



# Frequency of Urinary Tract Infection by Multidrug Resistance Organisms and its Effect on Graft Function in Renal Transplant Recipients



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Navigating the Threat of MDR UTIs in Renal Transplant Recipients:  
Impacts on Allograft Function

## Introduction

Urinary tract infection is a recurrent complication post renal transplant. It is frequently associated with poor graft outcomes and greater health related expenditures. A dive into this topic will unearth the possible causative agents and their disease patterns which can guide in drafting techniques for increasing renal graft survival.



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## Objective

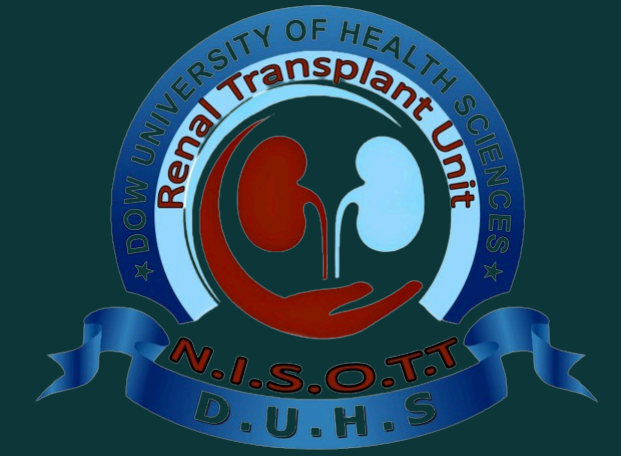
The objective of this study is to determine the frequency of urinary tract infection by multidrug resistance organisms and its effects on allograft function in renal transplant recipients.

## Methodology

In this prospective, cross-sectional study, we screened post renal transplant patients visiting outpatient department with clinical signs and symptoms of urinary tract infection (UTI), defined as fever, frequent micturition, dysuria and urine discoloration. Multidrug resistance (MDR) or extensively drug-resistant (XDR) infections were determined by culture and sensitivity (C/S) and are defined as the organisms resistant to three or more types of antimicrobial drugs.



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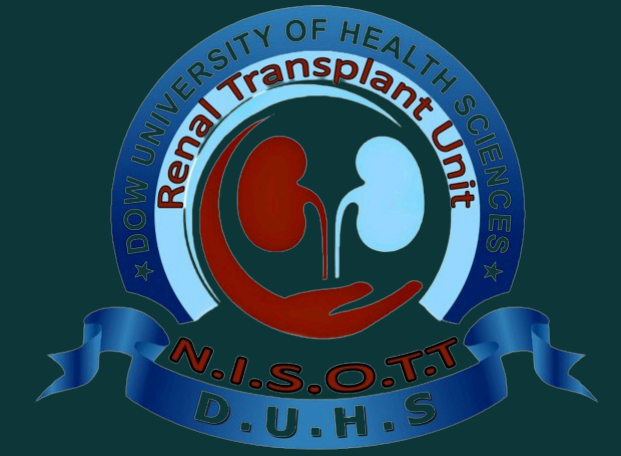
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## Results/Findings

- Among 97 participants, 74.2% (72 patients) presented with clinical UTI.
- 38.9% of these UTIs were caused by MDR gram-negative bacteria, with *Escherichia coli* being the predominant pathogen (46.4%).
- MDR UTIs were associated with resistance to multiple antibiotics including amikacin, amoxicillin, and vancomycin, among others.
- Recurrent UTIs were observed in 9.7% of patients, and 10.7% of those with MDR UTI developed graft pyelonephritis, associated with elevated creatinine levels (>1.5 mg/dL) in the early post-transplant period.



