




Association Between Rhesus and ABO Blood Group Types and Their Impact on Clinical Outcomes in Critically Ill Patients with COVID-19: A Multi-Center Investigation [Letter]

Anna Lystia Poetranto , Hasta Handayani Idrus , Wiwit Nurwidyaningtyas 

Center of Biomedical Research, National Research and Innovation Agency, Bogor, West Java, Indonesia

Correspondence: Anna Lystia Poetranto, Center of Biomedical Research, National Research and Innovation Agency, Gedung Meatpro, Kawasan Sains dan Teknologi Dr. (H.C) Ir. Soekarno, Jl. Raya Jakarta-Bogor Km. 46, Cibinong, Bogor, West Java, 16911, Email anna008@brin.go.id

Dear editor

We have read the paper written by Khalid Al Sulaiman et al about Association Between Rhesus and ABO Blood Group Types and Their Impact on Clinical Outcomes in Critically Ill Patients with COVID-19: A Multi-Center Investigation.¹ We congratulate all authors who have provided information about the potential impact of ABO and RhD blood groups on the prognosis of critically ill patients with COVID-19.

The ABO blood group system has been linked to varying levels of susceptibility to different infectious diseases.² Those with blood group A exhibit a significantly higher risk of developing coagulation issues, such as excessive clotting (thrombosis) or haemorrhage in COVID-19 patients. These abnormalities are associated with elevated D-dimer levels and prolonged prothrombin time in patients with blood group A. In contrast, individuals with blood group O have a lower risk of such coagulation problems.³

The study conducted by Khalid Al Sulaiman et al used a retrospective cohort study conducted at five centers in the Kingdom of Saudi Arabia (KSA) and involved adult COVID-19 patients admitted to Intensive Care Units (ICUs) between March 1, 2020, and July 31, 2021. Patients were categorized into two sub-groups based on their Rh blood group type: Rh-positive (Control), and Rh-negative (active).¹ The method used was in accordance with the targets to be achieved, however we recommend adding an assessment of blood alleles as previous research has demonstrated an association between ABO blood genotype and COVID-19. Notably, the ABO allele analysis is also significant, given reports that the presence of the A allele is linked to an increased risk of gastric cancer, while both A and B alleles are associated with a higher risk of pancreatic cancer.⁴

In this research, Khalid Al Sulaiman et al found that critically ill COVID-19 patients with a negative Rh blood group may experience longer hospital stays.¹ However, it should be noted that sex, age, ethnic origin, lifestyle, beliefs, smoking, and comorbidity with chronic diseases may contribute to the varied results of severity in COVID-19 patients.⁵ In addition, although samples were collected from five medical centres across various geographic regions within Saudi Arabia, it is important to include more detailed information on socio-demographic and lifestyle-related risk factors, which may influence clinical outcomes of COVID-19.⁶

In conclusion, we agree that identifying patients based on their blood type or Rh blood group at an early stage could be essential for swiftly implementing interventions to manage infection, avert complications, and alleviate the financial strain on the healthcare system. However, it is also important to include ABO allele analysis in patients, as the O allele has been suggested to offer protective effects, while the B allele may be associated with an increased risk of severe disease in COVID-19 patients.⁵ Additionally, more detailed heterogeneity factors such as sex, age, ethnic origin, lifestyle, beliefs, smoking habits, and comorbid chronic diseases can also affect the consistency and outcomes of hospital stay durations.⁶

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Sulaiman K AO A, Korayem GB, AlFaifi M, et al. Association between rhesus and ABO Blood group types and their impact on clinical outcomes in critically ill patients with COVID-19: A multi-center investigation. *Infect Drug Resist.* 2024;17:3161–3171. doi:10.2147/IDR.S447010
2. Cooling L. Blood groups in infection and host susceptibility. *Clin Microbiol Rev.* 2015;28(3):801–870. doi:10.1128/CMR.00109-14
3. Latz CA, DeCarlo C, Boitano L, et al. Blood type and outcomes in patients with COVID-19. *Ann Hematol.* 2020;99(9):2113–2118. doi:10.1007/s00277-020-04169-1
4. Kusumoto T, Chubachi S, Namkoong H, et al. Association between ABO blood group/genotype and COVID-19 in a Japanese population. *Ann Hematol.* 2023;102(11):3239–3249. doi:10.1007/s00277-023-05407-y
5. Parv D, Shahnavazi A. Association between ABO blood groups and risk of COVID-19 infection: an umbrella review. *J Hematol Allied Sci.* 2024;4:3–10. doi:10.25259/JHAS_26_2023
6. Monye IN, Makinde MT, Oseni TIA, Adelowo AB, Nyirenda S. Covid-19 and Pre-morbid lifestyle-related risk factors-a review. *Health Serv Insign.* 2023;16:11786329231215049. doi:10.1177/11786329231215049

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.S490320>