commentary

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Pre-Operative Cardiovascular Optimization before Renal Transplantation

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Description

Pre-operative optimization of cardiovascular conditions in patients awaiting renal transplantation significantly improves post-transplantation cardiac complications. We describe a case of symptomatic coronary fistula treated with percutaneous coil embolization in a young adult awaiting renal transplantation. A 28-year-old male presented for a pre-operative assessment in preparation for renal transplantation (RT). He reported intermittent exertional chest pain for the last 6 months. Vital signs were within normal limits and physical examination findings were remarkable only for an arteriovenous dialysis fistula. He had a history of medullary cystic kidney disease type 1 complicated by end-stage renal disease requiring hemodialysis for the previous 6 years. A regadenoson nuclear stress test result revealed a moderate zone of inferior wall myocardial ischemia. Coronary angiography revealed a right-dominant system with a large coronary artery fistula (CAF) originating from the conus branch of the right coronary artery with a superior take-off to the pulmonary artery Angiography did not demonstrate coronary artery disease. It was decided to pursue percutaneous coil embolization of the CAF. After multiple Azur Cx peripheral coils (Terumo, Somerset, New Jersey) were successfully deployed, the CAF was sealed, and the patient was discharged home with a prescription of aspirin (81 mg) for 30 days He underwent successful nonliving-donor renal transplantation 2 months after, with no perioperative cardiovascular complications at the 2-month follow-up [1].

Herpes zoster (HZ, shingles), characterized by neuralgia and a vesicular rash, is due to reactivation of a latent varicella-zoster virus (VZV) infection. Neuralgia can last for months or even years, known as postherpetic neuralgia (PHN). The pain can have a major effect on a patients' quality of life, and is often difficult to treat. After VZV vaccination or a primary VZV infection the virus remains latently present for life in sensory neurons of the dorsal root ganglia [2]. Being intensively treated with immunosuppressive medication, renal transplant recipients are known to be at increased risk of HZ. Incidence is estimated to be 28 to 37 per 1000 person years, which is 6–11 times higher than in the general population. Also, a high prevalence of PHN of up to 48.7% has been reported. Disseminated disease and visceral involvement are rare complications of HZ that occur mainly in immunocompromised patients and may have a lethal outcome. UTI has been reported as the most prevalent infectious complication after-kidney transplantation. This study aimed to evaluate the bacterial urinary tract infection among renal transplant recipients, and causative microorganisms from the Middle East. We searched literatures reporting the prevalence of UTI, bacterial pathogens, and antibiotic resistance pattern from January 1, 2010–May 10, 2020 for patients with renal transplant recipients from the Middle East in international databases. Terms used were; "Urinary tract infection", "UTI", "bacterial pathogens", "bacterial infection", "renal transplant", "kidney transplant", post - renal transplant, "antibiotic resistance", "Middle East", Turkey, Iran, Jordan, Kuwait, Bahrain, Lebanon, United Arab Emirates, Qatar, Cyprus, Yemen, Iraq, Egypt, Palestine, and Syria. Data analyzed using CMA software. The prevalence of UTI among renal transplant recipients from the Middle East varied between 4.5 and 85%. The combined prevalence of UTI was reported by 37.9% (95% Cl: 28.3–48.5). The most prevalent organisms recovered from urine samples of patients with UTI were *E. coli* and *Klebsiella* with prevalence rate of 57.5%, and 15%, respectively. Also, *Coagulase negative Staphylococcus* (15%), and *Enterococci* (11.2%) were the most predominant among Gram positive microorganisms. The most resistance among Gram negative microorganisms belonged to Ceftazidime with frequency of 90% followed by Carbenicillin and Cephalexin with prevalence of 87.3%, and 84%, respectively. The effective antibiotic was Imipenem (15.2%). Regarding the high UTI rate in renal transplant recipients from the Middle East, and the significant presence of both Gram negative and Gram positive microorganisms as the most prevalent uropathogens after renal transplantation should be considered when selecting empirical antibacterial therapy [3].

