

SUCCESSFUL LIVE RELATED RENAL TRANSPLANTATION IN A 13 YEAR OLD GIRL COMPLICATED WITH LIMITED VASCULAR ACCESS AND FUNGAL INFECTIONS: A CASE REPORT

Muhammad Tassaduq Khan, Sidrah Rashid, Rashid Bin Hamid, Syed Hassan Farooq

Department of Renal Transplant, Dow University of Medical and Health Sciences, Karachi, Pakistan

Correspondence:

Muhammad Tassaduq Khan, Department of Renal Transplant, Dow University of Medical and Health Sciences, Karachi, Pakistan

Email:

khan_smc@yahoo.com

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ABSTRACT:

This case report illustrates a 13-year-old girl, a known case of hypertension (HTN) and End Stage Renal Disease (ESRD) secondary to Lupus nephritis (biopsy proven), who was commenced on maintenance hemodialysis twice weekly since two months. No permanent access was formed in the meantime as she had complicated vascular anatomy and multiple attempts leading to thrombosis. Arteriovenous Fistula (AVF) formation carried high risk of thrombosis, as well as the central access for hemodialysis was unattainable for long term use. She was admitted with central line bloodstream infection (CLABSI) and pneumonia which was non-responsive to IV antibiotics, her fungal markers showed elevated Galactomannan and beta D Glucan levels. These high levels necessitated the initiation of anti-fungal therapy and Voriconazole was started, which was later switched to Amphotericin B and Isavuconazole as no response was observed in earlier treatment. She underwent successful renal transplantation while her antifungal treatment was underway. This case reports a lifesaving transplant in a septic patient with limited central access for hemodialysis.

Keywords: Lupus Nephritis, Kidney transplant, Aspergillosis

INTRODUCTION

Renal transplantation is the preferred course of treatment for most patients with end-stage renal disease (ESRD) because it increases chances of survival and quality of life simultaneously (1). Meanwhile, the recipients become more prone to develop opportunistic infections due to the immunosuppressive drugs and if left untreated these infections can prove be life threatening (2, 3). The objective of this case report is to highlight the importance of identifying and managing fungal infections in ESRD (4). It also potentiates the role of offering transplant to such case-specific patients to save their lives.

Case Presentation

A 13-year-old girl known case of HTN, ESRD secondary to Lupus Nephritis was on maintenance hemodialysis through right intra-jugular dual lumen catheter. Patient had placements of multiple dual lumen catheters previously. Patient was admitted with high-grade fever and pneumonia which was non-responsive of empirical therapy. She was commenced on broad spectrum antibiotics, but fever did not subside and fungal markers were sent which showed elevated Galactomannan (levels) and beta D Glucan (level) levels. Patient was initially started with Voriconazole. Her echocardiography was also performed to rule out any vegetation or cardiac dysfunction which showed moderate to large pericardial effusion with right atrium collapse. Renal transplant was the utmost need for saving the patient's life as there was no line access available for hemodialysis and the line already placed was the source of ongoing sepsis. She underwent renal transplantation with her mother as her donor. As she had 3 antigens matched in HLA antigen typing so she was induced with Basiliximab. Isavuconazole was started 4 days before transplant along with Amphotericin B for her ongoing fungemia. Patient recovered well after the procedure as signs of sepsis diminished consistent with the inflammatory and infective markers which also declined. She had a successful transplant surgery and Isavuconazole was continued post operatively and fungal markers were followed until returned to baseline.

Table 1. Summary of Pre- transplant and Post- transplant bloods reports

	Pre-transplant	Post-transplant
CRP*	204 mg/L	41.24 mg/L
Procalcitonin	2.5 ng/ml	1.7 ng/ml
Beta D Glucan	58.261 pg/ml	53.479 pg/ml
Galactomannan	2.846	0.228

*C- Reactive Protein

DISCUSSION

Transplant patients are at high risk for developing an opportunistic infections specifically fungal infection due to its mandatory post-transplant immunosuppressive regimen (5). Early detection of such infections and their timely management are the key to ensure survival. Non-responsive signs of sepsis (6) particularly consistent fever should always raise a suspicion of an opportunistic infection; especially fungal infections which should be investigated thoroughly. As in our case the patient was not only immuno-compromised due to end stage renal disease but also had an active fungal infection in presence of a central line for hemodialysis posing more risk of worsening sepsis, so it needed a more calculated and careful multidisciplinary approach.

Although Voriconazole is the drug of choice in Aspergillosis (7) but due to its drug interactions with the immunosuppressants and as in our case it showed no improvements, Isavuconazole (8) was started in our patient prior to transplant along with Amphotericin B. Considering newer strains of Aspergillus which are resistant to existing anti-fungal drugs i.e. Amphotericin B and Voriconazole, Isavuconazole is emerging as a promising alternative. Isavuconazole is a newer triazole antifungal agent that has been recognized for its broad spectrum of antifungal activity, including efficacy against various Aspergillus species and other filamentous fungi. Isavuconazole's mechanism of action is similar to that of other triazoles, inhibiting the fungal enzyme lanosterol 14- α -demethylase. This inhibition leads to the accumulation of lanosterol and a decrease in ergosterol, a critical component of the fungal cell membrane, resulting in fungal cell death (9).

Isavuconazole possess a safer drug interaction profile and as expected it needed no post-transplant alterations of immunosuppressive agents in this case (10). The length of treatment is also shorter in comparison with other antifungal drugs hence it showed immediate response, as the patient has recovered in the expected course of treatment.

CONCLUSION

This case report elicits the lifesaving renal transplant in a young female suffering from presumably iatrogenic fungal infection and was managed with Isavuconazole alongside Amphotericin B and has showed an excellent response in the patient. Early detection and appropriate management of life threatening infections can pave a way towards a safe and successful renal transplantation in septic ESRD patients in which hemodialysis or peritoneal dialysis is not an option.

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