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Results of renal re-transplant in Spain (1990–2002)

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Abstract

Background. Renal re-transplants are increasing in number, due to many first renal transplant patients coming back to dialysis treatment. There are controversial opinions about the evolution of these re-transplanted patients. The aim of our study is to analyse the prognosis of patients and grafts under a renal re-transplant.

Methods. This was a retrospective study of 579 renal re-transplants realized in 15 Spanish different centres in the years 1990, 1994, 1998 and 2002 including all renal re-transplants realized in the above-mentioned centres during the same periods.

Results. During the follow-up period, 8.81% of patients died. The actuarial patient survival was 85% at 10 years and 80% at 15 years. Principal reasons of death were the same as normal for the renal transplanted patient: cardiovascular (30.77%), infectious (13.46%) and neoplastic (13.46%). During the period of follow-up, 28.6% of the grafts were lost. The actuarial graft survival was 75% at 10 years and 58% at 15 years. Causes of graft loss are very similar to those described in literature.

Conclusion. Renal re-transplant is a kind of substitute renal treatment with excellent clinical results that allow to take it as a first-order modality of treatment when the first renal transplant has failed.

Keywords: Renal re-transplant

Introduction

Renal re-transplant is a situation in which a worse result is expected compared to the first transplant, due to diverse factors among which it would be necessary to mention the possibility of more anti-human leucocyte antigen (HLA) antibodies existing in the recipient to possible donors, a worse general condition from the cardiovascular point of view, the advanced age of both donor and recipient, etc. The aim of this work is to review the renal re-transplants done in Spain in the period 1990–2002, specifically in the years 1990, 1994, 1998 and 2002, in order to be able to determine if patient and graft survival are good as well as to realize a description of their evolution.

Materials and methods

The sample was formed of 579 renal re-transplants realized in 15 Spanish different centres in the years 1990, 1994, 1998 and 2002. This retrospective study included all the renal re-transplants realized in the above-mentioned centres during those periods. Their stratification per year was as follows: 1990 (13.13%), 1994 (22.63%), 1998 (38.75%) and 2002 (28.50%). Nevertheless, the differences in percentage do not equate to an increase of the proportion of re-transplants, since when we analyse the percentage that the re-transplants represent with regard to the number of the first realized transplants every year, the proportions are very similar: 1990 (9.2%), 1994 (12.2%), 1998 (13.9%) and 2002 (12.4%). The mean age of the donors was 40.31 ± 16 years (12–77) and that of the recipients 41.86 ± 12 years (19–75), the mean weight of the recipients being 63.19 ± 12.13 kg. As for gender, the donors were men in 66.49% (women 33.51%), and the recipients were men in 59.07% (women 40.93%) (Table 1).

The mean of the quantitative variables during the first year has been calculated with the values obtained at the time of transplant, Month 1, Month 3 and Year 1 post-transplant. The curves of survival have been obtained by the Kaplan–Meier method.

Results

(i) Primary disease. The most predominant primary disease in the recipients was chronic glomerulonephritis (40%), followed by tubulointerstitial nephropathies (15%), polycystic kidney disease (7.5%), nephroangiosclerosis (7.5%) and diabetes mellitus (5%). The

Table 1. Demographics of donors and re-transplanted patients

	Donor	Recipient
Age (years)	40.31 ± 16	41.86 ± 12
Gender % (male/female)	66.49/33.51	59.07/40.93
Weight (kg)	ND	63.19 ± 12.13
IMC (kg/m²)	ND	23.16 ± 3.82

Table 2. Renal biopsy results

Renal biopsy results	%
CAN Ia	6.54
CAN Ib	4.58
CAN IIa	11.76
CAN Iib	6.54
CAN IIIa	5.88
CAN IIIb	2.27
Acute rejection	3.92
Recurrence of primary nephropathy	2.61
Transplant glomerulopathy	6.54
De novo glomerulonephritis	5.23
Other	6.54

above-mentioned distribution is similar to those described by renal pathology records of other countries [1,2].

