Table 1: Comparison between Critical (A1) and Mild (A2) cases as regard personal and medical history :

		Group				P	Sig
		Critical (A1)		Mild (A2)			
		Mean	±SD	Mean	±SD		
Age		62.68	10.46	56.12	16.21	0.096‡	NS
Gender	Male	16	64.0%	15	60.0%	0.771*	NS
	Female	9	36.0%	10	40.0%		
Smoking	No	20	80.0%	16	64.0%	0.208*	NS
	Yes	5	20.0%	9	36.0%		
Diabetes	No	5	20.0%	13	52.0%	0.018*	**S**
	Yes	20	80.0%	12	48.0%		
Hypertension	No	2	8.0%	14	56.0%	0.0001*	**HS**
	Yes	23	92.0%	11	44.0%		
IHD	No	13	52.0%	21	84.0%	0.015*	**S**
	Yes	12	48.0%	4	16.0%		
Chest diseases	No	24	96.0%	24	100.0%	1.0**	NS
	Yes	1	4.0%	0	0.0%		
Liver disease	No	22	88.0%	18	72.0%	0.157*	NS
	Yes	3	12.0%	7	28.0%		
Hemorrhagic or ischemic stroke	No	25	100.0%	25	100.0%	-------	------
	Yes	0	0.0%	0	0.0%		
Malignancies	No	23	92.0%	25	100.0%	0.49**	NS
	Yes	2	8.0%	0	0.0%		
CKD	No	24	96.0%	24	96.0%	1.0**	NS
	Yes	1	4.0%	1	4.0%		

*Chi-Square Tests
**Fisher exact test
‡ Student t test

Table (1): There was no significant difference between Critical (A1) and Mild (A2) cases as regard personal and medical data except for DM, hypertension and IHD with higher percentage of cases with DM , hypertension and IHD (80.0% , 92.0% , 48.0% respectively) was present among Critical cases when compared to Mild cases (48.0% , 44.0% , 16.0% respectively).

Table 2: Comparison between Critical (A1) and Mild (A2) cases as regard clinical data :

		Group				P	Sig
		Critical (A1)		Mild (A2)			
		Mean	±SD	Mean	±SD		
O2% saturation		80.84	7.04	96.72	1.54	0.001‡	**HS**
Fever	No	13	52.0%	3	12.0%	0.002*	**HS**
	Yes	12	48.0%	22	88.0%		
Fatigue	No	15	60.0%	10	40.0%	0.157*	NS
	Yes	10	40.0%	15	60.0%		
Bony aches	No	10	40.0%	1	4.0%	0.002*	**HS**
	Yes	15	60.0%	24	96.0%		
Anosmia	No	23	92.0%	19	76.0%	0.247**	NS
	Yes	2	8.0%	6	24.0%		
Loss of taste	No	23	92.0%	19	76.0%	0.247**	NS
	Yes	2	8.0%	6	24.0%		
Nausea	No	19	79.2%	19	76.0%	0.791*	NS
	Yes	5	20.8%	6	24.0%		
Vomiting	No	19	76.0%	16	64.0%	0.355*	NS
	Yes	6	24.0%	9	36.0%		
Diarrhea	No	23	92.0%	19	76.0%	0.247**	NS
	Yes	2	8.0%	6	24.0%		
Abdominal pain	No	17	68.0%	11	44.0%	0.087*	NS
	Yes	8	32.0%	14	56.0%		
Sore throat	No	0	0.0%	3	12.0%	0.235**	NS
	Yes	25	100.0%	22	88.0%		
Cough	No	0	0.0%	1	4.0%	1.0**	NS
	Yes	25	100.0%	24	96.0%		
Dyspnea	No	0	0.0%	23	92.0%	0.001*	**HS**
	Yes	25	100.0%	2	8.0%		
Hospitalization	Ward	0	0.0%	25	100.0%	0.001*	**HS**
	Intermediate	11	44.0%	0	0.0%		
	ICU	14	56.0%	0	0.0%		
Hypoxia	No	0	0.0%	25	100.0%	0.001*	**HS**
	Yes	25	100.0%	0	0.0%		
CT >50%	No	0	0.0%	17	68.0%	0.001*	**HS**
	Yes	25	100.0%	8	32.0%		
Outcome	Cured	15	60.0%	25	100.0%	0.001*	**HS**
	Died	10	40.0%	0	0.0%		

