

Original Research Report

Outcomes of Renal Transplantation in Patients With Bipolar Affective Disorder and Schizophrenia: A National Retrospective Cohort Study



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Background: Patients with severe psychiatric disorders such as schizophrenia and bipolar affective disorder (BPAD) have in the past been excluded from organ transplantation programs based on their psychiatric illness. However, there is little data on the outcomes of renal transplantation in these patients and little evidence to support such exclusion. **Methods:** We reviewed the database of the Irish National Renal Transplant Programme and identified all patients with a history of BPAD or schizophrenia who had received a transplant over a 28-year period. Data were collected for the following outcomes: patient survival, graft survival, graft function, length of hospitalization for transplantation, and frequency of acute rejection episodes. The control group was the general transplant group, that is, all patients without these psychiatric disorders and who had received a renal transplant during the relevant time period. **Results:** Between

January 1, 1986, and December 31, 2013, 3000 renal transplants were performed at our center. Of the transplant recipients, 0.5% ($n = 15$) had a diagnosis of BPAD and 0.2% ($n = 6$) had schizophrenia. No significant differences were found between the BPAD or schizophrenia group and the general renal transplant group in relation to patient survival, graft survival, and graft function. In addition, length of hospital admission for transplantation and frequency of acute rejection episodes were comparable among the 3 groups. **Conclusions:** Although consideration of psychiatric comorbidity is an important part of pre-transplant assessment and selection, patients should not be discriminated against based on a diagnosis of BPAD or schizophrenia as there is no evidence that this negatively affects transplant outcomes.

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INTRODUCTION

Although there are currently few absolute contraindications to renal transplantation¹ patients with severe psychiatric disorders, such as schizophrenia and bipolar affective disorder (BPAD), have in the

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Outcomes of Renal Transplantation

past been excluded from organ transplantation programs based on their psychiatric illness.^{2,3} There are a variety of reasons for this, including concerns in relation to compliance with posttransplant treatment, emotional and cognitive capability, relapse of psychiatric illness, inadequate social support, and potential drug interactions between psychotropic and immunosuppressant medications.⁴ However, there is little research evidence to support these reasons for exclusion. Because the supply of solid organs for transplantation is limited, careful selection of candidates is essential to maximize successful outcomes. Psychosocial assessments are becoming an increasingly important part of pretransplant evaluation.⁵ However, it is vital that patients are not discriminated against based on a psychiatric diagnosis alone, and that the application of psychosocial criteria reliably distinguishes candidates by finding meaningful differences in the extent to which they would benefit from a transplant.⁶ This is of great importance for patients with BPAD, in whom lithium treatment may cause, or significantly contribute to, the development of end-stage renal disease (ESRD).⁷

There is little data on the outcomes of renal transplantation in this group of patients, and what is available in the literature is predominantly limited to case reports. The present study aims to compare outcomes, primarily in relation to patient survival, graft survival, and graft function, in patients with BPAD and schizophrenia who undergo renal transplantation with renal transplant patients who do not have these diagnoses.

SUBJECTS AND METHODS

We reviewed the database of the Irish National Renal Transplant Programme and identified all patients with a history of BPAD or schizophrenia who had received a renal transplant over a 28-year period between January 1, 1986, and December 31, 2013. Our study, although taking place in a single center, represents all renal transplants in Ireland as our center is the National Centre for Renal Transplantation and the only hospital in the country in which renal transplantation is performed. Data was collected for the following outcomes: patient survival, graft survival, graft function, length of hospitalization for the transplantation procedure, and frequency of acute rejection episodes. The control group, or general transplant

group, comprised all patients without BPAD or schizophrenia who had received a renal transplant in our service during the relevant time period.

Psychiatric diagnosis, as recorded on the database, was confirmed by reviewing individual patient hospital records, including liaison psychiatry notes and correspondence with community mental health teams where available. Information regarding psychotropic medications prescribed at the time of transplant was also collected.

Data were analyzed using STRATA SE version 13. Statistical tests used were Wilcoxon rank-sum tests for continuous variables and Fisher exact tests for categorical variables. Comparison of survival outcomes was measured using Wilcoxon (Breslow) tests.

RESULTS

Between January 1, 1986 and December 31, 2013, 3000 renal transplants were performed at our center. Of the transplant recipients, 0.5% ($n = 15$) had a diagnosis of BPAD and 0.2% ($n = 6$) had schizophrenia. Demographic characteristics of the study sample are shown in Table 1. Those in the BPAD group were older (mean age 54 years) than those with schizophrenia (mean age 35 years) and the general transplant patients (mean age 45 years). This is reflective of the difference in cause of ESRD, which in the BPAD group was predominantly interstitial nephritis, presumed to be caused by long-term lithium exposure taking many years to develop and progress. In relation to sex distribution, most with schizophrenia were male patients ($n = 4$, 66.7%), whereas male patients were slightly in the minority in the BPAD group ($n = 7$, 46.7%).

As mentioned, regarding causes of ESRD, in most patients with BPAD the primary cause was chronic interstitial nephritis ($n = 12$, 80%), attributed to long-term lithium treatment. Only 3 patients in the BPAD group had an alternative primary cause. One patient had hypertensive nephropathy, another had renovascular disease, and a third patient had adult polycystic kidney disease. However, the latter 2 patients had also been on lithium treatment, which, although not the primary cause, was presumed to have been a significant contributor in the development of ESRD. Causes of ESRD in patients with schizophrenia were as follows: chronic pyelonephritis secondary to reflux nephropathy ($n = 2$, 33%), renovascular disease ($n = 1$, 17%) and glomerulonephritis ($n = 3$, 50%) secondary

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