(ii) Time on substitute renal treatment. The mean time that they were under any modality of substitute renal treatment was 8.19 ± 5.84 years (0–29.44). Of the patients, 92.45% were on treatment with haemodialysis and 7.55% on peritoneal dialysis prior to re-transplant.

(iii) HLA incompatibilities and anti-HLA antibodies. It was always taken into account to have a maximum HLA compatibility in case of renal re-transplant. Gjertson [3] had recently described the importance of a good HLA compatibility, especially DR in cases of renal re-transplant. In our series, the average was three HLA incompatibilities (1 for HLA-A, 1.2 HLA-B and 0.8 HLA-DR). The maximum percentage of anti-HLA antibodies was 31.99 ± 33.46% (0–100), and the last pre-transplant anti-HLA was 14.97 ± 24.59% (0–100). Of the patients, 53% had 0% of anti-HLA antibodies at the time of re-transplant.

(iv) Type of donor. In 97% of cases, the donor was cadaveric, with 3% living donors. Of those cadaveric donors, in 51%, the reason of death was a craneoencephalic trauma, and in 49%, it was a vascular cerebral accident.

(v) Viral status. With regard to the hepatitis C virus (HCV), 3.4% of the donors and 38.6% of the recipients had positive antibodies. As for the hepatitis B virus (HBV), 0.8% of donors and 1% of the recipients had positive antibodies.

(vi) Initial immunosuppressive treatment. It was realized with steroids in 97.2% of the cases, cyclosporine (63%), mycophenolate mofetil (51.5%), tacrolimus (31.8%), azathioprine (30.4%), and sirolimus (2.1%), reflecting the general evolution of the immunosuppressive treatment in the transplant population over recent years. The most used antibodies in induction treatments were OKT3 (14.9%), anti-CD25 (10.2%) and ATG (5%). The steroids were withdrawn in the first 3 months in 0.36% of the cases. Some authors have described that the introduction of mycophenolate mofetil in the protocols of immunosuppression together with the use of flow cytometry cross-match have been decisive in the good results of the renal re-transplant in recent years [4].

(vii) Acute tubular necrosis. This was present in 39.25% of the cases. It is a result even better than described for certain series of patients without re-transplant [5].

(viii) Acute rejection. This happened in 29% of cases, being treated only by steroids in 67.68% of cases and by steroids with more antibodies in 17.68%. The renal biopsy done in case of acute rejection showed the Banff's following gradation: Ia (35.53%), Ib (7.89%), IIa (31.58%), IIb (13.16%), III (11.84%). Graft loss

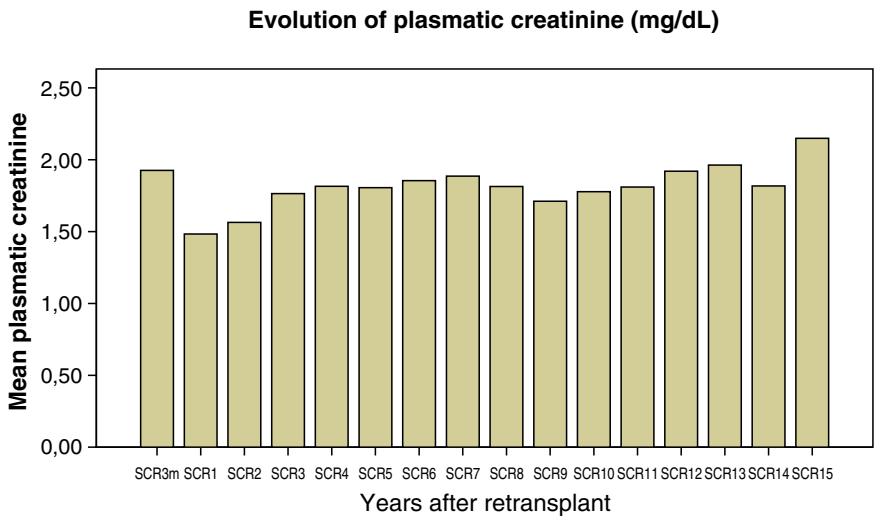

Fig. 1. Evolution of plasmatic creatinine in renal re-transplanted patients.