*Student t test
*Chi-Square Tests
**Fisher exact test

Table(2): There was a highly significant difference between Critical (A1) and Mild (A2) cases as regard O2% saturation, fever, bone ache, dyspnea, site of hospitalization either ICU or Intermediated care unit or ward , hypoxia , CT finding >50% of lung parynchma and outcome.

Table 3: Comparison between three study groups (A1 , A2 , B) as regard lab parameters :

	Group						P	Sig
	Critical (A1)		Mild (A2)		Control (B)			
	Mean	±SD	Mean	±SD	Mean	±SD		
IL-6	119.39	153.25	5.84	3.40	2.23	1.23	0.0001**	**HS**
CRP	76.17	36.8	22.93	13.84	5.92	.76	0.0001**	**HS**
AST	44.68	37.25	30.16	14.44	22.20	8.80	0.012**	**S**
ALT	36.24	23.90	27.68	24.55	24.68	8.02	0.105**	NS
T. Bilirubin	0.98	0.67	1.69	2.39	0.65	0.31	0.34**	NS
D. Bilirubin	0.38	0.37	0.81	1.21	0.18	0.13	0.01**	**S**
Albumin.	3.26	0.49	3.91	0.64	4.18	0.39	0.001*	**HS**
Urea	49.72	17.58	52.04	27.39	30.36	7.97	0.0001**	**HS**
Creatinine	1.11	0.39	1.13	0.52	0.49	0.40	0.0001**	**HS**
Ferritin	826.62	359.01	466.00	180.20	64.10	29.40	0.0001*	**HS**
D-dimer	1.39	2.22	0.56	0.23	0.24	0.23	0.001**	**HS**
Hb	12.47	2.00	12.43	1.70	13.24	1.45	0.184*	NS
MCV	82.21	4.53	81.23	10.22	83.68	3.73	0.445*	NS
MCH	36.84	6.22	34.36	4.53	30.50	5.23	0.0001*	**HS**
TLC	11.59	4.39	8.49	3.95	7.58	2.56	0.0001*	**HS**
Lymphocytes	12.02	5.24	18.83	10.50	38.36	14.86	0.0001*	**HS**
Neutrophils	80.31	15.86	74.75	18.83	53.08	14.19	0.0001*	**HS**
NLR	8.13	4.43	6.22	6.18	1.72	0.98	0.0001*	**HS**
Platelets	262.76	142.59	220.00	128.71	281.40	84.21	0.192*	NS
ESR	77.08	24.71	59.88	28.73	17.72	9.51	0.0001*	**HS**
PH	7.41	0.14	7.43	0.05			0.479‡	NS
CO2	38.43	14.32	38.10	5.44			0.915‡	NS
HCO3	23.55	5.11	27.87	14.83			0.175‡	NS

*ANOVA test

**Kruskal Wallis test

‡ Student t test

Table(3): There was high statistically significant difference between Critical (A1) , Mild (A2) and Control (B) groups as regard serum IL-6, CRP, Albumin , Urea , Creatinine , Ferritin , D-dimer , ESR and NLR and statistically significant difference between the three groups as regard AST and Direct Bilirubin.

Table 4: Comparison among severe patients (A1) according to site of hospitalization, and disease outcome as regard IL-6 :

		SERUM IL-6. pg/mL					P	Sig
		Mean	±SD	Median	IQR			
Hospitalization	Intermediate	123.03	153.58	58.7	23.1	212.0	0.935*	NS
	ICU	116.54	158.72	61.2	31.6	83.3		
Outcome	Cured	55.21	54.12	31.9	24.3	79.1	0.028*	**S**
	Died	215.67	202.24	149.8	73.0	350.0		

*Mann Whitney test

Table(4): There was a statistically significant difference between survived and died cases among critical cases groups as regard serum IL-6 with higher level among died cases than survived patients.

