

BRIEF REPORT

The Reasons of Renal Transplant Recipients' Admission to the Emergency Department; a Case Series Study

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Abstract: **Introduction:** Renal transplantation are admitted to emergency department (ED) more than normal population. The present brief report aimed to determine the reasons of renal transplant patient's ED visits. **Methods:** This retrospective case series study analyzed the reasons of renal transplant recipients admission to one ED between 2011 and 2014. The patient data were collected via a checklist and presented using descriptive statistics tools. **Results:** 41 patients with the mean age of 40.63 ± 10.95 years were studied (60.9% male). The most common ED presenting complaints were fever (36.6%) and abdominal pain (26.8%). Infections were the most common final diagnosis (68.3%). Among non-infectious causes, the most common was acute renal failure (9.7%). 73.2% of the patients were hospitalized and no cases of graft loss and mortality were seen. **Conclusion:** The most common reason for ED admission was fever, and infections were the most common diagnosis. Acute gastroenteritis being the most frequent infection and among non-infectious problems, acute renal failure was the most frequent one.

Keywords: Kidney transplantation; patient readmission; emergency service, hospital; epidemiologic studies

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1. Introduction

Since the introduction of highly effective immunosuppressive agents, organ transplant patients survive significantly longer and the number of patients with successful kidney transplantation is increasing worldwide. However, immunosuppressive therapies raise other distinct health problems that necessitate such patients visiting emergency departments (ED) with a variety of presentations. They are admitted to EDs more frequently and with more complex issues (1). Lack of sufficient knowledge and experience of approach to renal transplant recipients in ED poses a major problem in management of these patients (2). Emergency physicians

should be familiarized with major complications and ways to manage the emergent problems of the mentioned patients (2). They may admit to ED for issues either related or not related to renal transplantation including acute rejection episodes, infections, cardiovascular diseases, side effects of immunosuppressive drugs, and the problems of renal transplant surgery (1-3). It is important to distinguish transplantation related issues due to their vital importance in protection of graft. Surprisingly, there are very few studies on the subject, most of which emphasize the importance of infections in renal, liver and heart/lung transplant recipients (2, 4, 5). In a study, the causes of renal transplant patients death were found to be infections with 69.6%, cardiovascular diseases with 12.7% and acute rejection with 6.9%, respectively (6). Based on the above-mentioned, the aim of the present brief report is to determine the reasons of renal transplant patient's ED visits and highlight the importance of preparedness for dealing with them.

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2. Methods

This retrospective case series study analyzed the reasons of renal transplant recipient's admission to the ED of Sanko University Hospital, Gaziantep, Turkey. 41 patients, who underwent renal transplantation between 2011 and 2014 were enrolled. The patient data were collected from clinical files and electronic medical records via filling out the initially prepared checklist including demographic characteristics (age, sex), ED presenting complaints, number of ED admissions, donor type, consulting services, as well as patient disposition and final diagnosis and outcome (mortality, graft loss). The data were entered to a pre-designed database and analyzed with SPSS 13.0 statistical software. Data are presented as mean \pm standard deviation or frequency and percentage. The researchers adhered to the principles of Helsinki Declaration and research ethics and kept patient information confidential.

3. Results

160 renal transplants were performed during the study period in the studied center. Among which, 41 (26%) patients with the mean age of 40.63 ± 10.95 years visited the ED at least once (60.9% male). The range of time interval between renal transplantation to ED admission was 1-36 months. The mean duration of ED stay was 2.1 ± 0.69 (1.2 - 3.4) hours. Table 1 presents the characteristics of studied patients. The most common ED presenting complaint was fever, followed by abdominal pain, nausea and vomiting. Table 2 summarizes the final diagnosis of studied patients based on infectious and non-infectious causes. Infections were the most common final diagnosis (28 (68.3%) patients) and the most common infection was acute gastroenteritis detected in 11 (26.8%) patients. Among non-infectious causes, the most common was acute renal failure observed in 4 (9.7%) patients. The mean time interval between ED presentation and disposition was 1.9 ± 0.46 (1.1 - 2.3) hours and 73.2% (30) of the patients were hospitalized. No cases of graft loss and mortality were seen.

