Correlation of Patient Blood Type with Patient Related Outcomes, Length of Stay, Severity of COVID-19 Disease, and D-Dimer elevation. A useful prognostic indicator?

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INTRODUCTION

The association between blood type and disease state has been a topic of interest in the medical literature for decades. From 1977-2003, several studies have linked blood type O with increased likelihood of becoming infected with cholera, *Helicobacter pylori* and even norovirus.[1] As the COVID-19 pandemic emerged, early research from China, that was not peer reviewed, suggested an possible link between blood type O and lower risk of COVID-19.[2] Over the course of the pandemic, several studies have shown mixed findings between blood type and SARS-CoV-2 PCR test positivity, risk of intubation and death among various other findings. Given the general lack of tests that provide clinicians with early prognostic insight, patient blood type remains an interesting topic of research. Herein, we sought to determine if blood type correlated with patient outcome, length of stay (LOS), severity of disease or D-Dimer level at our institution.

METHODS

A retrospective electronic medical record chart review of 500 patients admitted to St. Joseph's University Medical Center, Paterson, NJ and Wayne, NJ. The studied population included both sexes, all ages, and patients who had a positive SARS-CoV-2 PCR test. Additionally, patients who were PCR negative for SARS-CoV-2 but had a diagnosis of COVID-19 were included in the analysis. Excluded patients were those who either had no COVID-19 diagnosis, those who did not have serology, D-Dimer level, clinical manifestations consistent with COVID-19, or those who did not have a documented blood type in their medical record.

Patient admission disposition, supplemental oxygen requirement, length of stay, outcome, admission D-Dimer, maximum D-Dimer and blood type were obtained from the electronic medical record. Admission disposition "severity" was based on acuity of location (medical floor, telemetry, ICU) as well as severity of oxygen supplementation (nasal cannula, oxymask, high flow nasal cannula, non-invasive positive pressure ventilation, intubation). Outcomes were classified as either discharge or death after a measured length of stay in days. The data was analyzed using validated statistical methods (chi-squared, ANOVA).

RESULTS

Our results demonstrated that blood type did not significantly correlate with severity of COVID disease (p-value=0.26, Chi-square test for contingency table), was not significantly related with outcome (p-value=0.82, Chi-square test for contingency table) nor was it significantly associated with LOS (p-value=0.92, ANOVA F test). Furthermore, no one blood type significantly correlated with D-Dimer value (p-value=0.34, ANOVA F test).

CONCLUSION

After an analysis of 500 patient charts in a retrospective chart review, we conclude that blood type does not correlate with COVID-19 disease severity, outcome, length of stay or with D-Dimer values.