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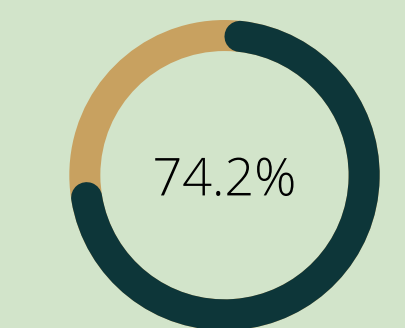


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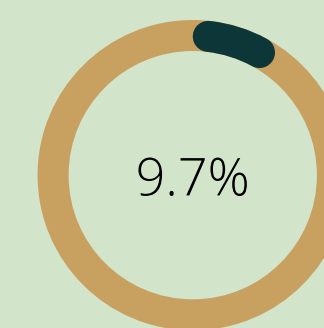
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## Analysis

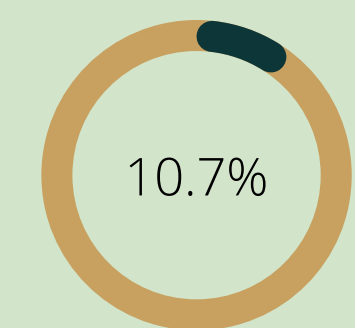
- The study underscores the importance of early detection and management of MDR UTIs to prevent adverse outcomes in renal transplant recipients.
- It highlights the need for tailored antimicrobial strategies that consider the prevalent MDR pathogens within this population.
- The findings advocate for the integration of antimicrobial stewardship programs in transplant care protocols to mitigate the risks associated with MDR infections.



