

Original article

Prognostic utility of preimplantation kidney biopsy from deceased older donors in first year post-transplant renal function[☆]

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ABSTRACT

Background: Preimplantation renal biopsy provides potentially valuable information about post-transplant renal function.

Objective: To assess the prognostic value of preimplantation kidney biopsy from older donors in determining 1-year post-transplant estimated glomerular filtration rate MDRD-4 (eGFR).
Methods: We evaluated a cohort of 124 renal transplant recipients from deceased donors ≥ 60 years old, performed at our centre between March 2008 and May 2012. Biopsies were assessed by applying the score proposed by O'Valle et al. The overall score was stratified into 3 levels: 0–3, 4–5 and 6–8 points. Kidneys scoring >8 points were discarded. A total of 77% of the donors were ≥ 70 years.

Results: One year post-transplant, mean eGFR (SD) was lower in transplant recipients with 6–8 points (38.5 [14.1] ml/min/1.73 m²) than in the group scoring 4–5 points (46.3 [15.7] [p=0.03]) and the group scoring 0–3 (49.6 [12.5] [p=0.04]). Seven patients (19%) had eGFR <30 ml/min/1.73 m² 1 year post-transplant in group 6–8 vs 8 (14%) in group 4–5 and none in group 0–3. In the logistic regression, OR (95% IC), to determine patients with 1-year post-transplant eGFR (<30 ml/min/1.73 m²), delayed graft function (6.3 [1.9–21.3]) and acute rejection (5.8 [1.1–31]), were significant. The adjusted OR of biopsy score group 6–8 vs 0–5, was 2.2 (0.7–7.3).

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Conclusions: Allografts with higher pathologic score in preimplantation renal biopsy were associated with a worse 1-year post-transplant eGFR. Delayed graft function and acute rejection were significant risk factors for 1-year post-transplant low eGFR.

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Valor pronóstico de la biopsia renal preimplante en donantes fallecidos de edad avanzada en la función renal al año del trasplante

R E S U M E N

Palabras clave:

Donante fallecido de edad avanzada
Donante con criterio expandido
Biopsia renal preimplante
Trasplante renal
Filtrado glomerular

Antecedentes: La biopsia renal preimplante puede aportar información útil evolutiva post-trasplante.

Objetivo: Analizar el valor pronóstico de la biopsia renal de donantes de edad avanzada respecto al filtrado glomerular estimado MDRD-4 (FGe) al año del trasplante.

Métodos: Estudiamos a 124 receptores de trasplante renal de donantes fallecidos de ≥ 60 años, con biopsia renal preimplante. Los trasplantes fueron realizados en nuestro centro, entre marzo del 2008 y mayo del 2012. Las biopsias se valoraron según el baremo propuesto por O'Valle et al. y se categorizaron en 3 grupos: 0-3, 4-5, 6-8 puntos. Se descartaron los riñones con una puntuación >8 . El 77% de los donantes tenía ≥ 70 años.

Resultados: El FGe medio (DE) del grupo 6-8 al año del trasplante: 38,5 (14,1) mL/min/1,73 m² fue menor que el del grupo 4-5: 46,3 (15,7) ($p=0,03$) y del grupo 0-3: 49,6 (12,5) ($p=0,04$). Se registraron 7 (19%) pacientes con FGe < 30 mL/min/1,73 m² en el grupo 6-8 vs. 8 (14%) en el grupo 4-5 y ninguno en el grupo 0-3 ($p=0,17$). En el análisis de regresión logística, OR (IC 95%), que valoró los pacientes con FGe < 30 mL/min/1,73 m² al año del trasplante, la función retrasada del injerto (6,3 [1,9-21,3]) y el rechazo agudo (5,8 [1,1-31]) fueron significativos. La puntuación del daño histológico de las biopsias, grupo 6-8 vs. 0-5, presentó un OR ajustado no significativo de 2,2 (0,7-7,3).

Conclusiones: Los riñones con mayor afectación histológica presentaron un menor FGe al año del trasplante. La función renal retrasada del injerto y el rechazo fueron factores de riesgo significativos de un bajo FGe al año del trasplante.

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Introduction

Kidney transplant represents the best option for replacement kidney therapy for patients who develop advanced chronic kidney disease. However, the supply of young donors, who are theoretically ideal, is limited, and does not cover the demand among patients on the waiting list for a kidney transplant. This imbalance has resulted in the growing use of older donors, often with associated morbidity such as hypertension and diabetes. Good clinical results are obtained with these organs provided that these grafts are suitably and receptors are adequate.¹⁻⁴

Several scales have been developed with the aim of assessing the quality of donors' kidneys and to determine their viability and post-transplant function. The Organ Procurement and Transplantation Network/United Network for Organ Sharing (OPT/UNOS) defined the concept of expanded donor criteria, but the prognostic utility of these criteria is limited, as the concept takes into consideration heterogeneous clinical profiles with different clinical outcomes.^{5,6} Other indexes stratify graft survival more precisely, but have a moderate discriminatory value.⁷⁻¹¹ The donor's kidney biopsy provides

information that may improve the prediction of functional outcome. However, the results that have been published are controversial and have not been widely used.^{12,13}

At Hospital Universitario Cruces in 2008, kidney biopsy of deceased older donors was incorporated into the protocol to ensure the quality of the kidney grafts being used. This study analysed the clinical results obtained and specifically assessed the relationship between histological lesions and glomerular filtration rate one year after transplant.

Patients and methods

Study design

A retrospective cohort study of 124 kidney transplant recipients. The transplants were performed at our centre between March 2008 and May 2012, with grafts from donors ≥ 60 years of age deceased of brain death, with a preimplantation kidney biopsy. Clinical course data was collected until May 2013, or death or graft loss in case that one of these occurred prior to that time.

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