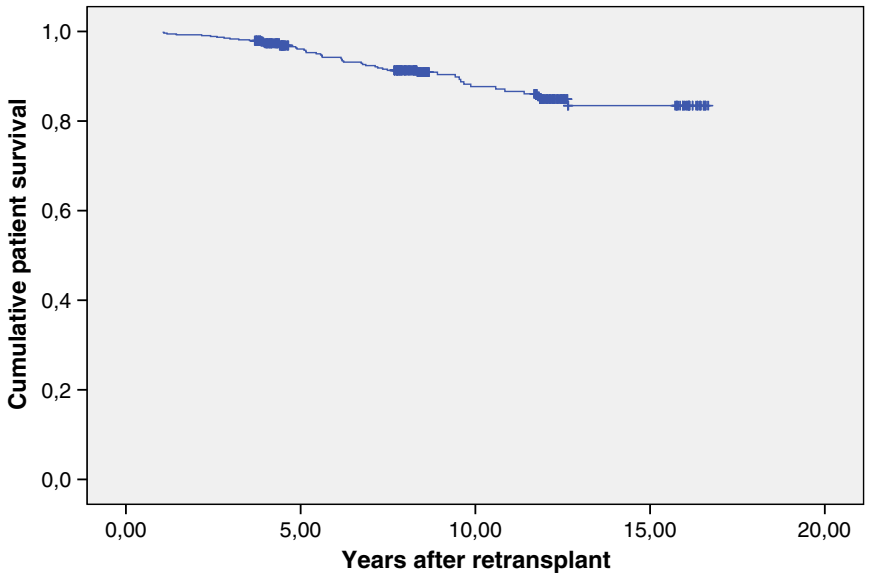

Fig. 2. Cumulative patient survival after renal re-transplant.

Table 3. Causes of graft loss

Causes of graft loss	%
Biopsy-proven chronic allograft nephropathy	27.22
Not biopsy-proven chronic allograft nephropathy	27.25
Death with functioning kidney	19.62
Acute rejection	3.8
De novo glomerulonephritis	3.8
Recurrence of primary disease	3.16
Bad adherence to treatment	1
Other	5.7

for acute rejection happened in 3.8% of the re-transplanted patients.

(ix) Renal biopsy. In Spain, protocol biopsies were not practised in the years of the study, but always were done for clinical reasons. Renal biopsy was practised in 51% of the patients, principal reasons being worsening of renal function (50.33%) and proteinuria (17.65%). Results of renal biopsy appear in Table 2. As can also be seen, the most frequent find was interstitial fibrosis with tubular atrophy of different degree.

(x) Renal function and proteinuria. Patients were kept stable along the follow-up as shown in Figure 1. One year after transplant, 30.4% of patients had a plasmatic creatinine between 0.5 and 1.2 mg/dL, 50% between 1.3 and 2 mg/dL, 14.4% between 2.1 and 3 mg/dL and 5.1% >3 mg/dL.

(xi) Patient survival. During the follow-up period, 8.81% of patients died. The actuarial survival of the patient was at 10 years of 85% and 80% at 15 years. Principal reasons of death were the same as normal for renal transplanted patients: cardiovascular (30.77%), infectious (13.46%) and neoplastic (13.46%) (Figure 2).

(xii) Graft survival. During the follow-up period, 28.6% of the grafts were lost. The actuarial survival of the graft was 75% at 10 years and 58% at 15 years. Principal reasons for this graft loss are detailed in Table 3. As can also be seen, they are very similar to previous descriptions in the literature [6,7] (Figure 3).

