

**COMPARATIVE EVALUATION OF URINE ISOLATES IN
KIDNEY TRANSPLANTED AND OTHER UTI SUSPECTED
PATIENTS VISITING NATIONAL PUBLIC HEALTH
LABOLATORY, TEKU**

**A
DISSERTATION
SUBMITTED TO THE CENTRAL DEPARTMENT OF
MICROBIOLOGY
TRIBHUVAN UNIVERSITY**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE AWARD OF THE DEGREE OF
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(MEDICAL)**

**BY
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ABSTRACT

This study was conducted in urine sample of patients visiting National Public Health Laboratory (NPHL), Teku, with an objective to assess the comparative evaluation of urine isolates in kidney transplanted and non- kidney transplanted patients visiting NPHL, Kathmandu, from April 2010 to January 2011, a total of 1233 clinical samples of urine were collected. Prevalence of uropathogens was found to be 14.19% (175/1233). A total of 175 uropathogens of which 16 different species were identified, out of which 12 species from Gram negative 94.29% (165/175) and 4 species from Gram positive 5.71% (10/175) were isolated. In Gram negative the most predominant was *E.coli* 61.14% (n=107), followed by *Klebsiella pneumonia* 12.57% (n=22), *Klebsiella oxytoca* 5.14% (n=9), *Acinetobacter spp*, and *Pseudomonas aeruginosa* 3.43% (n=6). From Gram positive, most prevalent were Enterococci spp 2.29% (n=4), *Staphylococcus aureus*, *Staphylococcus saprophyticus* and *Streptococcus spp* 1.14% (n=2) were equally distributed. Out of total, 439 urine sample from Kidney transplanted patients, only 5.01% (n=22) showed significant growth. The most efficient first line antibiotics for isolates was found to be Ceftriaxone 68.57%, followed by Nitrofurantoin 60%, and in second line antibiotics Ceftazidime – clavunic acid and Amikacin showed susceptibility of 89.55%. In the total 175 uropathogens, 48% (84/175) isolates were found to be MDR positive. In gram negative *Escherichia coli* 53.27 % (57/107) showed highest percent of MDR and in Gram positive Enterococci spp 75 % (3/4) showed highest percent of MDR. For the different factors assessed for the UTI culture positive patients, in age group, 20-30 years was found to have high positive patients. The infection rate was found to be higher in females 57.71% (n=101) than in males 42.29% (n=74). Whereas male of age group 30-40 have higher 13.31% (n=24) positive cases. Association of significant bacteriuria and gender of patients was found to be statistically significant (P<0.05). There was strong association between Transplantation status and infection status (p<0.001).

Key words: Urinary Tract Infection, Kidney transplant, MDR

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LIST OF ABBREVIATIONS

A/A		Acid/Acid
Alk/Acid		Alkali/Acid
ATCC		American Type Culture Collection
BA		Blood Agar
CDU		Central for Disease Control Prevention
CFU		Colony Forming Units
CONS		Coagulase Negative Staphylococci
EC		European Commission
ESBL		Extended Spectrum of Beta –Lactamase
HPF		High Power Field
LF		Lactose Fermenting
MIC		Minimum Inhibitory Concentration
MDR		Multi-Drug Resistance
ASM		American society of microbiology
AST		Antibiotic Susceptibility Test
ATP		Adenosine triphosphate
CDC		Center for disease control
CLSI		Clinical Laboratory Standard Institute
D		Dalton
ETEC		Enterotoxigenic <i>E. coli</i>
EUCAST	-	European Committee of Antibiotic Sensitivity Testing
FDA	-	Food and Drug Administration
GTP	-	Guanosine triphosphate
LPS	-	Lipopolysaccharide
MA	-	MacConkey agar

MHA	-	Mueller Hinton agar
MR	-	Methyl Red
NA	-	Nutrient agar
NCTC	-	National Culture Type Collection
NPHL	-	National Public Health Laboratory
PCR	-	Polymerase chain reaction
RBC	-	Red Blood Cells
RNA	-	Ribonucleic acid
RND	-	Resistance Nodulation Division
SIM	-	Sulfide indole motility
TSI	-	Triple sugar iron
VP	-	Voges Proskaur
WHO	-	World Health Organization