Iran J Public Health, Vol. 50, No.4, Apr 2021, pp.850-851

Letter to the Editor

Molecular Typing of Clinical Isolates of *Acinetobacter baumannii* Using Random Amplified Polymorphic DNA (RAPD-PCR)

Fatemeh Mohammadi [1], ***Pezhman Karami*** [1], ***Mohammad Reza Arabestani*** [1], ***Azad Khaledi*** [2,3], ****Mohammad Youssef Alikhani*** [1]

1. *Department of Microbiology, Faculty of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran*
2. *Infectious Diseases Research Center, Department of Microbiology and Immunology, Faculty of Medicine, Kashan University of Medical Sciences, Kashan, Iran*
3. *Department of Microbiology and Immunology, Faculty of Medicine, Kashan University of Medical Sciences, Kashan, Iran*

***Corresponding Author:** Email: alikhani43@yahoo.com

(Received 12 Sep 2019; accepted 22 Sep 2019)

Dear Editor-in-Chief

Today, *Acinetobacter baumannii* is one of the most important pathogens in the development of hospital infections. This organism is responsible for creating 2 to 10% of all infections created by Gram-negative organisms in intensive care unit (ICU) (1). During the last decade, the prevalence of hospital-acquired infections due to this bacterium has increased significantly, especially in patients admitted to ICU, burn, and surgery wards. Patients admitted to these wards are exposed to organisms such as *Acinetobacter* owing to the complexity of their care and their particular conditions, as well as the use of various medical equipment during treatment.

A. baumannii through the equipment related to the respiratory system and the infected catheters causes a wide range of infections, including urinary tract infections, pneumonia, and secondary meningitis, and blood infections (2).

Following the prevalence and recurrence of *A. humannii*-associated infections that occur in different wards of the hospital, such as the ICU, and because the source of the outbreak can be from different regions and places, therefore, finding the sources of the infection by different methods including molecular methods are very important. Identification of different types of organisms within a species is called typing (3). Typing of bacterial isolates is an important process in the diagnosis, treatment and epidemiological researches. The RAPD method is widely used to study the genetic structure of the population, mutation, genetic mapping, and phylogenetic analysis of species diversity (4).The purpose of this study was typing of *A. baumanni* isolates by RAPD-PCR method.

This study carried out on ۴۸ *A. baumannii* isolates recovered from patients admitted in the Surgical Ward, Hamadan. Detection of isolates was performed using phenotypic methods and final approval fulfilled by tracking *blaOXA-51* gene by PCR technique (4).

Data analysis showed that according RAPD-PCR, 5 clusters were obtained (Fig. 1).

Copyright © 2021 Mohammadi et al. Published by Tehran University of Medical Sciences.
This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International license (https://creativecommons.org/licenses/by-nc/4.0/). Non-commercial uses of the work are permitted, provided the original work is properly cited.

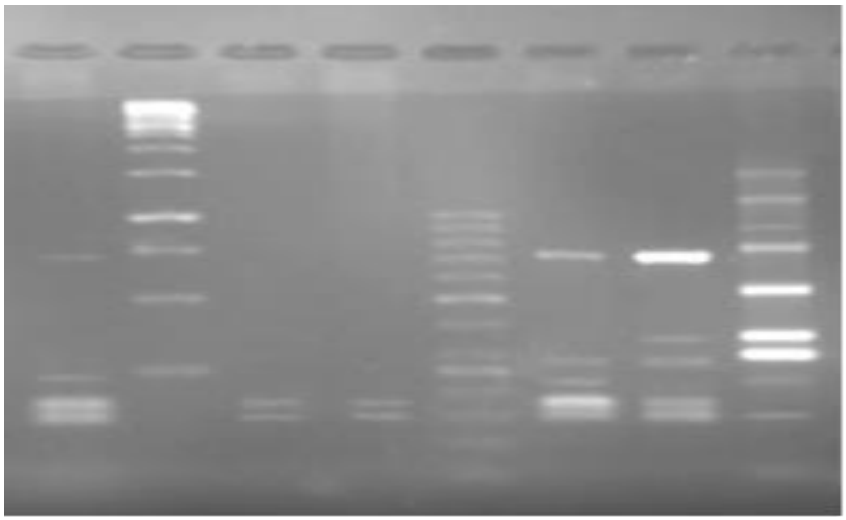

Fig. 1: RAPD-PCR electrophoresis results of *A. baumannii*. Left to the right. Wells 1, 3, 4, 6, 7 and 8: Are positive for *Acinetobacter* isolates, well 2. DNA Ladder 100bp, and well 5: DNA Ladder 50bp

In a study conducted in Russia, there were two main genetic groups of the *A. baumannii* isolates that activated for several years in the hospital environments in different cities of Russia and circulated among hospitals. In addition, their dendrogram reflected the genetic relationship among the isolates studied. Based on the analysis of the RAPD profile cluster, 130 isolates of *A. baumannii* contained two clusters with the names A and B with homology of more than 90% (5).

The present study showed the RAPD-PCR technique as a useful tool for evaluating genetic variation among *A. baumannii* strains. According to the results, *A. baumannii* isolates rotate among hospitals of Hamadan University of Medical Sciences, and there was no specific pattern for distributing isolates from one ward to another.

Conflict of interest

The Authors declare that there is no conflict of interest.

References

1. Zarifi E, Eslami G, Khaledi A, et al (2017). Prevalence of ESBLs in Acinetobacter baumannii isolated from intensive care unit (ICU) of Ghaem hospital, Mashhad, Iran. *J Pure Appl Microbiol*, 2:811-9.
2. Munoz-Price LS, Weinstein RA (2008).Acinetobacter infection. *N Engl J Med*,358(12):1271-81.
3. Wong D, Nielsen TB, Bonomo RA,et al (2017). Clinical and pathophysiological overview of Acinetobacter infections: a century of challenges. *Clin Microbiol Rev*, 30(1):409-447.
4. Zander E, Nemec A, Seifert H, Higgins PG (2012). Association between beta-lactamase encoding blaOXA-51 variants and DiversiLab rep-PCR based typing of Acinetobacter baumannii. *J Clin Microbiol*, 50(6): 1900–1904.
5. Trajkovska-Dokic E, Kotevska V, Kaftandzieva A, et al (2011).Phenotypic and genetic relationship of Acinetobacter baumannii isolates. *Prilozi*, 32(2):157-68.