

Three Years Follow-up of the First Renal Transplant in Aminu Kano Teaching Hospital: A Case Report

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ABSTRACT

Since the first successful operation in 1954, renal transplant has become the ultimate therapy for end stage renal disease (ESRD). Unfortunately it is still unattainable in most developing countries. The first renal transplant in Nigeria was in the year 2000 and there are only three transplant centers currently, with low transplant activity. We report the first renal transplant carried out in our centre and highlight problems of transplantation in Nigeria.

A 23-year-old female undergraduate student with ESRD and her sister, a willing donor, were evaluated and found fit for live related renal transplantation. Both donor and recipient workup were done in accordance with the European best practice guidelines (EBPG) except where limitation in facilities did not allow.

Renal transplant was carried out through a right Rutherford – Morison incision, with end to side anastomosis of the donor renal vessels to the recipient's external iliac vessels. Immunosuppression regime used was cyclosporine, Azathioprine, and Prednisolone. Complications encountered in the immediate postoperative period include bleeding from operation site, acute pulmonary edema and chest infection. Other complications encountered over the 3-year follow up include urinary tract infections, herpes zoster, and cyclosporine toxicity. Other problems encountered were logistic, such as unavailability of some laboratory facilities in the center like assay for cyclosporine. The patient however maintained good graft function 3 years post transplant.

In conclusion, despite many problems, renal transplantation is a viable option and perhaps the best

chance of survival for ESRD patients in developing countries like Nigeria.

INTRODUCTION

Renal transplantation in humans, using animal kidneys, has been attempted since 1906 but the first successful human kidney transplant was carried out in 1954 [1]. Today, renal transplant has become the ultimate therapy for end stage renal disease (ESRD) and is not only the best form of renal replacement therapy (RRT), but also the least expensive option if standard immunosuppressive drugs are used [2]. A successful kidney transplant improves the quality of life and reduces the mortality risk for most patients, when compared with maintenance dialysis [3]. Unfortunately renal transplantation is still unattainable in most developing countries [4]. The first renal transplant in Nigeria was in 2000 [5] and there are only three transplant centers currently, with low transplant activity. We report the first renal transplant carried out in our centre and highlight problems of transplantation in Nigeria.

CASE HISTORY

A 23-year-old undergraduate student was referred to our centre with features of chronic renal failure, with history dating 7 months prior to presentation. Findings at presentation include pallor, hypertension, and signs of congestive cardiac failure (CCF). Laboratory investigations at presentation were consistent with end stage renal disease, with a Creatinine clearance of 2.9 mls/min and bilaterally shrunken kidneys.

An assessment of ESRD likely secondary to chronic glomerulonephritis was made. She was commenced on maintenance Haemodialysis through a temporary vascular access (femoral vein), subcu-

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taneous erythropoietin, frusemide, oral haematinics (Ferrous sulphate, folate) and antihypertensives (Amlodipine and Lisinopril). An arterio-venous (AV) fistula was created 2 weeks later to achieve a permanent vascular access. Over a period of 1 year, she was admitted to the hospital 3 times with sepsis, hypertensive encephalopathy and CCF.

The patient was subsequently prepared for renal transplant. Her donor was her sister, a 24 year old schoolteacher who was apparently healthy with unremarkable past medical history. General and systemic examinations were unremarkable.

Both donor and recipient workup were done in accordance with the European best practice guidelines (EBPG)[6] except where limitation in facilities did not allow. There were no facilities for renal angiography and for testing antibody titers against

Epstein Barr virus, Herpes Simplex virus, Varicella Zoster virus and Toxoplasma organism. Renal Doppler Ultrasound Scan was used instead of renal angiography. HLA typing was favorable with a 3-antigen match at locus A, B and DQ (Table I). Both T and B lymphocyte cross matches were negative.

Renal transplant was carried out through a right Rutherford – Morison incision, with end to side anastomosis of the donor renal vessels to the recipient's external iliac vessels. Immunosuppressives protocol used was Cyclosporine, Azathioprine, and Prednisolone. Cyclosporine was started at the dose 200mg twice daily (approximately 7mg/kg) and the dose scaled down based on serial serum cyclosporine assays to a maintenance dose of 75 mg twice daily at 6 months post transplant. Azathioprine was given at the dose of 75 mg daily (approximately 1.5 mg/kg). A single dose of methyl prednisolone 500 mg intravenously was given intraoperatively as the immunosuppression induction agent. Prednisolone tablets were given at a dose of 20 mg daily for the first 3 months after operation. Thereafter, the dose was reduced by 2.5 mg monthly to a maintenance dose of 5 mg daily. Augmentin (Co-Amoxycyclavulanic acid) and Septrin (Co-trimoxazole) were used as infection prophylaxis. Augmentin was given at a dose of 1.2 g intravenously 12 hourly for the first 72 hours after operation. There after, it was given at a dose of 375 mg daily for one week. Septrin was given at a dose of 960 mg daily for 6 months.

