

Long-Term Characteristic of Clinical Distribution and Resistance Trends of Carbapenem-Resistant and Extended-Spectrum β -Lactamase *Klebsiella pneumoniae* Infections: 2014–2022 [Letter]

Haeril Amir^{1,*}, Zulfetriani Murfat^{2,*}, Indah Lestari Daeng Kanang^{3,*}

¹Department of Nursing Management, Faculty of Public Health, Universitas Muslim Indonesia, Makassar, Indonesia; ²Department of Biochemistry, Faculty of Medicine, Universitas Muslim Indonesia, Makassar, Indonesia; ³Department of Internal Medicine, Faculty of Medicine, Universitas Muslim Indonesia, Makassar, Indonesia

*These authors contributed equally to this work

Correspondence: Haeril Amir, Department of Nursing Management, Faculty of Public Health, Universitas Muslim Indonesia, Makassar, Indonesia, Email haeril.amir@umi.ac.id

Dear editor

We have read the paper by Wang et al on Long Term Characteristic of Clinical Distribution and Resistance Trends of Carbapenem-Resistant and Extended-Spectrum β -Lactamase *Klebsiella pneumoniae* Infections.¹ We congratulate the authors for providing data in the form of an overview of *Klebsiella pneumoniae* (KP) infection patterns and KP resistance to several antibiotics, which are useful for the treatment and prevention and control of bacterial infections that are resistant to various antibiotics used in hospitals.

The study conducted by Wang et al showed that carbapenem-resistant KP (CRKP) had the highest proportion of carbapenem-resistant Enterobacteriaceae and most of the infected patients were >60 years old, an increasing trend every year. However, it should be noted that carbapenem resistance is determined when imipenem or meropenem are resistant by antimicrobial susceptibility testing.² There are several things to be considered, namely virulence factors, drug resistance, and types of KP sequences in different samples to be identified by wire-drawing tests, polymerase chain reactions, drug susceptibility tests, and multi-site sequence typing.³

In the study by Wang et al, they conducted strain identification using the BD PhoenixTM100 system in which the minimum inhibitory concentration of antibiotics was determined by the broth method.¹ The method used is appropriate, however we recommend continuing with a modified carbapenem inactivation method in which the isolates studied are determined by multilocus sequence types, and the presence of carbapenemase genes and virulence are examined using the polymerase chain reaction test. In addition, the modified carbapenem inactivation method (mCIM) and the EDTA-carbapenem inactivation method (eCIM) also help to determine the phenotype of the carbapenemase.⁴ In addition, phenotypic carbapenemase production could also be confirmed by a modified Hodge test, followed by conventional polymerase chain reaction to determine isolates undergoing antibiotic sensitivity test.⁵

In conclusion, we agree that the level of KP resistance to conventional antibiotics is generally high as well as susceptibility to common antibiotics, especially cefotaxime,¹ therefore it is necessary to build a multidisciplinary collaborative mechanism to manage infection and jointly suppress the spread of bacterial resistance. However, with increasing percentage of hypervirulent *Klebsiella pneumoniae*, the level of antimicrobial resistance of *Klebsiella pneumoniae* may decrease, therefore we recommend conducting a virulence study of *Klebsiella pneumoniae* (Shanghai, China) and also creating strategies to combat the persistent challenges created by AMR and developing MDR.⁵

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Wang N, Zhan M, Wang T, et al. Long term characteristics of clinical distribution and resistance trends of carbapenem-resistant and extended-spectrum β -lactamase *Klebsiella pneumoniae* infections: 2014–2022. *Infect Drug Resist.* 2023;16:1279–1295. doi:10.2147/IDR.S401807
2. Zhou C, Wu Q, He L, et al. Clinical and molecular characteristics of carbapenem-resistant hypervirulent *Klebsiella pneumoniae* isolates in a tertiary hospital in Shanghai, China. *Infect Drug Resist.* 2021;14:2697–2706. doi:10.2147/IDR.S321704
3. Li H-F, Zhang L-X, Zhang W-L, Li J, Y-q L, Hu T-P. Study on virulence genes, drug resistance and molecular epidemiology of *Klebsiella pneumoniae* with high virulence in inner Mongolia, China. *Infect Drug Resist.* 2023;Volume 16:1133–1144. doi:10.2147/IDR.S391468
4. Shen M, Chen X, He J, et al. Antimicrobial resistance patterns, sequence types, virulence and carbapenemase genes of carbapenem-resistant *Klebsiella pneumoniae* clinical isolates from a tertiary care teaching hospital in Zunyi, China. *Infect Drug Resist.* 2023;16:637–649. doi:10.2147/idr.s398304
5. Gurung S, Kafle S, Dhungel B, et al. Detection of oxa-48 gene in carbapenem-resistant *Escherichia coli* and *Klebsiella pneumoniae* from urine samples. *Infect Drug Resist.* 2020;13:2311–2321. doi:10.2147/IDR.S259967

Dove Medical Press encourages responsible, free and frank academic debate. The content of the Infection and Drug Resistance 'letters to the editor' section does not necessarily represent the views of Dove Medical Press, its officers, agents, employees, related entities or the Infection and Drug Resistance editors. While all reasonable steps have been taken to confirm the content of each letter, Dove Medical Press accepts no liability in respect of the content of any letter, nor is it responsible for the content and accuracy of any letter to the editor.

Infection and Drug Resistance

Dovepress

Publish your work in this journal

Infection and Drug Resistance is an international, peer-reviewed open-access journal that focuses on the optimal treatment of infection (bacterial, fungal and viral) and the development and institution of preventive strategies to minimize the development and spread of resistance. The journal is specifically concerned with the epidemiology of antibiotic resistance and the mechanisms of resistance development and diffusion in both hospitals and the community. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/infection-and-drug-resistance-journal>

<https://doi.org/10.2147/IDR.S411503>