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MULTIDRUG-RESISTANCE ACINETOBACTER BAUMANNII PNEUMONIA IN A MEDICAL STABLE DIALYSIS PATIENT, DAR-ES-SALAAM TANZANIA: A CASE REPORT

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ABSTRACT

Background: Bloodstream infection caused by multidrug –resistance *Acinobacter baumanii* (MDRAB) has become a major clinical concern. Patients with chronic kidney disease, particularly those with end-stage renal disease who require dialysis and/or kidney transplantation, have some of the highest rates of colonization and infection with antimicrobial resistance worldwide. Antimicrobial resistance limits treatment options and increases the risk of infection-related morbidity and mortality. The requirement to use alternative antibiotics is concern regarding the emergence of isolate resistance in Chronic Kidney disease (CKD) patients. This highlights the dire need for new treatment options as well as consistent implementation and improvement of basic infection prevention practices. Clinicians involved in the care of patients with renal disease must be familiar with the local epidemiology of antibiotic resistance, remain vigilant for the emergence of novel resistance patterns and adhere strictly to practices proven to prevent transmission of antibiotic resistance microbes and other pathogens. **Case Presentation:** This report multidrug –resistance Acinobacter baumanii (MDRAB) isolated from blood sample of a 74-year-old female who is permanently catheterized undergoing dialysis treatment at hospital in Dar-es-salaam, Tanzania. **Conclusions:** We have isolated a multidrug resistance *A. baumannii* in a medical stable dialysis patient diagnosed with pneumonia. Health care associated infections of MDR *A.baumanii* are critical problem in these patients; therefore, urgent focused intervention to contain the spread of MDR nosocomial infection is needed. Treatment of dialysis patient should be guided by antimicrobial susceptibility testing.

KEYWORDS:

INTRODUCTION

Acinetobacter baumannii is one among the six most vital multidrug-resistant (MDR) microorganisms isolated in hospitalized patients worldwide, having a unprecedented capacity to spread to different areas.[1] Currently effective treatment of infections caused by *A. baumannii* has been challenged by the acquired resistance to antibiotics including carbapenems and even polymyxins.[2] World Health Organization considered *A. baumannii* one of the most critical pathogen in the global priority list of antibiotic-resistant bacteria.[3] Nosocomial isolates of MDR A.baumanii complicated the treatment infections and had adverse effect of clinical outcome and increases patient treatment costs. Multi-Drug resistance A.baumanii survive in hospital settings can be transmitted between patients through hands of health care workers.[4] little has been reported on the epidemiology and antibacterial susceptibility profile of A. baumannii in Tanzania. Here, we report a Multidrug-resistance Acinetobacter baumannii Pneumonia in a medical stable dialysis patient, Dar-es-salaam Tanzania

CASE PRESENTATION

On February 25, 2020, we received a blood sample of a 74-year-old with a history of thermoregulatory disorders and use long-term hemodialysis catheter. Blood culture was ordered following her not responding to treatment, which was initiated after she was diagnosed with Pneumonia. Blood samples were collected in BD BACTEC standard 10 Aerobic/F bottle, followed by incubation in BD BACTEC for a maximum of 5 days. Gram stain was used to differentiate Gram-positive and Gram-negative bacteria from culture. Positive blood cultures was detected and therefore inoculated on blood agar, chocolate agar and MacConkey agar and incubated for 18–24 h at 37 °C with 5% CO2. Bacteria were isolated from culture by picking single colonies and sub culturing onto purity plate (Blood agar) overnight. From the purity plate, morphology determination and gram

stain was made followed by microscopic examination. Analytical Profile Index, API 20E and/or API NE 20 (bioMérieux) was used to identify Gram-negative bacteria isolated.[5-7]

Drug susceptibility testing was carried out using the disc diffusion method according to the Clinical and Laboratorial Standards Institute for the following drugs: Amikacin, Cefepime, Ceftazimidine, Ciprofloxacin, Doripenem, Meropenem, Gentamycin, Imipenem, Pip-tazo, Tobramycin and Colistin. The E-test was performed for Colistin susceptibility testing (resistance was considered at a minimum inhibitory concentration (MIC) ≥ 4 µg/mL). Multi-drug resistance was defined as resistance to three or more classes of the drugs tested.[6-10]

Results were as follows;
ID: Acinetobacter baumanii.

Amikacin	R
Cefepime	R
Ceftazimidine	R
Ciprofloxacin	R
Doripenem	R
Meropenem	R
Gentamycin	R
Imipenem	R
Pip-tazo	R
Tobramycin	R
Colistin MIC =1	S

R= Resistant S=sensitive

DISCUSSION AND CONCLUSION

Little information is available in the literature regarding *A. baumannii* among dialysis patients in Tanzania. A recent report mentioned vulnerability of acquiring MDR strain among hospitalized patients with open wounds and other chronic condition due to long hospital stay,[12] Other studies have reported 3-4% of patients infected with nosocomial MDR *A.baumanii*.[13] This indicates that MDR A.baumanii could be among the major health problem in clinical settings . Long hospital stay, chronic diseases, High patient Load, overcrowding, poor infrastructure and poor infection control might be the possible explanation.

In this report, MDR *A baumanii* was isolated in dialysis patient, which is in consistent to many other reports in Africa that has noted increase in prevalence of MDR among patient undergoing dialysis.

In most setup antimicrobial sensitivity test to guide management dialysis patient are rarely performed in due to, among others, the lack of resources and trained patient. This case report reveals how culture and sensitivity can aid in drug selection for managing microbial infection among dialysis patients. We recommend that effort to improve rational use of antibiotic and minimize death due to microbial resistance is mandatory this entail that treatment of dialysis patient should be guided by antimicrobial susceptibility testing

Availability of data and materials
The datasets supporting the conclusions of this article are included with in the article (Tables 1).
Abbreviations
API = Analytical Profile Index
MDR= Multiple drug resistance
MDRAB= Multiple drug resistance Acinetobacter baumannii
HQ= Head Quarter
R= Resistance
S= Sensitive
CKD= Chronic Kidney Disease
MIC= Minimum inhibitory Concentration
BD= Benson Dickson

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SR, SK and FM designed the study. IS and HK conducted laboratory test, GG, VN and LK searched the literature and extracted data, SR drafted the manuscript, which all authors revised. All authors read and approved the final version of the manuscript.

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Ethics declarations
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Not applicable.

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Not applicable.

Competing interests
The authors declare that they have no competing interests.

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