CRACKING THE CODE OF RESISTANCE: CARBAPENEM-RESISTANT URINARY TRACT INFECTIONS IN PUBLIC AND PRIVATE HOSPITALS

Shaista Bakhat[1], Fakhur Uddin [2], Muhammad Sohail [3], Shehla M. Baqai [4], Naresh Kumar[5], Saman Nadeem[6]

BASIC MEDICAL SCIENCES INSTITUTE (BMSI) Jinnah Postgraduate Medical College (JPMC), Karachi

Abstract

Introduction: The rapid rise of antimicrobial resistance, especially in carbapenem-resistant Enterobacterales, now poses a severe challenge to healthcare systems. UTIs remain the most prevalent global infections, intensifying clinical burden as resistance heightens morbidity and mortality. Although carbapenems once served as the final defence against ESBL-producing and multidrug-resistant uropathogens, emerging resistance has sharply restricted therapeutic options.

Objectives:

The aim of our research was to analogize the line of resistance of carbapenem antibiotics in Enterobacterales uropathogens between two health-care facilities.

Methods:

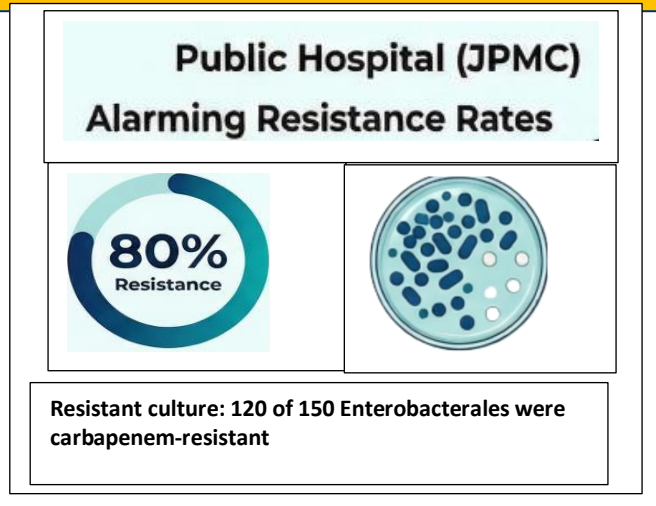
A total of 374 UTI patients were enrolled, equally distributed (187 each hospital)

Phenotypic susceptibility testing to detect carbapenem resistance, was supplemented by molecular assays

Statistical analysis, including multivariate logistic regression, was performed to identify associations between hospital type

Results: Of 374 urine samples (187 each from JPMC and NMC), CA-UTIs were found in 86 (23.1%) and 90 (24%), while HA-UTIs occurred in 101 (26.9%) and 97 (26%) cases, respectively.

Results



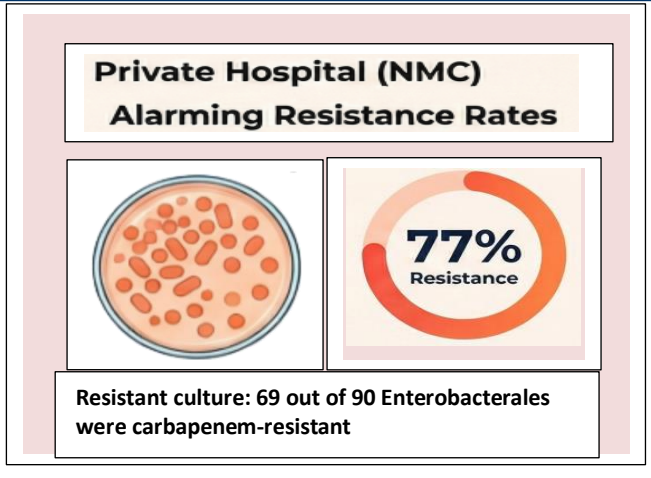
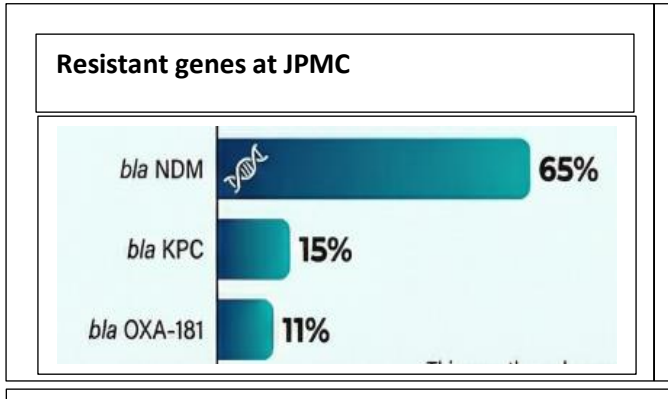
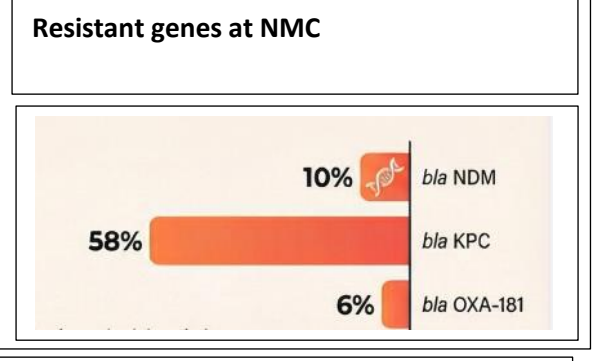


Figure 1: Prevalence of Enterobacterales uropathogens at JPMC n=150 and NMC n=90





CONCLUSION

The study revealed an alarmingly high prevalence of carbapenem resistance across both healthcare settings. *bla*NDM-producing organisms were more frequently identified in the public sector, whereas *bla*KPC-harboring pathogens predominated in the private-sectors.