Case Report

A Preemptive Living Donor Renal Transplant in an HIV Positive Patient from an HIV Positive Donor

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Abstract

With recent advances in the treatment of human immunodeficiency virus (HIV), renal transplantation is no longer considered a contraindication in properly selected HIV-positive patients. Several studies have demonstrated comparable patient and graft outcomes between HIV-negative and HIV-positive renal transplant recipients. Most of the information on outcomes of HIV-positive to HIV-positive transplantation is based on data from deceased donors. There are only a handful of case reports about living donor renal transplantation in an HIV-positive patient from an HIV-positive donor. Furthermore, there is no report in the world of preemptive living donor renal transplantation in this setting. Here, we report a case of successful preemptive renal transplantation in an HIV-positive recipient from an HIV-positive living donor performed at our center.

Keywords: *CD4 count, human immunodeficiency virus, preemptive living donor renal transplant, viral load*

Introduction

Human immunodeficiency virus (HIV) infection was traditionally considered an absolute contraindication for transplantation because of the concern that immunosuppression would accelerate HIV disease progression.[1] With the availability of potent antiretroviral therapy, the prognosis of patients with HIV infection has dramatically improved. Consequently, renal transplantation is no longer considered a contraindication in HIV-positive ESRD patients without a history of opportunistic infections, CD4 count >200/μL, and undetectable viral load. Numerous studies have shown favorable outcomes of renal transplantation in HIV-infected patients, with patient and graft survival similar to those observed in HIV-negative patients.[2] Current information on outcomes of HIV-positive to HIV-positive transplantation is primarily based on data from deceased donors.[3] There are only a handful of case reports in the world and only one from India about living-related donor renal transplantation in an HIV-positive patient from an HIV-positive donor. Furthermore, there is no report in the world of a preemptive living-donor renal transplant from an HIV-positive donor to an HIV-positive recipient. Here we report one such case of a preemptive living donor renal transplant from a seropositive father to his seropositive daughter.

Case Report

A 24-year-old HIV-positive female who contracted the infection secondary to vertical transmission was found to have elevated serum creatinine 1.9 mg/dl and proteinuria in 2015. The patient was advised further evaluation but was lost to follow-up. She then followed up in December 2019 when the serum creatinine had progressed to 5.2 mg/dl. A native kidney biopsy was done at another center which showed evidence of global sclerosis in the majority of the glomeruli with tubulointerstitial atrophy. Her viral load was assessed which was undetectable. She was on a regimen of abacavir, lamivudine, and efavirenz. The renal function deteriorated over the next 3 months, and in March 2020, her serum creatinine worsened to 9 mg/dl. She was advised a preemptive renal transplant.

Her CD4 cell count was 520 cells/μL and HIV viral load was undetectable. Dolutegravir was introduced instead of efavirenz due to the risk of potential

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interactions between efavirenz and calcineurin inhibitors.[4] Her HAART regimen thus included dolutegravir 50 mg once a day, abacavir 300 mg twice a day, and lamivudine 50 mg alternate day. She had no history of opportunistic infections. Her father, a 47-year-old HIV-positive person, was evaluated and chosen as her donor. His CD4 count was 470 cells/uL, and he had an undetectable viral load. He too had no history of any opportunistic infections. The workup for transplant had been completed but the transplant had to be deferred in view of the lockdown due to the COVID pandemic.

Over the next 3 months, the creatinine progressively increased and she became uremic. Thus, she was advised to initiate hemodialysis. The patient was not willing for dialysis and was managed conservatively until she could be taken up for transplant. She was willing to accept all the risks involved in going through with the transplant during the COVID pandemic. Thus, we decided to proceed with the renal transplant. This was the first transplant done by our team during the COVID pandemic. The patient and donor were counseled extensively about the risks of performing the transplant during the pandemic. Appropriate precautions were taken as per the guidelines by the Zonal Transplant Coordination Center, Mumbai to minimize the risk of transmission of SARS-CoV-2 infection to both donor and recipient.[5]

She underwent a living donor renal transplant on June 25, 2020. She was given no induction agent considering her HIV positivity as per our protocol,[6] lack of sensitization history, favorable HLA profile (haplomatch), and concerns of excessive immunosuppression during the COVID pandemic. Her maintenance immunosuppression included tapering doses of steroids, mycophenolate mofetil, and tacrolimus. Her highly active antiretroviral therapy continued to be lamivudine (300 mg/day), abacavir (600 mg/day), and dolutegravir (50 mg/day). She developed episodes of diarrhea during the hospital stay which subsided after mycophenolate mofetil was changed to azathioprine. She had a stable post-transplant course and was discharged with a serum creatinine of 0.8 mg/dl. On discharge, she was also started on valganciclovir and cotrimoxazole prophylaxis.

She is now almost 12 months post-transplant with a stable graft function (serum creatinine 0.9 mg/dl) and no episodes of rejection or opportunistic infection. She continues to be on triple immunosuppression (tacrolimus, azathioprine, and prednisolone). Her CD4 count is 422 cells/uL and viral load is undetectable on a regimen of lamivudine, abacavir, and dolutegravir. The donor also has not demonstrated any worsening of renal function and has an undetectable viral load.

Discussion

Renal transplantation was considered an absolute contraindication in patients with HIV only a few decades ago because of the concern that immunosuppressive drugs would lead to a further immunocompromised state and higher risk of infection and malignancy. After the availability of HAART, it was observed that renal transplantation provided a significant survival benefit over dialysis for this group of patients.[7] Furthermore, studies demonstrated comparable patient and graft outcomes between HIV-infected and HIV-uninfected patients.[8]

Current data on outcomes of HIV-positive to HIV-positive transplantation have demonstrated good graft and patient survival, with the most extensive experience in this regard coming from South African studies conducted by Muller *et al*.[3,9] However, these studies only involved deceased donations. The Johns Hopkins Hospital group in March 2019 was the first to report living donor renal transplant in the United States between an HIV-positive donor and recipient.[10] Thereafter, there is one report from India.[11] However, both cases were not preemptive transplants. Our case does demonstrate that successful preemptive transplantation can be performed between an HIV-positive living donor and recipient without loss of virological control and any damage to the allograft.

The favorable post-transplant course suggests that the donor pool for HIV-positive patients with ESRD can be expanded through the use of organs from HIV-positive living donors. Given the documented benefit of preemptive renal transplantation,[12] this can be extended to HIV-positive patients with ESRD.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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