

**Prevalence of *Acinetobacter* species in Intensive care
units**

Thesis

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By

Sylvana Nady Gaber

M.B.B.Ch

Supervised By

Prof. Dr. Reda Mikhail Iskandar

Professor of Medical Microbiology and Immunology

Faculty of Medicine

Cairo University

Ass. Prof. Dr. Nadia Hafez Salah El-din Auda

Assistant professor of Medical Microbiology and Immunology

Faculty of Medicine

Cairo University

Dr. Rasha Hamed Bassyouni

Lecturer of Medical Microbiology and Immunology

Faculty of Medicine

Fayoum University

Faculty of Medicine

Cairo University

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Summary of Master

Prevalence of *Acinetobacter* species in Intensive care units

Introduction

Acinetobacter spp. has emerged as an important nosocomial pathogen that is often Multidrug resistant and associated with life threatening infections. *A.baumannii* a clinical important spp. has tendency toward cross transmission particularly in Intensive care units (ICUs). *A.baumannii* is emerging as a cause of numerous global outbreaks.

Aim of the work:

To detect prevalence of *Acinetobacter* infection in ICU of Kaser EL-Aini Hospital, its demographic features, speciation and antibiotics sensitivity pattern.

Patients and Methods:

-The study involved 140 inpatients, who devolved clinical evidence of infection (76 from medical ICU, 64 from surgical ICU).

-Demographic data of each Patients were collected and clinical characters were reported. Different type of specimens were collected: sputum or secretion from Endotracheal Tube aspirate, infected wound swabs and Urine

-Samples were cultured on blood, MacConkey and Herelle media. Identification of isolated organism by: Microscopic examination oxidase test

-For species level Microbact 12A Gram negative identification system was used.

-Antimicrobial susceptibility testing of *Acinetobacter* strains using disc diffusion method according to CLSI 2003 were performed.

Results:

-166 specimens were collected from 140 patients: 67 ETT aspirates (40.4%), 38 urine (22.9%), 32 wound exudates (19.3%)

21 swabs from bed sore (12.6%) and 8 sputum (4.8%).

-Samples collected from 126 patients (90%) showed growth one or more pathogenic organisms, while from other 14 patients (10%) showed no growth

-*Acinetobacter* spp. were isolated as a single pathogen from (21.4%) of patients. 55.7% of patients suffered from infection caused by a single pathogen other than *Acinetobacter* spp. While 12.9% of patients suffered from infections caused by more than one pathogen. 148 organisms were isolated, Gram negative (83.8%) followed by Gram positive organisms (10.1%) and *Candida* spp. (6.1%).

-The most common isolated pathogen was *A.baumannii* (18.9%) followed by *Ps.aeruginosa* (17.6%), *K.pneumoniae* (16.9%) and *Ecoli* (12.8%). The incidence of *Acinetobacter* spp. was 20.3% (*A.baumannii*:18.9%, *A.haemolyticus*, *A.lwoffii* 0.7% for each).

- The predominant type of infection were Lower respiratory tract infection (LRTs) (41.2%) followed by wound infection (32.4%) and Urinary tract infections (UTIs) (23.4%). In LRTs (*A.baumannii* and *K.pneumoniae* were the most frequent isolated pathogen (23% for each). In wound infection, *Ps.aeruginosa* was the predominant (25%) followed by *A.baumannii* and *K.pneumoniae* (16.7%), while in UTIs *Ecoli* was the comments isolate (25.6%) followed by *candida* spp. (23.1%).

-Among the 30 patients infected by *Acinetobacter* spp.: 46.7% were between 31-60 years old, higher incidence were in male (63.3%) more than female (36.7%).

-*Acinetobacter* spp. were responsible for 26.3% of LRTs, 20% of wound infection, and 16.2% of UTIs.

-It was found that prolonged stay in ICU ($p=0.03$), mechanical ventilation ($p=0.05$), and stroke ($p=0.005$) were significantly associated with *Acinetobacter* infection. Previous antibiotics treatment (OR=1.3) also urinary catheterization were other risk factors associated with *Acinetobacter* infection (OR=1.07)

-The most effective antibiotics for *Acinetobacter* infections were Cafperazone/sulbactam (40%), Imipinem (36.7%), and Amikacin (30%). On the other hand strains were 100% resistant to Cefazolin and cefuroxime and highly resistant (83.3-96.7%) to other antimicrobial agents.

Recommendations:

-The increase prevalence of infection in ICU patients create demand for strict screening and infection control strategies as transfer infected or colonized patients to an isolated cubicle, cohort nursing ,disinfection of equipment as ventilators, use antibiotics with caution, education and awareness among HCWs to reduce frequency of Nosocomial infection of *Acinetobacter* spp. in ICUs.

