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ABSTRACT

Title: Effect of SARS-COV-2 infection on D-Dimer among Thumbay Hospital Patients with and without Comorbidities

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Background and aims: COVID-19, a pandemic infectious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-19), accounted for over 6.5 million deaths worldwide. COVID-19-related morbidity and mortality are high in the elderly with pre-existing comorbidities such as hypertension, diabetes mellitus (DM), chronic kidney disease (CKD), and a history of cardiac diseases.

Abnormal coagulation function has been demonstrated to be involved in the disease progression of SARS-COV-2. This study aimed to evaluate the level of D-Dimer in hospitalized SARS-COV-2 infected patients and to determine the influence of age, gender, BMI, and comorbidities on D-dimer value correlating with disease severity.

Methods: Around 107 SARS-COV-2 patients admitted at Thumbay Hospital, Ajman, between January to September 2021, were enrolled in the study. Demographic and clinical data of patients were collected and analyzed using SPSS (Statistical Package for Social Sciences) Version 28. Categorical variables were expressed as counts and percentages; Continuous variables were expressed as means and standard deviation. Crosstabulation analysis using the Chi-Square test was run to compare the distribution of comorbidities in various categories of patients. An Independent t-test was used to compare the mean levels of D-Dimer among COVID-19 patients with and without comorbidities.

Results: The majority of the SARS-COV-2 hospitalized patients were males above 40 years of age, overweight or obese, with approximately 50% of patients having no comorbidity, 30% having one, and 20% having two or more comorbidities. Among the one comorbidity group, 77% were above 40; in the two comorbidity groups, almost all were above 40 years of age, with equal distribution among genders, and more were obese. Among the total, 76% have a moderate condition, and 24% have severe, with a similar trend followed irrespective of age, gender, or BMI.

Elevated D-dimer was seen in 70% of the total, with more in the higher age group, with no significant difference due to gender or BMI. Also, the D-dimer levels were equally elevated in

the control group (68%) and one comorbidity group (68%). However, the D-dimer was higher in the two or more comorbidity groups (78.3%).

Conclusions: The study concludes that D-dimer levels were frequently elevated in SARS-CoV-2 patients, with higher levels found in severe condition patients above 40 years old and with multiple comorbidities. The current study supports that SAR-COV-2 is a coagulopathic condition with D-dimer directly linking SAR-COV-2 infection and disease severity.

Key Words: SAR-COV-2 infection, COVID-19, D-dimer, Comorbidity, Coagulopathy

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