
Case report

Kidney Transplant in an Old Woman-A Case Report and Review of the Literature

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Abstract

The number of elderly patients with chronic kidney disease (CKD) as well as those with end-stage renal disease (ESRD) are increasing worldwide. Renal transplantation is now the treatment of choice for all ESRD patients, including those that are aged 65 or over. Namely, there is a growing evidence that elderly patients, in the absence of contraindications, have better outcomes after renal transplantation than alternative forms of RRT. Although survival, quality of life and economic advantages have been shown after transplantation, renal transplantation is still infrequently offered to older patients. Hereby, we present a case of an old woman who was transplanted in 1994 when "senior" program was still not established and when kidney transplantation at this age was rarity in many countries. She lived 16 years and 8 months with a well-functioning graft and died at the age of 89.

Key words: renal transplantation, elderly patients, survival

Introduction

The number of elderly patients with chronic kidney disease (CKD) as well as those with end-stage renal disease (ESRD) are increasing worldwide. According to the literature, nearly half of all ESRD patients are now over 60 years in the USA as well as in Europe. Furthermore, previous research highlighted that half of patients receiving renal replacement therapy (RRT) in the dialysis units are aged 65 or over. Renal transplantation is now the treatment of choice for all ESRD patients, including those that are aged 65 or over. Namely, there is a growing evidence that elderly patients, in the absence of contraindications, have better outcomes after renal transplantation than alternative forms of RRT. The success of solid organ transplantation is accompanied by a severe shortage of available organs for those currently

awaiting transplantation. In the recent years, there has been an increasing demand for organs but not a similar increase in the supply leading to a severe shortage of organs for transplant and increasing waiting times for recipients. This has resulted in expanded donor criteria to include older donors and donors with mild diseases. Kidney transplantation offers the potential for improved quality and prolonged length of life in elderly patients and reasonable outcomes have been reported for selected patients in their 70s and even 80s. Furthermore, the mean age of renal transplant recipients is rising, with advanced age no longer considered a contraindication to transplantation. Although survival, quality of life and economic advantages have been shown after transplantation, renal transplantation is still infrequently offered to older patients. This is mainly due to the fact that many clinicians view dialysis as a stable strategy with an acceptable survival and few short-term risks. On the other hand, transplantation is viewed as having significant risks of short-term morbidity and mortality [1-5].

To overcome these limitations, in January 1999, Eurotransplant established the Eurotransplant Senior Program (ESP) allocation scheme to match the functional capacity of organs from donors ≥ 65 years to the functional requirements of recipients ≥ 65 years. The organs are allocated by blood group and waiting time only. The main goals of this program are to increase the number of kidneys from elderly donors, shorten the long waiting time for elderly recipients, and not affecting negatively the graft and patient survival. ESP became fully implemented into the Eurotransplant Kidney Allocation System in January 2001. In contrast to Eurotransplant Senior Program, Croatia has developed its own program for elderly patients. Namely, Croatia joined Eurotransplant in 2007. Our "senior" program is based on the allocation of kidneys from donors >65 years to recipients at the same age, but we included human leukocyte antigen matching in the allocation scheme in contrast to the ESP [3,6].

Hereby, we present a case of an old woman who was transplanted in 1994 when "senior" program was still not

established and when kidney transplantation at this age was rarity in many countries.

Case report

A 72-year old woman started a haemodialysis (HD) treatment as a method of choice of RRT in 1994. The primary renal disease that had led to the development of end-stage renal disease (ESRD) was polycystic kidney disease. Following proper pretransplantation screening, she was transplanted six months after she was started with HD. She was subjected to cadaveric kidney transplantation and she got a kidney from a 34-year-old donor. The number of HLA mismatches was 3, and cold ischemia time was 10 hours. The patient received immunosuppressive therapy consisting of cyclosporine (dose adjusted to trough levels), azathioprine (initial dose 100 mg per day) and corticosteroids, e.g. methylprednisolone. She had no delayed graft function (defined as the need for dialysis for >7 days after transplantation) or any surgical complications. On the twentieth day of hospitalization, she was discharged from the hospital. Onemonth following transplantation

her graft function was good with serum creatinine values of 90 $\mu\text{mol/L}$. She did not experience any acute rejection crisis. During the next five years posttransplantation she was coming on regulatory ambulatory monitoring at our Department. She complained only of the pain in the back. In 1999 she was admitted to our Department due to high blood pressure. After the initiation of an anti-hypertensive therapy consisting of calcium-channel blocker and rennin-angiotensin inhibitor, her blood pressure levels were satisfactory and she was discharged from our Department. Her graft function was stable (serum creatinine was around 90 $\mu\text{mol/L}$). In 2008 she was hospitalized because of hydronephrosis grade I. During the hospital stay urological and nephrological diagnostic strategies did not find the cause of hydronephrosis. Her serum creatinine values were between 100 and 120 $\mu\text{mol/L}$. During that time her immunosuppressive therapy was modified (azathioprine was switched to mycophenolate mofetil). She died in 2011 at the age of 89 years with a functional graft. Her last values of serum creatinine were between 120 and 130 $\mu\text{mol/L}$. She lived 16 years and 8 months with a well-functioning graft (Figure 1).

