URINARY TRACT INFECTION IN PREGNANT WOMEN AND ANTIBIOTIC SUSCEPTIBILITY PATTERN OF BACTERIAL ISOLATES WITH REFERENCE TO EXTENDED SPECTRUM BETA LACTAMASE PRODUCING STRAINS

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Submitted by

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RECOMMENDATION

This is to certify that **Ms. Rekha Thapa** has completed this dissertation work entitled "**URINARY TRACT INFECTION IN PREGNANT WOMEN AND ANTIBIOTIC SUSCEPTIBILITY PATTERN OF BACTERIAL ISOLATES WITH REFERENCE TO EXTENDED SPECTRUM BETA LACTAMASE PRODUCING STRAINS**" as a partial fulfillment of M. Sc. Degree in Microbiology under our supervision. To our knowledge this thesis work has not been submitted for any other degree.

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ABSTRACT

The objective of this study was to determine the prevalence of urinary tract infection among the pregnant women and antibiotic susceptibility pattern of bacterial isolates with reference to extended spectrum β- lactamase producing strains.

This cross sectional study was conducted at Paropakar Maternity and Women's Hospital, Thapathali, Kathmandu from June to December 2010 among 1720 pregnant women attending their antenatal checkup. Information regarding various characteristics was obtained and urine specimen was processed for isolation of bacteria, performing antibiotic susceptibility test by Kirby-bauer disc diffusion method and ESBL test by Double Disc Synergy Test (DDST) method.

The prevalence of UTI was found to be 30.5%. Majority of the pregnant women were from outpatient department of hospital (65.7%), urban areas of the country (52.3%), age group 21-30 years (74.3%), unemployed (73.3%), literate (88.0%), primiparous (54.3%) and second trimester of pregnancy (48.3%). Parity, education status, occupation of pregnant women, times of bathing, history of UTI, presence of pus cells and RBC in urine was found to be the risk factors of UTI from both univariate and multivariate analysis. *E. coli* (52.0%) was found to be the most predominant isolate and *Pseudomonas aeruginosa* (0.7%) was least one. Gentamicin and amikacin were found to be the most effective antibiotics. About 72.0% of the isolates were found to be multidrug resistant with higher rate in hospitalized patients (84.0%). About 20.0% of *E. coli* and 36.4% of the *Klebsiella pneumoniae* were found to be the ESBL producers.

There is a great need to follow strictly the hospital antimicrobial policy in order to prevent the emergence and dissemination of MDR and ESBL producing microorganisms as they are associated with the treatment failure of UTI.

KEY WORDS: Pregnant women, UTI, multi drug resistant, ESBL

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LIST OF ABBREVIATIONS

BA : Blood Agar

Cfu : Colony forming unit

DDST : Double Disc Synergy Test

DoHS : Department of Health Services

ESBL : Extended Spectrum Beta lactamase

HPF : High power field

ICU : Intensive Care Unit

MA : MacConkey Agar

MDR : Multi Drug Resistant

MHA : Muller Hinton Agar

MIC : Minimum Inhibitory Concentration

Ml : Mililitre

Mm : Milimeter

MSU : Mid Stream Urine

NA : Nutrient Agar

NCCLS : National Committee for Clinical Laboratory Standards

O/F : Oxidative/Fermentative

R/Y : Red/Yellow (Alkali/Acid)

SIM : Sulfide Indole Motility

TSI : Triple Sugar Iron Agar

TUTH : Tribhuvan University Teaching Hospital

UTI : Urinary Tract Infection

VP : Voges-Proskauer