455. Diagnostic Value of Hematological Parameters in Different Stages of the Disease in Covid-19 Patients

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Background. COVID-19 infection is associated in some individuals with a rapid onset of systemic proinflammatory state leading to cytokine storm followed by multi-system organ failure. We are interested in studying the prognostic value of complete blood count parameters in different stages of the diseases based on the serology.

Methods. This is a retrospective cohort study of patients with confirmed COVID-19 admitted to our hospital between 10/1/2020 to 2/28/2021. Study individuals had complete CBC profile and COVID-19 serology with well-defined clinical outcome (discharged alive or expired). They were divided in 3 groups based on serology results: group 1 (early disease) had no antibodies, group 2 (immune phase) had + IgM, and group 3 (late phase) had only + IgG. Demographic, clinical and laboratory data were reviewed. Simple t-test was used for continuous variables and chi-square test was used for categorical variables. Anova test was used to compare the difference across multiple groups. GraphPad PRISM was used for all analysis.

Results. A total of 202 confirmed covid 19 cases were included in the study. There was no difference between the 3 groups in terms of age, gender, and body mass index (BMI). We did observe an increase in incidence in Latinx (group 1, 34%; group 2, 51%; group 3, 38%). Hypertension and diabetes were major co-morbidities in these patients. Absolute neutrophil count (ANC) and platelet count (PC) showed significant changes across the 3 groups: mean ANC for group 1, 4.868 (SD 3.117); group 2, mean 6.951 (SD 3.843); and group 3 mean 5.59 (SD 3.236). PC in group 1 mean 193.2 (SD 90.25); group 2 mean 271.1 (SD 143.4); and group 3 mean 228.6 (SD 75.33) p-value 0.0008. The difference can be seen in the derived monocyte platelet rationMPR, neutrophil lymphocyte ratio NLR, platelet lymphocyte ratio PLR and aggregate index of systemic inflammation AISI values and they tend to be higher in group 2 (MPR p-value 0.0067, NLR p-value 0.0123, PLR p-value 0.0294, AISI p-value of 0.0190).

Baseline characteristic

Table 1: Baseline Characteristics of the study population

	IgM-/IgG- (n=47) Group 1	IgM+ (116) Group 2	IgM-/IgG+ (n=39) Group 3
Age	64.70 ± 15.66	58.98 ± 14.66	60.56 ± 14.51
Gender			
Male	28 (60%)	69 (59%)	19 (49%)
Female	19 (40%)	47 (41%)	20 (51%)
Ethnicities			
Blacks	17 (36%)	21 (18%)	7 (18%)
Latinx	16 (34%)	59 (51%)	15 (38%)
Whites	7 (15%)	15 (13%)	8 (21%)
Others	7 (15%)	21 (18%)	9 (23%)
Comorbidities			
Diabetes Mellitus	19 (40%)	49 (42%)	23 (59%)
Hypertension	37 (79%)	63 (54%)	23 (59%)
Chronic Kidney Disease	10 (21%)	11 (9%)	3 (8%)
BMI	29.90 ± 8.87	31.23 ± 7.25	30.29 ± 7.34
Mechanical Ventilation			
Yes	6 (13%)	25 (22%)	2 (5%)
No	41 (87%)	91 (78%)	37 (95%)
Outcome			
Discharged Alive	44 (94%)	96 (83%)	37 (95%)
Expired	3 (6%)	20 (17%)	2 (5%)

