PATTERN OF BACTERIAL FLORA IN VARIOUS OUT PATIENT DEPARTMENTS OF TUTH

A

Dissertation

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In Partial Fulfillment of the Requirements for the Award of the Degree of

Master of Science in Microbiology

(Environment and Public Health)

by

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RECOMMENDATION

This is to certify that Ms. Rachana Manandhar has completed this dissertation work entitled "**Pattern of Bacterial Flora in Various Out Patient Department of TUTH**" as a partial fulfillment of M. Sc. degree in Microbiology under our supervision. To our knowledge, this work has not been submitted for any other degree.

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CERTIFICATE OF APPROVAL

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ABSTRACT

A cross sectional study was conducted during April to July 2005 with the aim to access the pattern of bacterial flora prevailing in air and various inanimate samples of 10 out patient departments of TUTH. Culture, microscopy and antibiotic susceptibility testing of potentially pathogenic isolates were done. Altogether 281 samples collected from new and used bed sheets, health care personnel's apron, air and equipments used for treatment of patients.

In 56 samples of new bed sheets and 64 samples of used bed sheets, the most predominant organisms were Coagulase negative Staphylococci (94.6%) and *Staphylococcus aureus* (96.8%) respectively. Out of 76 apron samples collected from health care personnel, the most predominant organism was CoNS (98.6%).

Among 10 air samples collected by gravity settling method for 5 minutes, air was found to harbor predominantly Gram positive microorganisms (CoNS, *S. aureus*, *Bacillus* spp., Micrococci) in comparison to relatively fewer Gram negative microorganisms.

In 23 samples collected from Dental department, CoNS was the most predominant organism. Similarly, in 15 sterilized samples collected from endoscopy department, CoNS and non haemolytic *Bacillus* spp. were present in 4 samples each, *S. aureus* in 3 samples, haemolytic *Bacillus* spp. and *Acinetobacter* spp. in 1 sample each. Likewise, in 12 sterilized samples collected from ENT department, CoNS was present in 6 samples, *S. aureus* was present in 5 samples. Haemolytic *Bacillus* spp., non haemolytic *Bacillus* spp. and *Micrococcus* spp. in 3 samples each. And *Pseudomonas* spp. was present in 2 samples. In 17 samples collected from general surgery department, the predominant organisms were *S. aureus* and CoNS. Similarly, among the 9 sterilized speculum samples collected from gynaecology department, CoNS was present in 7 samples and *S. aureus* was present in 2 samples. Similarly haemolytic and non-haemolytic *Bacillus* spp. in 4 samples each.

Antibiotic susceptibility tests of 207 *S. aureus* isolates showed that Cephalexin was the most effective drug and least effective was Ampicillin Similarly, for 45 isolates of *Acinetobacter* spp., Gentamicin was found to be the most effective drug and the least effective was Ciprofloxacin.

Since infections transmitted in outpatient settings are not systematically monitored like in inpatient departments, this study supports that outpatient facilities should be considered as the part of the inpatient facilities of the hospital so far as infection control activities are concerned. Thus the study provides a good basis for further detailed studies of this kind on a regular basis as a part of hospital acquired infection control program.

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LIST OF ABBREVIATIONS

AIDS	Acquired immune deficiency syndrome
AK	Amikacin
AMP	Ampicillin
AST	Antimicrobial susceptibility testing
ATCC	American type culture collection
BA	Blood agar
CDC	Center of disease control and prevention
CFU	Colony forming unit
CIP	Ciprofloxacin
CL	Cephalexin
Co	Co-trimoxazole
CoNS	Coagulase negative *S. aureus*
E	Erythromycin
HAI	Hospital acquired infection
HCW	Health care worker
IV	Intra venous
MA	MacConkey agar
MHA	Mueller Hinton agar
MRSA	Methicillin resistant *S. aureus*
MSA	Mannitol salt agar
NA	Nutrient agar
NCCLS	National committee for clinical laboratory standard
NNIS	National nosocomial infection surveillance
OB	Cloxacillin
OPD	Out patient department
SARS	Severe acute respiratory syndrome

TU	Tribhuvan university
TUTH	Tribhuvan university teaching hospital
USA	United States of America
VRE	Vancomycin resistant entericocci
WHO	World health organization

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