Polyomavirus viremia

Receiver operator characteristics curve analysis showed a median MGAT3-AS1/beta-actin ratio cutoff value of 4.45 × 10–6 to indicate viremia after transplantation. Samples for 11 of 66 renal transplant recipients (17%) with MGAT3-AS1/beta-actin ratios below 4.45 × 10–6 showed viremia of BK polyomavirus and cytomegalovirus compared with only 6 of 97 renal transplant recipients (6%) with higher MGAT3-AS1/beta-actin ratios (odds ratio [OR]: 3.03; 95% confidence interval [CI]: 1.06–8.67 by Fisher exact test). Furthermore, samples for 6 of 66 renal transplant recipients (9%) with MGAT3-AS1/beta-actin ratios below 4.45 × 10–6 showed BK polyomavirus viremia compared with none of 97 renal transplant recipients (0%) with higher MGAT3-AS1/beta-actin ratios (OR: 20.95; 95% CI, 1.16–378.85 by Fisher exact test). Multivariate logistic regression analysis confirmed that MGAT3-AS1/beta-actin ratios below the cutoff level remained significantly associated with viremia after

transplant. Lower MGAT3-AS1/beta-actin ratios occurred with rituximab-containing induction therapy[4]. 150 recipients were included (79 pre-intervention, 71 post; 51% male). PCA use decreased significantly (81% vs. 4.2%, p < 0.001). Post-intervention, gabapentin, topical lidocaine, and acetaminophen increased significantly (6.3%–69%, p < 0.001, 5.1%–66.2%, p < 0.001, 73.4%–93% respectively, p = 0.003.) PCA use did not impact the amount of opioids prescribed at discharge (median 75 OMEs in both groups). Of patients requiring no opioids on the day prior to discharge regardless of PCA use, 51.5% of pre- and 35.5% of post- were prescribed excess opioids at discharge. Of patients prescribed 1–3 pills on the day prior to discharge regardless of PCA use, 24.2% of pre- and 25.8% of post patients were prescribed excessive opioids at discharge. No data are available on rivaroxaban use in renal transplant recipients and on its surmised interaction with immunosuppressants. The aim was to investigate potential interactions between rivaroxaban and immunosuppressants in this setting. Renal transplant recipients with a stable renal function treated with rivaroxaban and tacrolimus with or without everolimus were investigated. All drugs and creatinine concentrations were determined daily for 2 weeks after the start of anticoagulation. Blood samples were drawn at 8.00 am and 3–4 h later for trough and peak concentrations, respectively. Bleeding and thrombotic events were recorded during a minimum follow-up of 6 months [5]. In 8 renal transplant patients, rivaroxaban levels showed a predictable pharmacokinetic trend, both at Ctrough (30–61 µg/L) and at Cpeak (143–449 µg/L), with limited variability in the 25th–75th percentile range. Tacrolimus (Ctrough 3–13 µg/L; Cpeak 3–16 µg/L), everolimus (Ctrough 3–11 µg/L; Cpeak 5–17 µg/L) and creatinine concentrations were stable as well. Immunosuppressors variability before and after rivaroxaban were 30% and 30% for tacrolimus, 27% and 29% for everolimus, respectively, as well as 14% and 3% for creatinine. For rivaroxaban monitoring, the reference change value better performed in identifying significant variations of its concentration. No patient had bleeding or thrombotic events, worsening of renal graft function, and signs of immunosuppressants toxicity during a mean follow-up of 23 (9–28) months. In conclusion, rivaroxaban does not seem to interact with tacrolimus and everolimus in renal transplant recipients. Both anticoagulant and immunosuppressive effects seem warranted, without major bleeding complications and effect on the graft function.

References

1. Takahashi S (2018) Transcatheter coil embolization of single coronary artery fistula using the occlusion test. Case Rep Cardiol: 1-4.
2. Liu X (2019)The characteristics of coronary-pulmonary artery fistulas and the effectivity of trans-catheter closure: a single center experience. J Thorac Dis, 11 :2808-2815.
3. Bangalore s(2020) Management of coronary disease in patients with advanced kidney disease. N Engl J Med, 382 :1608-1618.
4. Gray NA (2012) McDonald; renal replacement therapy in rural and urban Australia. Nephrol Dial Transplant. 27 :2069–1969.
5. Tonelli M (2006) Alberta kidney disease network. residence location and like- lihood of kidney transplantation CMAJ 175 : 478-482.