BACTERIOLOGICAL PROFILES OF TRACHEAL ASPIRATES OF PATIENTS ATTENDING NATIONAL INSTITUTE OF NEUROLOGICAL AND ALLIED SCIENCES

A

Dissertation

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Master of Science in Microbiology

(Medical)

By

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RECOMMENDATION

This is to certify that **Mr. Pratirodh Koirala** has completed this dissertation work entitled "BACTERIOLOGICAL PROFILES OF TRACHEAL ASPIRATES OF PATIENTS ATTENDING NATIONAL INSTITUTE OF NEUROLOGICAL AND ALLIED SCIENCES" as a partial fulfillment of M.Sc. Degree in Microbiology under our supervision. To the best of our knowledge, this is an original research work of his and has not been submitted for any other degree.

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ABSTRACT

National Institute of Neurological and Allied Sciences is the only super specialty hospital in Nepal. The hospital was constructed to treat traumatic and seriously ill Neurological patients and has saved life of several hundred such patients. Tracheostomy is performed to provide enough air to lung when patients can not respire in normal way. The tracheostomised patients have weak immune system due to impaired bronchociliary escalator so they are colonized by gram negative aerobic bacteria which lead to tracheobrochitis or pneumonia but there was no data suggesting bacteriological profile in tracheal aspirates. So the aim of the study was to isolate and identify the potential pathogen causing post tracheostomy infection. A prospective study was carried out during April 2008-February 2009 based at National Institute of Neurological and Allied Sciences, Kathmandu. Tracheal aspirates of 50 tracheostomized patients were collected and analyzed. Out of the 50 cases, 45 cases showed bacterial growth. Sixty seven isolates were identified; some cases were poly-microbial (20, 44.45%). *Pseudomonas aeruginosa* and enteric gram negative bacteria were most predominant bacteria (27; 40.30%) followed by *Staphylococcus aureus* (7; 10.45%), Viridans *Streptococus* (2; 2.98%) and other Gram negative bacteria (4; 5.96%). The isolates of *P. aeruginosa* were most sensitive to the Amikacin (81.48%, 22) followed by Ciprofloxacin (70.37%, 19). All were resistant to the Cephotaxime. The isolates of enteric gram negative bacteria were sensitive to Amikacin and Chloramphenicol (74.07%) and all were resistant to Ampicillin and Cephalexin. All the gram positive bacteria isolated were sensitive to Vancomycin. Among the total isolates, 88.88% (24 isolates) of *P. aeruginosa*, 66.66% (19 isolates) of enteric gram negative bacteria, and 55.55% (5 isolates) of Gram positive bacteria were multi-drug resistant. The study showed alarming condition of MDR in tracheal aspirates indicating need of surveillance for MDR and timely intervention for control.

Key words: Tracheal specimen, Bacteriological profile, MDR.

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LIST OF ABBREVIATIONS

A. calcoaceticus	*Acinetobacter calcoaceticus*
ASM	American Society of Microbiology
BA	Blood Agar
CA	Chocolate Agar
CAP	Community Acquired Pneumonia
CNS	Central Nervous System
E. coli	*Escherichia coli*
EGNB	Enteric Gram Negative bacteria
GPB	Gram positive bacteria
GNB	Gram negative bacteria
HAP	Hospital Acquired Pneumonia
H influenzae	*Haemophilus influenza*
ICU	Intensive care unit
MA	Macconkey Agar
M. catarrhalis	*Moraxiella catarralis*
MHA	Mueller Hinton Agar
MDR	Multi Drug Resistance
MRSA	Methicillin Resistant Staphylococcus aureus
K. pneumonaie	*Klebsiella pneumoniae*
K. oxytoca	*Klebsiella oxytoca*
P aeruginosa	*Pseudomonas aeruginosa*
PAE	Post antibiotics effect
PMN	Polymorpho nuclear
RTA	Road traffic accident
S aureus	*Staphylococcus aureus*
S. viridans	*Streptococcus* viridans

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