CBC parameters

Parameters	Group 1 Mean	Group 1 SD	Group 2 Mean	Group 2 SD	Group 3 Mean	Group 3 SD	p-value
Neutrophils abs	4.868	3.117	6.951	3.843	5.59	3.236	0.0021
MPV	8.896	0.9963	8.692	1.055	8.682	0.9773	0.4849
Monocyte abs	0.7532	1.012	0.5842	0.3228	0.6795	1.237	0.4267
Hemoglobin	12.4	2.175	13.07	2.177	13.59	1.712	0.0312
lymphocyte	6.27	35.56	0.9687	0.6753	1.118	0.7394	0.1858
platelets	193.2	90.25	272.1	143.4	228.6	75.33	0.0008
WBC	12.11	37.68	8.903	4.241	7.558	3.918	0.4793
SII	1067	1010	2919	5933	1874	2096	0.0591
SIRI	3.677	4.251	5.301	4.725	4.244	5.051	0.1088
MPR	0.06015	0.0659	0.04006	0.02299	0.04195	0.01573	0.0067
NLR	5.495	4.346	9.083	7.437	7.709	7.831	0.0123
PLR	244.4	211.6	369.7	325.1	293.5	211.9	0.0294
AISI	753.6	1171	1676	2562	952.1	1071	0.0190
MLR	0.7666	0.7217	0.7376	0.4995	0.6517	0.5039	0.6130
dNLR	5.796	24.52	4.151	8.556	2.243	14.76	0.5488
NLPR	0.04098	0.0698	0.03818	0.03497	0.03374	0.03252	0.7953

Conclusion. The study demonstrates that MPR, NLR, PLR and AISI have a potential role in categorizing the disease stage based on only CBC profiling.Properly designed prospective studies with a larger sample size should be performed to confirm the disease stratification ability of derived CBC indices like MPR, NLR, PLR and AISI.

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456. The Racial Divide: A Follow Up Study on Racial Disparity Amongst COVID-19 Survivors in an Urban Community in New Jersey

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Background. We conducted a follow up study on patients previously diagnosed with COVID-19 one year ago in an urban community in Paterson, New Jersey. The purpose of the study was to evaluate the socioeconomic impact of COVID-19 as well as assess for receptiveness towards COVID-19 vaccination amongst various ethnic groups.

Methods. This was a prospective cohort study consisting of patients who had COVID-19 in the months of March and April of 2020. This was a single institutional study conducted at St. Joseph's Hospital in Paterson, NJ from March to April of 2021. Patients included were either male or female aged 18 years or older. Patients were contacted by telephone to participate to completed the survey. Chi-square testing and multivariable logistic regression analysis were utilized for statistical analysis.

Results. Of the 170 patients enrolled in the study, the most common ethnicity was Hispanic (79/170 [46.47%]), followed by African American (46/170 [27.05%]). 83 patients were male (83/170 [48.82%]). Caucasians were the most willing to receive a COVID-19 vaccine (28/30 [93.3%]), followed by Asians (13/14 [92.8%]), Hispanics (63/78 [80.7%]) and African Americans (29/46 [63.0%]). Hispanics had the highest rate of job loss (31/79 [39.24%]), followed by African Americans (16/46 [34.7%]). Hispanics were found to be in the most financial distress (31/79 [39.2%]), followed by African Americans (17/46 [36.9%]). Hispanics and African Americans were more likely to refuse COVID-19 vaccination (p: 0.02). Hispanics were more likely to lose their jobs compared to Caucasians (odds ratio,4.456; 95% CI, 1.387 to 14.312; p: 0.0121). African Americans were also more likely to lose their jobs when compared to Caucasians (odds ratio, 4.465; 95% CI, 1.266 to 15.747; p: 0.0200).

Willingness amongst COVID-19 survivors to get vaccinated based on ethnicity

Ethnicity	Willingness to get COVID Vaccine				
	Total	Yes (%)	No (%)	Undecided (%)	No Response
African American	46	29	11	6	0
Caucasian/White	31	28	2	0	1
Hispanic	79	63	13	2	1
Asian	14	13	1	0	0
Total	170	133	27	8	2

COVID-19 survivors who lost their jobs following diagnosis with COVID-19 based on ethnicity

Ethnicity	Did you lose your job due to your COVID illness?			
	Total	Yes	No	No Response
African American	46	16	28	2
Caucasian/White	31	4	27	0
Hispanic	79	31	48	0
Asian	14	3	11	0
Total	170	54	114	2