The donor made uneventful recovery and maintained normal renal function throughout the period of follow-up. The patient had immediate graft function with Urea/creatinine reaching normal limits in 1 week.

Table I: HLA Types of Recipient/Donor

Locus		Recipient		Donor
CLASS I				
Locus A	30 (19)	-	30(19)	36
Locus B	57 (17)	53Bw4	13	53Bw4
CLASS II				
Locus DR	8	13DR52	13	13DR15, 52
Locus DQ	6 (1)	8(3)	6(1)	2

Table 2 : Complications Post-transplant

Period Post Transplant	Complication
Peri-operative (on admission)	Bleeding at operation site Acute Pulmonary oedema Chest infection (Candida Pneumonia).
Early (first 6 months post transplant)	Urinary Tract infection. Cyclosporine Toxicity.
Late (After 6 months post Transplant)	Herpes Zoster. Vaginal Candidiasis. Urinary Tract infection (twice). First trimester abortion

Complications encountered in the immediate postoperative period included acute pulmonary edema and chest infection. Other complications encountered over the 3-year follow up are presented in Table 2.

Bleeding at operation site was treated by pressure dressing. Acute Pulmonary oedema was treated with intravenous frusemide, oxygen therapy and fluid restriction. Candida pneumonia was treated with oral fluconazole 200mg daily for two weeks while vaginal candidiasis was treated with a single oral dose of fluconazole 150mg. Urinary tract infections were treated with appropriate antibiotics based on urine culture and sensitivity. Cyclosporine toxicity was treated with dose reduction while oral acyclovir was used for the treatment of herpes zoster. The patient has been coming for regular follow up, initially monthly and now every 3 months. She has also been on the immunosuppressive regimen and had no episodes of rejection.

As at the last clinic visit, the patient has remained clinically stable with normal laboratory parameters (urea, creatinine, creatinine clearance, calcium, phosphate and packed cell volume, lipid profile and fasting blood sugar). The patient has been on progesterone only oral contraceptive, which was discontinued at the last clinic visit as the patient wished to conceive. She satisfied all recommended criteria for pregnancy post transplant[7]. The only risk factor identified which could be responsible for the mid trimester abortion she had was Lisinopril [8], which the patient was inadvertently taking at the time of the pregnancy.

DISCUSSION

The presentation of this patient typifies the scenario in Nigeria, where patients present for the first time in ESRD with no certainty as to the underlying cause. This poses a prognostic problem for potential renal transplant patients as some causes of ESRD have a high incidence of recurrence post-transplant [9].

Renal biopsy is contra indicated in this patient because her kidneys were bilaterally shrunken. Because of late presentation and the urgent need for haemodialysis on presentation, she entered maintenance haemodialysis programme ill prepared with temporary vascular access. This has been shown to be a poor prognostic marker in dialysis patients[10]. Several hospital admissions for this patient prior to renal transplant also demonstrated the suboptimal quality of life of patients on maintenance haemodialy-

sis in this environment. The high cost of haemodialysis makes majority of the patients unable to afford adequate dialysis further worsening the quality of life of these patients. This patient was admitted 3 times over a period of 1 year when she was on haemodialysis as compared to no admission over a period of 3 years since transplant. This shows that renal transplant is indeed the best form of RRT if an appropriate immunosuppressive regimen is adhered to.

Bleeding from operation site was likely due to heparin, which the patient had peri-operatively to prevent deep venous thrombosis. The acute pulmonary oedema was as a result of fluid overload and candida pneumonia was an opportunistic infection due to immunosuppressant drugs. All were appropriately treated and resolved before the patient was discharged from the hospital 3 weeks later.

At the time of the patient work-up, some investigations like tissue typing and cytomegalovirus (CMV) screening had to be done abroad as these investigations were not available in the country. Cyclosporine assay was also unavailable in our center at that time and samples were sent to other centers both within and outside the country for analysis. These logistics and many other problems such as poverty, poor healthcare funding, infections and non-compliance to immunosuppression drugs militate against renal transplant in developing countries as highlighted by other workers both within and outside Nigeria [4, 5, 11, 12, 13].

Despite these limitations however, this patient had a successful transplant with normal graft function at 3 years post transplant. This demonstrates that despite poor health infrastructure in developing countries, renal transplantation is a viable option and gives a quality of life superior to what can be obtained with maintenance haemodialysis. Indeed with poor haemodialysis facilities in developing countries, renal transplant remains the only hope of long-term survival for ESRD patients[14].

CONCLUSION

Despite many problems, renal transplantation is a viable option and perhaps the best chance of survival for ESRD patients in developing countries like Nigeria. Nephrologist and other stakeholders should spear head an intense lobby group to improve government funding for RRT, while in the long term, more attention should be given to preventive nephrology.

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