Percentage of UTIs detected in Post Renal Transplant Recipients

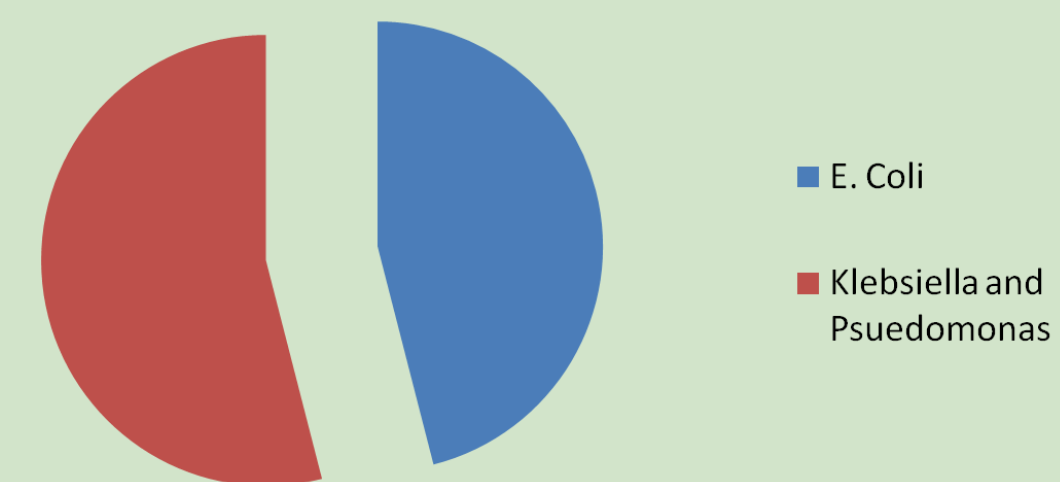


Percentage of Recurrent UTIs in Renal Transplant Recipients



Percentage of Recurrent UTIs in Renal Transplant Recipients

Prevalence of E. coli VS other causative agents

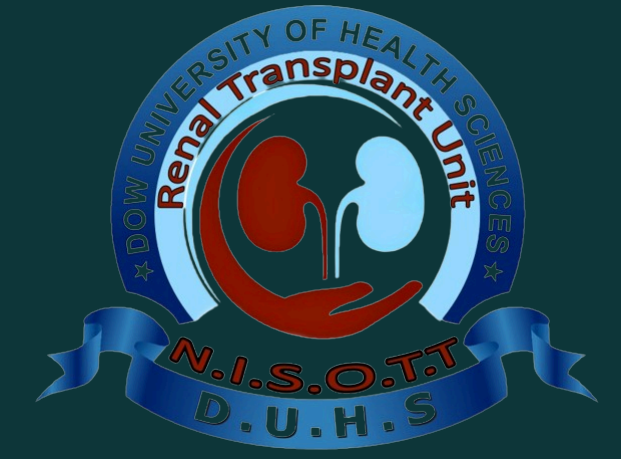


■ E. Coli  
■ Klebsiella and Psuedomonas



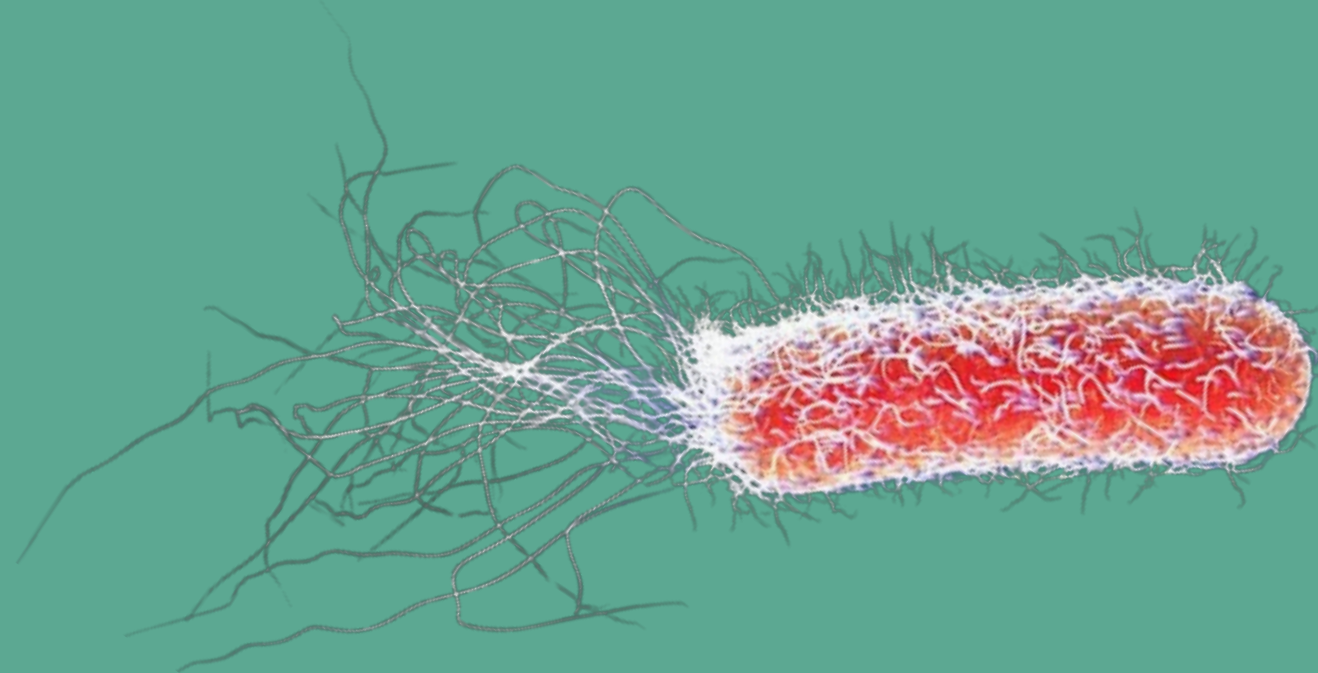


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E. Coli, the most frequent gram negative rod found causing UTI in Post Renal Transplant Recipients

## Conclusion

Gram-negative organisms were the most frequent pathogens associated with MDR UTI and were responsible to affect graft function in renal transplant recipients. Therefore, adequate and vigilant antimicrobial prophylaxis should be considered to minimize the risk of infectious burden and graft rejection in post renal transplant patients.

### Related literature

The transplant procedure itself and subsequent immunosuppression increase the risk of serious infection. The principal factors determining the type and severity of infection are exposure (in the hospital and community) to potential pathogens and the state of immunosuppression. Factors affecting the net state of immunosuppression include the cumulative amount of immunosuppression, recipient comorbidities (e.g., diabetes, UTI), infection of viruses that affect the immune system (e.g., EBV, CMV, human immunodeficiency virus [HIV], HCV), and the integrity of mucocutaneous barriers. (THE KIDNEY by Brenner & Rectors)