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Correspondence



Clinical characteristics of hospitalized COVID -19 infected patients in Palestine

Dear Editor,

We are sending this letter to “Travel medicine and Infectious Diseases” sharing with you the results of our study. The study is a quantitative retrospective research design that sheds light into COVID-19 hospitalized patients and describes the clinical characteristics of COVID-19 patient.

The studied sample included 132 COVID-19 hospitalized patients. Data was collected from two hospitals in West Bank/Palestine between 19 March to 20 July 2020. Furthermore, it includes demographic data, follow up laboratory tests, and patient’s medical history during first five days of hospitalization, then linking that with COVID-19 severity level (Severe, Non-severe) of COVID-19. Around (47%) of the patients were females. The median age was 45.5 years old. A total of (37.12%) of patients patients were developed severe symptoms, and the median length of stay (LOS) in hospital was about 8.5 days. Patients with severe illness were significantly older comparing with others (median age, 60 years vs. 41 years; $P < .001$). In general, the risk of getting severe disease illness increases as getting older, considering the potentiality of other factors such as chronic diseases [1].

Numerous differences were reported between sever and not sever cases as shown in Table 1, including higher WBC, ferritin, BUN and creatine ($P < .05$). CRP, Ferritin level and Monocytes tests were statistically significant in its association with severity level (P -value $< .05$). Considering the presence of coexisting illness, (58.5%) of hypertension patients developed a severe symptom with a statistically significant relationship with severe illness. Similar to other studies hypertension is one of the comorbidities that increase the risk of worse outcomes. Diabetes is another important coexisting illness that also leads to a bad prognosis of admitted patients. In that sense, our findings were similar to Italian statistics. Through observing the chronic kidney disease (CKD), we found that (8.3%) of admitted patients were with coexisting CKD, and (63.6%) of them developed a severe illness. Previous studies showed that having CKD of any stage can increase the potential of developing severe symptoms, especially those with kidney transplants, and have an immunosuppressant treatment or hemodialysis [2]. Preliminary data has indicated that previous kidney disease could represent as a risk factor, especially in elderly patients, for a more severe disease course.

Our study showed that there is no significant relationship between D-dimmer and severity level, however, a relevant study of 248 patients with covid-19 in Wuhan University, China, confirmed that it correlates with disease severity and can be used as a reliable prognostic marker for COVID-19 patients [3]. The CRP level was positively correlated with

disease severity, where (73.33%) found to be positive in patients of a severe group in comparison to (28.95%) positive CRP in a non-severe group. An observation study was done for 22 COVID-19 patients aims to assess the usefulness of CRP levels for evaluating COVID-19 severity, found that a high (CRP) values are frequently found in patients with bacterial respiratory infection, and CRP testing proves to be useful in differentiating pneumonia from other respiratory infections. Considering the early observations studies that reveals Monocytes as an important player in the progression of severe symptoms of COVID-19 patients. Hence, our study also comes to confirm the same results, concerning the severe group patients. Moreover, a strong significant relationship was found between ferritin and severity level of disease, being serum Ferritin median level (292.5) in patients with severe illness in comparison with (131) in non-severe cases. Taking this suggestion into consideration and realizing that other studies confirmed the same relation [4,5], concluded that Ferritin levels were strongly related to the severity of COVID-19.

To conclude, serious attention should be given to comorbidities like diabetes and hypertension, as such comorbidities are highly correlated with poor disease outcome. Some laboratory tests indicate significant relationship between disease severity level.

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Authors’ contributions

IS conceived the study, developed the methodology, and necessary IRB approvals, and contributed to the interpretation of the results. SN performed the statistical analysis and interpretation of results and contributed to writing the manuscript. MA participated on writing the manuscript. All authors participated in the manuscript outline, revised the manuscript critically for important intellectual content, and read and approved the final manuscript.

Declaration of competing interest

The authors declare that no conflict of interest is existed.

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Table 1
Multivariable correlation with severity level of COVID-19 patients.

	Total (N = 132)	Relationship with severity level		P-Value ¹
		No. (%)		
		Sever (n = 49)	Not Sever (n = 83)	
Age, median (IQR), Y	45.5 (31.0–61.50)	60 (45–66)	41 (27–54)	0.000
LOS, median (IQR), D	8.0 (4.0–17.0)	7 (3–12)	10 (5–19)	0.016
Sex				
Male	70 (53.0%)	28 (57.14%)	42 (50.60%)	0.467
Female	62 (47.0%)	21 (42.86%)	41 (49.40%)	
Comorbidities				
Hypertension	41 (31.1%)	24 (58.50%)	17 (41.50%)	0.001
Diabetes	33 (25.0%)	20 (60.60%)	13 (39.40%)	0.001
Malignancy (Cancer)	3 (2.3%)	1 (33.30%)	2 (66.70%)	0.891
Cerebrovascular Disease	5 (3.8%)	5 (100.00%)	0 (0.00%)	0.003
Chronic Kidney Disease (CKD)	11 (8.3%)	7 (63.60%)	4 (36.40%)	0.057
Chronic Liver Disease	2 (1.5%)	2 (100.00%)	0 (0.00%)	0.064
Cardiac Disease	13(9.8%)	7 (53.80%)	6 (46.20%)	0.189
Neurological Disorder	1 (0.8%)	0 (0.00%)	1 (100.00%)	0.441
Respiratory Disorder	7 (5.3%)	2 (28.60%)	5 (71.40%)	0.630
Median (IQR)				
WBC	7.8 (6.2–10.3)	9.25 (5.65–13.75)	7.4 (6.2–9)	0.007
HGB	13.2 (11.9–14.6)	12.25 (10.8–14.35)	13.4 (12.2–14.9)	0.038
Platelets count	223 (177–279)	212.5 (140.5–276.5)	224 (182–279)	0.283
BUN	14.2 (10.0–23.1)	18.3 (14.2–36.7)	12.75 (9.9–17)	0.001
Creatinine	0.8 (0.6–1.1)	0.97 (0.7–1.78)	0.79 (0.59–0.92)	0.034
GPT	22.6 (15.0–33.9)	21.8 (15.6–33.8)	24 (14.4–33.9)	0.760
GOT	23.6 (18.0–35.1)	26.7 (20–42.6)	23 (16.1–34.1)	0.267
D - Dimer Gen.2 (D-DI)	258 (0.0–536.0)	370.5 (44–789)	199 (0–450)	0.070
Lactate dehydrogenase LDH	211 (173–305)	276.5 (186–423.5)	203 (165–284)	0.012
Ferritin	188.3 (64.8–426.0)	292.5 (121–777)	131 (54.5–267)	0.000
C - Reactive Protein - CRP				
Negative	66 (54.5%)	12 (26.67%)	54 (71.05%)	0.000
Positive	55 (45.5%)	33 (73.33%)	22 (28.95%)	
Monocytes		0.65 (0–3.7)	0 (0–0)	0.001

Y = year, D = Day, N is the number of individuals occurrence in the defined category; % is the percentage of individuals in the defined category, IQR = interquartile range. WBC, White blood cells; HGB, Hemoglobin; BUN, Blood urea nitrogen; GPT, Alanine aminotransferase; GOT, Aspartate aminotransferase; CRP, C - Reactive Protein.

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