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Paediatrics

SYNDROMIC DIAGNOSIS IN A CHILD WITH POST RENAL TRANSPLANT

Dr. C. Satheesh MBBS, DCH, DNB Paediatrics, Senior Consultant, Department of paediatrics, Apollo Hospitals, Greams road, Chennai

Dr Surya K* DNB Paediatrics Resident, Apollo Hospitals, Greams Road, Chennai.*Corresponding Author

ABSTRACT 9 Years old boy who underwent renal transplant, on immunosuppression for past 2 years presented with chronic abdomen pain. Oesophageal biopsy done outside showed features of post-transplant lymphoproliferative disorder (PTLD). He presented with fast breathing and was found to have acute renal dysfunction and severe anaemia requiring transfusion along with leukopenia. Chest X ray showed bilateral lower lobe consolidation. Acute on chronic graft dysfunction was suspected and he was evaluated for PTLD and infections as a cause. Epstein-Barr Virus (EBV) and BK virus was negative. Repeat oesophageal biopsy showed ulceration with cytomegaloviral inclusions. The diagnosis of Cytomegaloviral (CMV) syndrome was made as CMV viral counts were significantly elevated. He was treated with parenteral ganciclovir and other supportive treatment following which his renal parameters showed dramatic improvement. Infectious causes should always be considered in post renal transplant. CMV infection is common between 30 and 90 days after transplantation. But this child presented after 2 years with involvement of lungs, kidney, oesophagus and bicytopenia thus pointing towards CMV syndrome with end organ damage.

KEYWORDS : POST RENAL TRANSPLANT, CMV SYNDROME, POST TRANSPLANT LYMPHOPROLIFERATIVE DISORDER, EPSTEIN BAR VIRUS, BK VIRUS, GANCICLOVIR, BICYTOPENIA.

INTRODUCTION:

After renal transplantation cytomegalovirus (CMV) is an important opportunistic infection. It's a human virus from the Herpesviridae family and also it is the largest known human herpes virus, with 150 to 200nm in diameter . It can be either primo infection or else can be due to reactivation. In the transplant recipients it may cause both direct and indirect effects. Direct effects such as tissue invasive disease and viral syndrome, and indirect effects can lead to acute and chronic allograft injury which predisposes to life threatening complications. Mainly the pediatric renal transplant population were increased risk of CMV infection. Because there is higher rate of transplantation from CMV seropositive donors to CMV negative recipients (31.4% in pediatric recipients, 17.2% in adults) . Furthermore, the antiviral therapy such as ganciclovir and valganciclovir also been demonstrated in adult kidney transplant recipients .

In this case report, we report an extremely rare presentation of CMV syndrome after 2 years of renal transplant with the involvement of lung, kidney, esophagus and bicytopenia.

CASE REPORT:

9-year-old male child presented in the pediatric emergency with complaints of abdominal pain for 1 month associated with loss of appetite and weight. And had fast breathing for last 3 days. The child was first born of non-consanguineous marriage. Child was known case of solitary hypoplastic kidney diagnosed at 4 years of age. Underwent renal transplant at 7 years of age elsewhere from non-biological donor. Since then, child was on immunosuppression drugs. After renal transplant his serum creatinine was maintaining less than 2 mg/dl. On examination child was pale and his blood pressure was on higher side. His height and weight were less than 3rd centile. On systemic examination there was tachypnea, bilateral air entry with basal crepitation in the respiratory system and epigastric tenderness in the abdomen. There was also surgical scar noted over the right lumbar region.

Initial blood gas done showed severe metabolic acidosis, hyponatremia, hypokalemia, anemia and hyperlactatemia. Based on the history and examination we thought acute on chronic graft dysfunction. Our initial renal function test showed serum urea (111 mg/dl), serum creatinine (3.27 mg/dl), potassium (3 mmol/l) and serum sodium was (126 mEq/l). Serial renal function tests done are shown in table 1. Complete blood count showed anemia (6 gm%) with leukopenia (TC-2650, N-60%, L-30%, M-10%). His ultrasound abdomen showed transplant kidney in right lumbar region with increased cortical echoes. In view of chronic abdominal pain and not responding to initial management, Upper GI Endoscopy was done which showed two large gastric ulcers and biopsy was sent. In view of post-transplant lymphoproliferative disease (PTLD), PET CT WHOLE BODY was done showed mild FDG avidity in the lower end of esophagus and esophagus gastric junction, bilateral lower lobe consolidation, no organomegaly and generalised lymphadenopathy. We also send the viral panel which showed CMV viral panel of 2180 copies/ml, EBV and BK virus were not detected. Biopsy from the lower end of esophagus showed cytomegaloviral inclusions. Hence we made the diagnosis of CMV syndrome with end organ damage.

Table 1 : Showing serial renal function test

	08/06/2021	15/07/2021	16/07/2021	18/07/2021	21/07/2021
UREA	70.7	111	118	99	51
CREATININE	1.8	3.27	2.8	1.6	1.5
SODIUM	124	126	128		132
POTASSIUM	3.5	6	5.1		4.5
CHLORIDE					
C02	8.2				22

Child was managed by reducing the dosage of immunosuppression and adding the IV Ganciclovir for 1 week and we changed it to oral valganciclovir and discharged the child.

DISCUSSION:

In a renal transplant recipients CMV continues to be associated with significant morbidity and mortality. It not only contributes to viral related syndrome and opportunistic infections but also graft rejection and graft loss. The incidence of CMV viremia and disease varies with the reports, because of different antiviral protocols and immunosuppressive strategies. For CMV virus to be taken as positive, we need more than 250 genome copies/ml by quantitative blood polymerase chain reaction (PCR) test. CMV end organ disease was defined as pneumonitis, pancreatitis, colitis, nephritis, hepatitis or myocarditis with the documentation of CMV in the affected tissue (by histopathology, immunohistochemistry and DNA hybridization).

CMV disease during the first year after the renal transplant was rare (approximately 5% of at risk patients)and most of cases after 6 months(3). Periodic CMV viremia in the blood and if virus reaches the threshold and early treatment before the onset of symptoms is mandatory. One of the recent studies suggest that elevated CXCL 10 may be useful marker for CMV screening in the future (4). So in our case constellation of esophagitis with gastric ulcers, pneumonitis, anemia, leukopenia and graft dysfunction was a pointer towards CMV syndrome with end organ damage. Presence of CMV viremia and documentation of inclusion bodies in the oesophageal biopsy was helped in the diagnosis. And also follow up after renal transplant is

very crucial. Rather than giving prophylaxis to all the post-transplant patients it should be individual level. And the risk estimation may be further by performing by CMV specific T cell assays. On could consider an immunosuppressive regimen comprising mTORi (5).

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