

Predictors of COVID-19 recurrent infection in a tertiary teaching hospital in Kelantan, Malaysia

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ABSTRACT

Introduction: COVID-19 pandemic was the first modern pandemic declared by the WHO. The virus's capacity for antigenic shift and drift increases the host's susceptibility to recurrent infection and potential complications. This heightened risk is specifically associated with the potential for recurrent COVID-19 infections within the population, especially those who are in an enclosed population like a university campus. The aim of this study was to examine the predictors of the occurrence of recurrent COVID-19 infection within a health campus situated in Kelantan, Malaysia. **Materials and Methods:** The data were analysed using SPSS version 26 from COVID-19 Registry of health campus in Kelantan, Malaysia. All cases registered were included according to inclusion criteria. The characteristics studied include age, sex, place of residence, healthcare worker status, identification of close contact, presence of symptoms, COVID-19 vaccine doses received, category of transmission, and data for samples collected between 1 January 2021 and 31 December 2022. **Results:** This study encompassed a cohort of 3469 individuals who tested positive for COVID-19. The observed proportion of COVID-19 recurrent infection cases within this sample was determined to be 3.95%. Further analysis using single and multiple logistic regression revealed that several factors served as predictors for recurrent COVID-19 infection. These significant factors included being a middle-aged adult with aOR 0.265 (95% CI: 0.15,0.47), two doses of COVID-19 vaccine received with aOR 0.254 (95% CI: 0.15,0.43), and the category of transmission in the workplace of aOR 1.815 (95% CI: 1.06,3.10). Being of young age increases the risk due to engagement activities in public spaces, as was the case prior to the pandemic. Those who received two doses of COVID-19 vaccine exhibit a lower risk of recurrent transmission due to the high efficacy and effectiveness of the vaccine. The most likelihood of recurrent infection can be observed in workplace environments, particularly in healthcare facilities, which are widely recognized as high-risk settings for various types of infections. **Conclusion:** COVID-19 recurrent infection was low in the health campus setting. Understanding the factors associated with a disease outbreak is crucial for stakeholders to prepare for and address the situation effectively. This knowledge allows for the implementation of targeted health promotion and education initiatives, as well as the development of prevention and control strategies specific to the disease in question.