(xiii) Cytomegalovirus infection. This was detected in 20.72% of cases. The methods of detection were diverse depending on the centres and the epoch (pp65, CMV-PCR…). Of the patients, 37.9% had received some type of prevention for cytomegalovirus due to being considered patients of risk (positive donor/negative recipient, treatment with high doses of steroids, etc.).

(xiv) Surgical complications. Of the patients, 12.5% needed re-intervention, the most frequent reasons being ureteral obstruction, urinary leakage and surgical haemorrhage. The above-mentioned information was also coincidental with the general series of transplanted patients in our country.

Discussion

Previous results take us to the conclusion that the results of renal re-transplant in Spain are excellent, showing patient and graft survivals at 10 years of 85% and 75%, respectively, similar to those undergoing a first transplant, and even better than described in general series of other countries [2]. Some authors have recently described that, in patients with standard immunological risk [8] and even in groups of high risk such as the Afro-American population [9], renal re-transplant gives identical results to the first transplant. Some authors obtain the same conclusions regarding the good evolution of renal re-transplants and recommend it unreservedly (10). In our data, renal function was kept stable throughout the time period, and the reasons of graft loss would be the same as those of the general series of the first transplants [6]. The percentage of acute tubular necrosis

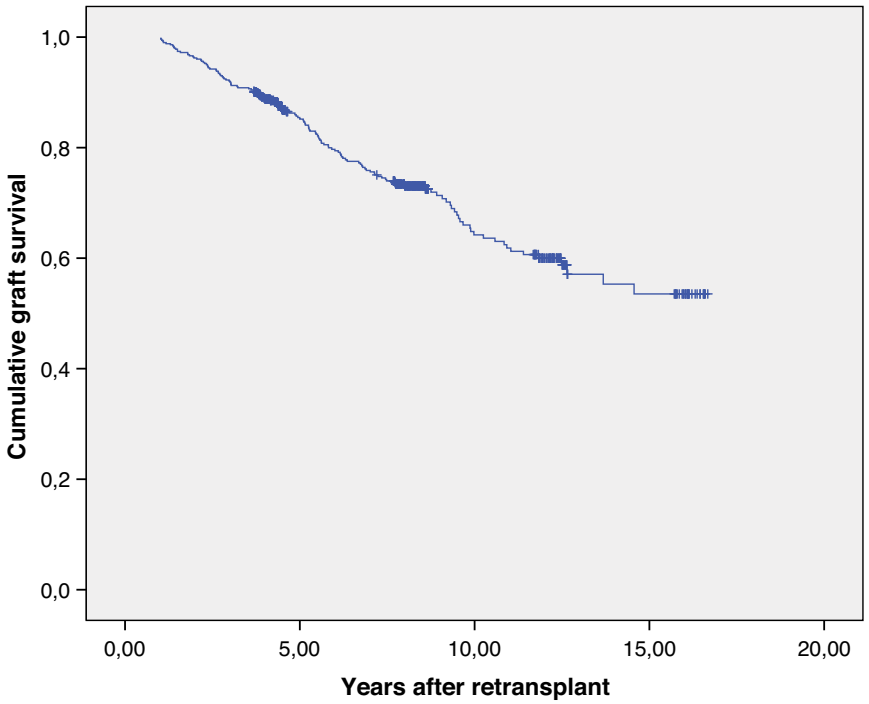

Fig. 3. Cumulative graft survival after renal re-transplant.

(39.25%) is superior to the current one when the donor and recipient mean ages are about 40 years old, and there is also a higher percentage of acute rejection than the current one, though it is easily understandable as a consequence of the current immunosuppressive medication. It is necessary to emphasize that 51% of these re-transplants have been under biopsy throughout an important period of follow-up. The most common find of the biopsy will be the non-specific fibrosis and tubular atrophy.

It is necessary to conclude that renal re-transplant is a kind of substitute renal treatment with excellent clinical results that allow to take it as a first-order modality of treatment when the first renal transplant has failed.

Conflict of interest statement. None declared.

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