

”COVID-19”

Disease severity in individuals with coronavirus disease 2019 (COVID-19) and likelihood of infection with the SARS-CoV-2 virus were initially reported to vary with ABO blood type, with group A and AB individuals appearing to be at greater risk and group O at lower risk [15-19]. However, the choice of control groups was questioned, and mortality did not appear to vary by blood group [20]. A 2022 meta-analysis of >60 studies (nearly 2 million participants) concluded that O blood group was associated with a lower risk of COVID-19 (odds ratio [OR] 0.88, 95% CI 0.82–0.94) [21]. There were slight differences in mortality with different blood groups that may have related to demographic characteristics rather than blood group.

One hypothesis suggests that the presence of anti-A antibodies, rather than blood type, could be responsible for a difference in rates of infection or disease severity [22]. Another study suggests that it may be the ABH antigen on tissues such as the lung that contributes to differences in infection susceptibility [23]. Using the variant of the A antigen present on respiratory epithelial cells (which differs slightly in its carbohydrate structure from the A antigen on RBCs) investigators demonstrated that the receptor binding domain (RBD) of the virus has high affinity for the structure of the A antigen on respiratory epithelium, possibly enhancing viral entry into respiratory cells. Ongoing research is required to further elucidate the contributions of these mechanisms to SARS-CoV-2 pathogenicity as it relates to ABO blood type.