4. Discussion

In this retrospective case series, 26% of renal transplant recipients of the hospital visited the ED during 3 years. The most common reason for ED admission was fever, and infections were the most common diagnosis. Acute gastroenteritis being the most frequent infection and among non-infectious problems, acute renal failure was the most frequent one. Infections are among the usual complications of immunosuppressive therapy (7). Previous studies

Table 1: Characteristics of studied patients

Characteristics	Number (%)
Gender	
Male	25 (61.0)
Female	16 (39.0)
Number of ED admissions	
1	22 (53.7)
2	11 (26.8)
3	8 (19.5)
Disposition	
Discharge from ED	11 (26.8)
Hospitalization	30 (73.2)
Donor type	
Cadaveric	21 (51.2)
Living	20 (48.8)
ED presenting complaint	
Fever	15 (36.6)
Abdominal pain	11 (26.8)
Nausea and vomiting	9 (21.9)
Diarrhea	6 (14.6)
Headache	4 (9.8)
Dyspnea	3 (7.3)
Hematuria and dysuria	3 (7.3)
Low back pain	2 (4.9)
Extremity pain	2 (4.9)
Palpitation	1 (2.4)
Hypertension	1 (2.4)
Consultation	
Nephrology	29 (70.7)
Infectious diseases	13 (31.7)
Transplant surgeon	6 (14.6)
Orthopedics	2 (4.9)
Cardiology	1 (2.4)

ED: emergency department.

Table 2: Final diagnosis of studied patients

Diagnosis	Number (%)
Infectious	
Acute Gastroenteritis	11 (26.8)
Upper respiratory tract infection	9 (21.9)
Urinary tract infection	4 (9.7)
Pneumonia	2 (4.8)
Herpes infection	1 (2.4)
Soft tissue infection *	1 (2.4)
Non-infectious	
Acute Renal Failure	4 (9.7)
Acute graft rejection	3 (7.3)
Acute cholecystitis*	2 (4.8)
Wrist fractures*	2 (4.8)
Cardiovascular disease *	1 (2.4)
Anxiety *	1 (2.4)

* Unrelated to transplantation.

have declared infection as the most frequent cause of renal transplant patient's ED visits (2, 3). The most common post-renal transplantation sources of infections are reported to be urinary tract, followed by muco-cutaneous and upper respiratory tract (2, 3, 8-10). However, in the present case



series gastroenteritis was the most frequent infection and about twice Tokalak et al. study (2). This may be due to dietary habits of our patients or quality of food and water they used. However, neither sepsis nor graft loss was developed in any of these patients. Pneumonia was diagnosed in two patients, pneumococcal in one case and atypical in the other. Acute renal failure is a major risk factor of rejection among renal transplant recipients (11). In our study, 4 patients were diagnosed with acute renal failure, 2 of them were diagnosed with acute graft rejection and the other two with immunosuppressive drug toxicity. Acute graft rejections were successfully treated and the patient's blood urea nitrogen and creatinine values reversed to normal and for the two intoxicated patients, immunosuppressive dose adjustment was made. No case of graft loss and mortality was seen. One of the most important causes of mortality in renal transplant patients is cardiovascular diseases (2)(12). The risk of cardiovascular disease in patients with renal transplantation has been reported to be 5 times higher than normal population (1). In this study, one patient presented with chest pain and palpitations, which was diagnosed as supraventricular tachycardia and treated in the coronary intensive care unit. Hospitalization rate of 73.1% in the present case series was high compared to previous studies (2, 13). The reason was the preference of studied center clinicians for inpatient management of renal transplant patients. This study has methodological restrictions, as it is a retrospective case-series with low sample size. In addition, some of the renal transplant patients of the hospital might have been admitted to the EDs of other hospitals and were missed. Despite the mentioned limitations, the findings of this study could be helpful in raising awareness regarding renal transplant complications among emergency physicians.

5. Conclusion

The most common reason for ED admission was fever, and infections were the most common diagnosis. Acute gastroenteritis being the most frequent infection and among non-infectious problems, acute renal failure was the most frequent one.

6. Appendix

6.1. Acknowledgements

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6.2. Author's contributions

All authors passed four criteria for authorship contribution based on recommendations of the International Committee of Medical Journal Editors.

6.3. Conflict of interest

None

6.4. Funding/ Support

None

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