

OUTCOME OF CLINICAL PRESENTATIONS AND ABNORMAL COAGULATION PARAMETERS IN COVID-19 PATIENTS

Ahmed Yousef Shaban Gad, Ahmed Abdelfatah Sabry,* Khaled Salah Mostafa,** Mohamed Samy Ibrahim**

Department of Chest Disease, Department of General Surgery,* Department of Emergency Medicine,** Faculty of Medicine, Alexandria University.

INTRODUCTION

In December 2019, a new coronavirus disease called COVID-19 emerged in Wuhan, China. It was declared a pandemic by the World Health Organization in March 2020. COVID-19 can cause a range of symptoms, from no symptoms to severe lung injury. Some patients may also have concomitant viral infections or bacterial pneumonia. Studies have shown that non-survivors of COVID-19 often exhibit sepsis, respiratory failure, acute respiratory distress syndrome (ARDS), and septic shock, indicating multi-organ involvement. Inflammation, particularly in the form of a cytokine storm, is considered a major factor in the disease, but other pathways such as hypercoagulation and endothelial cell dysfunction have also been implicated. Disseminated intravascular coagulation (DIC) and macrovascular thrombosis can occur in severe cases, leading to significant morbidity and mortality. Older patients and those with comorbidities are at higher risk of in-hospital mortality and often have higher levels of D-dimer. The risk of thrombosis in COVID-19 patients can persist for several weeks, potentially leading to rehospitalization and sudden deaths.

AIM OF THE WORK

The aim of the present study was to evaluate the outcome of clinical presentations of COVID-19 patients, and to investigate the abnormality of coagulation profile parameters in COVID-19 infection.

PATIENTS AND METHODS

This study included one hundred patients with COVID-19 infection presented to the Emergency Department of Alexandria Main University Hospital. Inclusion criteria were patients confirmed to have been infected with SARS-CoV-2 by reverse transcriptase polymerase chain reaction (RT-PCR). Exclusion criteria were patients younger than 18 years of age, patients who had cardiac arrest prior to arrival, and pregnant women.

The data analysis was done using IBM SPSS software package version 22.0 (Armonk, NY: IBM Corp). Qualitative data were described using number and percent. Quantitative data were described using range (minimum and maximum), mean, standard deviation and median. Significance of the obtained results was judged at the 5% level.

RESULTS

In terms of demographic data, out of the 100 patients, 52% were males and 48% were females. The majority of the patients (85%) fell between the ages of 18 and 65, while 15% were above 65 years old. The median age of the included patients was 44.5 years, Table (1). The obtained results showed the diagnostic accuracy of the coagulation profile. The sensitivity and specificity of PT in predicting the severity of COVID-19 infection were found to be 91.87% and 90.22%, respectively. PTT demonstrated a sensitivity of 90.75% and a specificity of 89.50%. D-dimer showed a sensitivity of 89.81% and a specificity of 87.51%, Table (2).

Table 1: The sensitivity, specificity and accuracy of coagulation profile in correlation to the severity of COVID-19 infection.

Parameters	Variables				Sensitivity	Specificity	PPV	NPV	Accuracy
	qCSI score	≤ 3	4 – 6	7 – 9	10 – 12				
PT	Min.	10.02	13.17	13.37	13.01	91.87%	90.22%	88.09	87.41
	Max.	14.58	14.61	14.94	14.99				
aPTT	Min.	28.2	33	32	32.4	90.75%	89.50%	87.48	86.77
	Max.	41.9	43	43	43				
D-dimer	Min.	610	600	600	600	89.81%	87.51%	86.36	86.05
	Max.	960	980	990	1000				

(qCSI) Quick Covid-19 Severity Index
(PPV) Positive Predictive Value
(NPV) Negative Predictive Value
(Min.) Minimum
(Max.) Maximum

Table 2: Distribution of the studied cases according to demographic data (n=100)

Demographic Data	No.	%
Gender		
▪ Male	52	52.0
▪ Female	48	48.0
Total	100	100.0
Age (years)		
▪ 18 – 65	85	85.0
▪ >65	15	15.0
Min. – Max	18 – 74	
Mean ±SD	45.34 ± 16.15	
Median	44.5	

(Min.) minimum, (Max.) maximum, (SD) standard deviation

Conclusion

The clinical presentations and coagulation abnormalities seen in COVID-19 patients have important implications for their management. By using this knowledge to guide treatment strategies, we can improve patient outcomes and better manage COVID-19 cases.