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| Title | Marburg Virus and Risk Factor Among Infected Population in Africa: A Modeling Study | | |
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| Abstract |  |
| This study aims to investigate the role of individuals with natural immunity in the spread of Marburg virus infection, a highly lethal human pathogen. Marburg virus was first identified in 1967 during an outbreak in Marburg, Germany, and Belgrade, Serbia. Due to its high fatality rate, there are currently no approved vaccines or treatments for Marburg virus infection. To understand the transmission dynamics of Marburg virus disease (MVD), the study developed a mathematical model focusing on the spread among infected individuals. Initial analysis used established methods to evaluate factors such as positive assessments, the basic reproduction number, and the stability of equilibrium points. This provided valuable insights into MVD dynamics. Numerical simulations followed, visually depicting the outcomes from the analytical analysis. These simulations offered a more comprehensive understanding of the complex dynamics of MVD. The study presents a thorough analysis of Marburg virus transmission dynamics, highlighting the impact of natural immunity on disease spread. It also emphasizes the importance of isolation strategies in controlling the outbreak of this highly lethal pathogen. | |