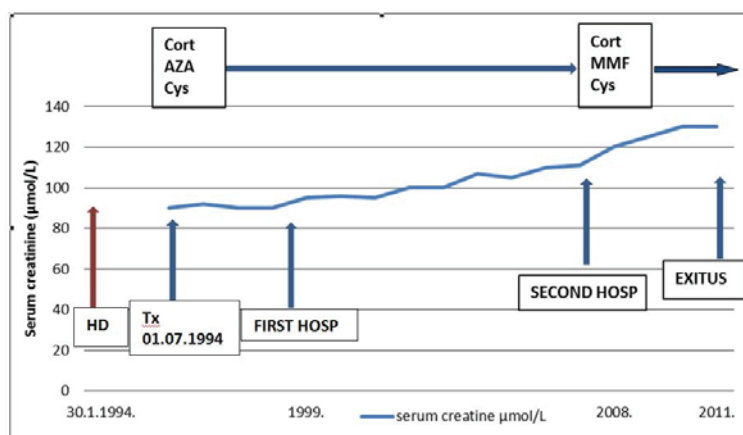


Fig. 1. Schematic view of the course of treatment in our patients

*Hemodialysis (HD); transplantation (Tx); hospitalization (hosp); corticosteroid (Cort); azathioprin (AZA); cyclosporine (Cyc); mycophenolate mofetil (MMF)

Discussion

It has been shown by numerous studies that there is less mortality in patients who receive a kidney transplant compared to those who remain on dialysis. For example, according to the study by Wolfe, *et al.* [7] who used data from the United States Renal Data System (USRDS) of more than 250.000 incident dialysis patients from 1991 to 1996, the survival of patients receiving a deceased donor kidney transplant was longer than that of patients on maintained dialysis. The survival was the best in younger ESRD patients, but patients of all ages gained additional years of life with transplant compared with dialysis. Furthermore, according to the recent study by Dempster, *et al.* [8], older patients experience good outcomes following renal transplantation. Similar results were reported by some other studies. Therefore, renal transplan-

tation is the treatment of choice for ESRD patients. Although survival, quality of life and economic advantages have been shown after renal transplantation in elderly patients, including even those with co-morbidities, it is still limited for many old people with ESRD. We wonder why renal transplantation is still a limited treatment modality for many old people. We do not have clear reasons for this; many clinicians might view dialysis as a stable strategy with an acceptable survival and few short-term risks. Furthermore, it is possible that a perception among health care providers is that transplantation has significant risks for short-term morbidity and mortality. It is also possible that a decreased interest in kidney transplantation among older patients could be a contributing factor [1-6]. Our patient lived 16 years and 8 months with a well-functioning graft and had a good quality of life. It is noteworthy that our

patient received kidney transplant in 1994 when kidney transplantation at this age was rarity in many countries. Namely, according to the study that was published in 1999 [7], only about 1% of ESRD patients older than 70 years received a deceased donor transplant in the USA. In the approach to the elderly patients who are considered for renal transplantation, several factors are important. In addition to recipient comorbidities, donor quality, immunosuppressant, dialysis vintage, and strength of social support networks affect the success of transplantation. Older recipients are more likely to have comorbid diseases at the time of transplantation than younger patients and these conditions can be associated with higher posttransplantation morbidity. The most important comorbid conditions are cardiovascular diseases (CVD). As we know, the risk of CVD increase with the progression of chronic kidney disease and CVD are responsible for almost 40% of all deaths in the ESRD patients [6-8]. Furthermore, it is well-documented that the traditional risk factors for CVD development (arterial hypertension, diabetes mellitus, dyslipidemia and obesity) are common among renal transplant recipients (RTRs). This is mainly a consequence of immunosuppressive therapy that is used in these patients. Similar to the dialysis population, the most common cause of mortality in RTRs is CVD. But, studies showed that the risk of cardiovascular death for all age groups of patients is greater for wait-listed patients than for transplant recipients. Therefore, in comparison with dialysis population, transplantation is associated with a decreased risk of cardiovascular death [9-11]. Or we can say that mortality rate in older people with ESRD is lower when treated with transplantation than with alternative forms of RRT. Prior to transplantation, we have evaluated the cardiac status of our patient and it was satisfactory. She was treated with HD only six months before transplantation.

It is generally assumed that aging is associated with a progressive decline in immune function. But, a variety of co-factors, including co-morbidities, drug-drug interactions, diet, renal and liver function, and immunosenescence may influence on the overall effect of immunosuppressive drugs in elderly patients. On the other hand, studies showed the significantly reduced rate of biopsy-proven acute rejection of renal transplant in elderly patients. It is assumed that in most of the patients we can reduce dosage of immunosuppressive medications. This is important in older patients because it has been documented that immunosuppressive dose reduction has been associated with improved recipient and graft survival, reduction in CVD, reduced drug side-effect and economic benefits. But, we still cannot make generalizations about the effect of individual immunosuppressive drugs in older patients; therefore, there is a need for further studies that will give guidelines about

choice and dosage of immunosuppression in older renal transplant recipients [6,8,12,14].

Conclusions

In conclusion we can say that some of the major challenges facing transplant programs are related to the evaluation, education, and list maintenance of elderly transplant candidates. In general, elderly ESRD patients benefit from kidney transplantation because mortality rate in older people with ESRD is lower when treated with transplantation than with alternative forms of RRT. It is important to recognize that risk factors may predict a complicated posttransplantation course. Therefore, after carefully weighing the risk and benefits of transplantation, elderly ESRD patients should be considered for kidney transplantation, with case-by-case individualization.

Conflict of interest statement. None declared.

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