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ORIGINAL ARTICLE

Bone marrow transplant in patients with sickle cell anaemia. Experience in one centre☆

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KEYWORDS
Sickle cell disease;
Allogeneic hematopoietic stem cell transplantation from an HLA-identical sibling

Abstract
Introduction: Sickle cell disease (SCD), despite the improvement in the medical management, is still associated with severe morbidity and decreased survival. Allogenic hematopoietic stem cell transplantation (Allo-HSCT) currently provides the only curative therapy. A report is presented on our experience in children with SCD, who underwent Allo-HSCT in a single centre.
Material and method: A single centre descriptive study was conducted on patients with SCD who underwent a bone marrow transplant from an HLA-identical sibling donor between January 2010 and December 2014. Epidemiological, clinical and analytical parameters were collected with a follow-up to December 2015. Data are presented as frequencies, percentages, and medians (range).
Results: Allo-HCST was performed in 11 patients (8 males) with a median age of 7 years (2–13), all of them with comorbidity prior to the HCST. A stable graft was achieved in 10 out of 11 patients, 9 of them with complete donor chimerism, and one patient with stable mixed chimerism after 1 year of allo-HSCT. One patient has secondary graft failure with re-appearance of symptoms associated with SCD on day 180. Complications of Allo-HSCT are: arterial hypertension 7/11, acute renal failure 3/11, CMV reactivation 9/11, neurological complications 4/11 (subarachnoid haemorrhage, seizure), and acute graft versus host disease (aGVHD) of the skin 6/11, one of whom developed grade IV intestinal aGVHD, causing his death (day 51). None of the patients developed chronic GVHD. The overall survival and event-free survival was 90.9% and 81.9%, respectively, with a median follow-up of 3.1 (1–5.7) years.

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Conclusions: Allo-HSCT, the only curative therapy, remains associated with morbidity. There was a transplant related mortality in our study, consistent with multicentre studies (1/11), and with aGVHD being the main cause. Other problems still include graft failure (1/11), and neurological complications (4/11), although the permanent sequelae are mild.

PALABRAS CLAVE
Anemia de células falciformes;
Alo-trasplante de médula ósea de hermano HLA idéntico

Trasplante de médula ósea en pacientes con anemia falciforme. Experiencia en un centro

Resumen
Introducción: La enfermedad de células falciformes (ECF), pese a la mejora en el manejo médico, persiste asociada a morbilidad y a menor supervivencia. El alotrasplante de progenitores hematopoyéticos (alo-TPH) es actualmente la única opción curativa. Describir la evolución clínico-analítica de los pacientes trasplantados en nuestro centro.
Material y método: Estudio unicéntrico descriptivo, incluye a pacientes con ECF en los que se realizó alo-TPH de médula ósea de hermano HLA-idéntico desde enero del 2010 hasta diciembre del 2014. Se recogen datos epidemiológicos, clínicos y analíticos con tiempo de seguimiento hasta diciembre del 2015. Los datos se presentan como frecuencias, porcentajes y medianas (rango).
Resultados: Se recluta a 11 pacientes (8 varones), mediana de edad: 7 años (2–13), todos ellos con comorbilidad previa al TPH. Se consigue injerto estable en 10/11 pacientes, quimerismo completo en 9/11 y quimerismo mixto estable tras un año del TPH en 1/11. Un paciente presenta fallo secundario de injerto con reaparición de clínica el día +180. Complicaciones post-TPH: complicaciones neurológicas 4/11 pacientes (hemorragia subaracnoidea, crisis), HTA 7/11, fallo renal agudo 3/11, reactivación CMV 9/11, EICHa cutáneo 6/11, uno de ellos desarrolla EICH intestinal grado IV causando su fallecimiento (día +51). Ningún paciente desarrolla EICH crónico. Supervivencia global y libre de eventos a los 3,1 años de seguimiento: 90,9 y 81,9%, respectivamente.
Conclusiones: El alo-TPH, única opción curativa, no está exento de morbimortalidad, encontramos un riesgo de muerte similar a otras series (1/11), siendo su primera causa el EICH agudo. Otros problemas son fallo de injerto (1/11) y complicaciones neurológicas (4/11), aunque las secuelas permanentes son leves.

Introduction

Sickle cell disease (SCD) is currently the abnormality detected most frequently in newborn screening tests in several countries, including Spain. In the Autonomous Community of Madrid, where screening has been performed since May 2003, this is corroborated with an incidence of 1 in every 5000 live births.[1] Sickle cell disease is a significant source of multisystemic morbidity and carries an increased risk of early death.[2] In the past three decades, the introduction of several measures, such as penicillin prophylaxis, vaccination against *Streptococcus pneumoniae*, the use of hydroxyurea, have been implemented leading to a decrease in morbidity and mortality in patients with SCD.[3–5] There is evidence that hydroxyurea considerably reduces the incidence of vaso-occlusive events and acute chest syndrome[6,7]; however, this treatment does not reverse organ damage or reduce the risk of stroke. The use of transcranial Doppler ultrasonography (TCD) in the followup of these patients allows the identification of those that are at high risk of experiencing an acute stroke, while of brain magnetic resonance imaging (MRI) allows the diagnosis of silent strokes.[8] Transfusion therapy has proven to be useful in the primary prevention of stroke, but it has the disadvantage of secondary iron overload and poor long-term adherence.[9]

At present, haematopoietic stem cell transplantation (HSCT) is the only available curative treatment. The first successful HSCT was performed in 1984 in the Untied States in a patient with SCD and acute myeloid leukaemia.[7] Subsequent multicentre studies have reported good outcomes, with an overall survival of 93–94% and an event-free survival of 82–86%, while the most frequent complications are graft failure and graft-versus-host disease (GVHD).[10–14]

The aim of our study was to describe the clinical and analytical outcomes of patients with SCD that underwent allogeneic HSCT from an HLA-identical sibling donor in our hospital.