ORIGINAL ARTICLE

Antibacterial Susceptibility Patterns of Nonfermenting Gram-Negative Bacilli among Patients in a Tertiary Care Hospital, Jaipur

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Abstract. Introduction: *In recent decades, infections caused by Pseudomonas aeruginosa and Acinetobacter baumannii have also occurred outside the intensive care unit (ICU), affecting patients with comorbidities in the community. Most of the nonfermenting Gram-negative bacilli (NFGNB) cause nosocomial bloodstream infections, particularly in debilitated and immunocompromised hosts. Our study aimed to find out the antibacterial susceptibility patterns of NFGNB isolates in the clinical samples.* ***Materials and methods:*** *The study included all NFGNB isolates from various clinical samples that the clinical microbiology laboratory received from inpatients and outpatients at Mahatma Gandhi Medical College and Hospital in Jaipur, Rajasthan, India. Routine microscopy of samples was done. We performed Gram staining on all samples, with the exception of urine. We inoculated all clinical samples on blood agar and MacConkey agar, then incubated them at 37°C for 18-24 hours. Colony characteristics were observed. All organisms that generated pale or colorless colonies on MacConkey agar and exhibited Gram-negative bacteria upon Gram staining of the colony were classified as non-fermenting Gram-negative bacteria (NFGNB) and subsequently identified using the VITEK-2 compact system.* ***Results.*** *We identified 879 NFGNB isolates from a total of 10,707 clinical samples. Of these, 415 (47.21%) were Pseudomonas aeruginosa and 378 (43.2%) were Acinetobacter baumannii. The majority of isolates were from males in the age group of 61-70 years (13.76%), followed by the age group 41-50 years (12.85%). Pseudomonas aeruginosa was most commonly isolated from pus swab (13.42%), and Acinetobacter baumannii was isolated most commonly from endotracheal secretions (21.4%).* ***Conclusions.*** *Increasing antibiotic resistance will lead to challenges in managing all NFGNB unless appropriate measures are implemented and novel medications are developed. In order to prevent the spreading of resistant Pseudomonas aeruginosa and Acinetobacter strains, infection control measures should be taken, clinicians and laboratory workers should cooperate during antibiotic use, and hospital hygienic rules should be observed.*

Keywords*: nonfermenting Gram-negative bacilli; antimicrobial susceptibility; Pseudomonas aeruginosa; Acinetobacter baumannii*

1. INTRODUCTION

Nonfermenting Gram-negative bacilli (NFGNB) are a heterogeneous group of aerobic, non-sporing bacteria that do not metabolize glucose as an energy source or do it oxidatively. They represent approximately one-fifth of all Gram-negative bacilli (GNB) [1] and are found as saprophytes in nature, inhabiting soil and water, and also as commensals in people and animals. Despite their frequent isolation as incidental organisms, the advent of antibiotic resistance and patients with reduced immune responses have led to their increased frequency as pathogens. Non-fermenters (NFs)