Reagan Richardson Writing Assignment #5

The Relationship Between Blood Type and COVID-19 Complications

An October 2020 CNN article reported that people with type O blood may be less susceptible to contracting COVID-19 and developing complications, according to two studies from Denmark and Canada. The Danish study, led by Dr. Torben Barrington, found that out of the 7,422 individuals who tested positive for Covid-19, 38.4% had type O blood, even though a sample of 2.2 million citizens who were not tested had an O blood type percentage of 41.7%. On the other hand, the Canadian study led by Dr. Mypinder Sekhon found that out of 95 critically ill patients, 84% of type A patients needed ventilation compared to 61% of type O patients. In addition, when comparing the hospital stays between these type A and type O patients, researchers found that type A patients stayed in the intensive care unit for an average of 13.5 days while type O stayed for an average of 9 days. Despite this conclusive evidence, the two studies only established a correlation between blood type and Covid-19 complications, and more research needs to be conducted to find a mechanism that could explain this unique relationship. Because of this uncertainty, scientists from both Denmark and Canada emphasize that there is no need for people with type A blood to be concerned. Both teams are considering the possibility that those with type O blood have less of a protein (a clotting factor) that makes them less prone to blood coagulation and clotting, which is a serious complication caused by Covid-19. Other reasons that scientists are considering include the role of ABO blood group antigens and the genes that determine blood type and affect the receptors of the immune system. In addition, Dr. Amesh Adalja, senior scholar at the Johns Hopkins University Center for Health Security in Baltimore, states that this phenomenon merits more research, and with enough understanding of a molecular mechanism, a hypothesis can be formulated relating type O blood and Covid-19.

In relation to the scientific community, an April 2020 article published in the European Journal of Preventive Cardiology summarizes the latest research on the ABO blood groups and Covid-19 complications. According to this review, the ABO blood group directly affects ACE activity which in turn affects angiotensin levels and blood pressure. Higher angiotensin levels lead to hypertension, and those who suffer from Covid-19 often develop hypertension as the illness progresses. People who have the gene for type O blood exhibit lower ACE levels than any other type of blood due to a higher production of interleukin-6 (IL-6), which has anti-inflammatory properties. On the other hand, people who have the gene for type A blood produce the A antigen, which happens to prevent intercellular adhesion molecules in the endothelial linings of blood vessels from breaking down due to enzymatic activity. This continuous build-up of cells in blood vessels leads to inflammation and smaller blood vessels, which could cause hypertension. Therefore, these two factors indicate that those with type A blood pose a more significant risk of developing cardiovascular complications from Covid-19, while people with type O blood might not experience these severe effects.

References:

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