirus (CMV), Epstein–Barr virus (EBV) and parvovirus B19, which can produce bone marrow aplasia.[1,2]

Parvovirus B19 infection affects 40–60% of the general population, and its highest incidence is in school age children ("fifth disease").

In kidney transplants, parvovirus B19 infection is a rare complication. Molecular biology techniques have shown viral DNA in the blood of 20–30% of transplant patients.[3] Several authors have reported that the incidence of this virus in solid organ transplants is 2%.[4] However, the exact incidence of infection in kidney transplants is not known, although it has been reported up to 12%.[5]

In healthy subjects with no transplant, parvovirus B19 is transmitted through respiratory secretions, blood and urine,[6] and across the placenta to the foetus.[5] In kidney transplant patients, other possibilities are secondary viral reactivation due to severe immunosuppression, transmission through blood transfusions, or even donor-derived pathways.[5,7]

The symptoms of parvovirus B19 infection include fever, arthralgia and rash. Other clinical changes include arthropathy, transient aplastic crisis, hydrops fetalis, abortion and foetal death; it has also been associated with vasculitis, peripheral neuropathy, myocarditis, fulminant liver failure and Nezelof syndrome.[8] In kidney transplant patients, the main sign is the presence of acute or chronic aplastic anaemia.[1]

Here we present a short review accompanied by a case report of a kidney transplant patient who had anaemia refractory to erythropoiesis-stimulating agents given during the first few months after transplantation. Fever and general malaise subsequently appeared, and both the serological and polymerase chain reaction (PCR) tests for parvovirus B19 were negative.

Case report

We present the case of a 65-year-old man with a history of hypertension due to primary hyperaldosteronism and chronic kidney disease since 1999, with nephrotic-range proteinuria