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Short Report

The retrospective analysis of urinary tract infection in renal transplant recipients

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Infection is the most common reason for admission to the emergency department in the early period after transplantation. Urinary tract infections (UTIs) in adult kidney transplant patients are common. Their incidence is significantly higher than in the general population.[1] The majority of sepsis cases in this period are composed of UTIs.[2] While mild UTIs generally do not affect graft function, acute pyelonephritis observed in the post-transplant period causes a decrease in graft function and an increase in mortality.[3] In the literature, a small amount of data has been published regarding the incidence, epidemiological features, and risk factors of UTIs in kidney transplant recipients. In this retrospective study, we evaluated the data of 550 patients who underwent kidney transplantation between January 2006 and May 2019 at our center and analyzed UTIs' characteristics.

Among 550 recipients, 633 episodes were detected in 200 patients (36.4%). Recurrent infection was encountered in 74 (37%) of 200 patients. We determined 1 episode in 63 (31.5%), 2 episodes in 39 (19.5%), 3 episodes in 31 (15.5%), 4 episodes in 14 (7%), 5 episodes in 10 (5%), 6 episodes in 8 (4%), and 7 or more episodes in 35 (17.5%). While 48.3% (n=306) of 633 episodes were asymptomatic bacteriuria, 51.6% (n=327) was symptomatic. The risk factors for UTI were female gender, the advanced age of transplant and advanced donor age, long-term dialysis period before transplant, prolonged urinary catheterization and hospitalization time after transplant, cytomegalovirus infection, vesicoureteral reflux, and neurogenic bladder history. At the survival analysis, a transplant from living donor, female gender, use of tacrolimus, mycophenolate mofetil and corticosteroid combination as maintenance immunosuppressive therapy, preemptive transplant compared to

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patients receiving peritoneal dialysis was found to be associated with longer survival; advanced age of transplant, obesity, delayed graft function, acute rejection, diabetes mellitus and a history of cytomegalovirus infection was also associated with a shorter life span. Escherichia coli (64.9%) and Klebsiella pneumonia (51.6%) were the most common causative microorganisms, and ESBL (Expanded Spectrum Beta-Lactamase) was positive in 19.9% and 67.5% of them, respectively.

Similarly, female gender, the advanced age of transplant, prolonged catheterization time, history of vesicoureteral reflux, neurogenic bladder, acute rejection, and deceased donor were dependent risk factors for developing of UTI in transplant recipients in other studies,[4-6] but not body mass index, history of diabetes mellitus, dialysis type and duration, primary kidney disease, donor type, delayed graft function, and history of acute rejection in another study.[7] UTI frequency in the female gender increases due to anatomical differences such as the shorter urethra compared to men and its relative proximity to the perianal region and vulva, as in the general population. Age-related changes in the urinary tract and existing additional diseases are important factors that predispose to bacterial colonization. Prolonged urinary catheterization and hospitalization durations facilitate pathogen entry into sterile body parts in the post-operative period. Immunosuppression, frequent hospitalizations, and surgical interventions increase the risk of nosocomial infections in dialysis patients. A history of vesicoureteral reflux facilitating bacterial invasion and a neurogenic bladder causing urinary stasis poses a UTI risk.

Hospitalizations for septicemia are most commonly associated with UTI.[8] In our cohort, antibiotics in the carbapenem group, started in more than half of the episodes. There is an increase in trimethoprim/sulfamethoxazole, ciprofloxacin and ceftazidime resistance in Klebsiella species.[9] Although the microorganism spectrum in the studies is similar all world, ESBL positivity is noticeably higher than the average in UTI episodes is an observation in parallel with the increasing antibiotic resistance both in our country and in the world in recent years. This observation was considered as a cautionary finding for the review of antibiotic selection preferences in our clinic. Finally, UTIs being a threat to graft and patient survival in the post-transplant period should be treated effectively by carefully evaluating risk factors.

Conflict of Interests

Authors declare that there are none.

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