Table 5: Correlations between serum IL-6 and liver and kidney function tests among cases :

		AST	ALT	T. Bilirubin	D. Bilirubin	Albumin. g/dL	Urea	Creatinine
IL-6. pg/mL	**r***	.136	.302*	.138	-.116-	-.356	-.020-	-.070-
	p	.345	.033	.338	.422	.011	.892	.628
	Sig	NS	**S**	NS	NS	**S**	NS	NS

*Correlation coefficient

Table(5): Among cases, there was a significant direct correlation between serum IL-6 and ALT, and a negative correlation between IL-6 and Albumin.

Table 6: Correlations between serum IL-6 and CBC findings among cases :

		TLC	Lymphocytes	Neutrophils	NLR
IL-6. pg/mL	**r***	.430**	-.323*	.244	.324*
	p	.002	.022	.088	.022
	Sig	**HS**	**S**	NS	**S**

*Correlation coefficient

Table(6): Among cases, there was a high statistical significant direct correlation between serum IL-6 and each of TLC and NLR , and a significant negative correlation between IL-6 and Lymphocyte count.

Table 7: Correlations between serum IL-6 and inflammatory markers among cases :

		Ferritin	D-dimer	CRP. mg/L	ESR
SERUM IL-6. pg/mL	**r***	.425**	-.042	.575**	.343*
	p	.002	.770	.001	.015
	Sig	**HS**	NS	**HS**	**S**

*Correlation coefficient

Table(7): Among cases, there was a statistical significant direct correlation between serum IL-6 and each of Ferritin, CRP, ESR .

Table 8: Correlations between serum IL-6 and Arterial Blood Gases parameters among cases :

		PH	CO2	HCO3	O2% sat
IL-6. pg/mL	**r***	.055	-.097-	-.141	-.684**
	p	.706	.501	.330	.0001
	Sig	NS	NS	NS	**HS**

*Correlation coefficient

Table(8): Among cases, there was a statistical significant negative correlation between serum IL-6 and arterial O2 saturation.

Table 9: ROC curve using IL6 for differentiation between mild (A2) and critical (A1) cases :

Cutoff level	AUC(CI)^	Sensitivity	Specificity	PPV*	NPV**	Accuracy	P(Sig)
Il-6 ≥12.4	0.978 (0.890 to 0.9)	92.0%	96.0%	95.8%	92.3%	97.8%	<0.001

^ Area under curve (confidence interval)
*Positive predictive value
**Negative predictive value

Table(9): Using ROC curve, IL-6 could discriminate between mild (A2) and critical (A1) Covid -19 cases at a cutoff level ≥12.6 with 92% and 96% sensitivity and specificity respectively

Table 10: Comparison between Mild (A2) and critical (A1) cases according to IL6, ESR, Ferritin, NLR, albumin and CRP:

Cutoff level	**Sensitivity**	**Specificity**	**Accuracy**	**P**	**Sig**
Il-6 ≥12.4	**92.0%**	**96.0%**	**97.8%**	0.0001**	**HS**
ESR ≥50	**88.00%**	**52.00%**	**67.4%**	0.001**	**HS**
Ferritin ≥650	**76.0%**	**84.0%**	**83%**	0.029*	**S**
NLR ≥2.86	**100.0%**	**40.0%**	**67.4%**	0.0001*	**HS**
Albumin ≤3.3	**60.00%**	**92.00%**	**78.0%**	0.001*	**HS**
CRP>30	**88.0%**	**76.0%**	**91.7%**	0.0001**	**HS**

*Student t test
*Chi-Square Tests
**Fisher exact test

Table(10): Using ROC curve , Ferritin, NLR, Albumin, CRP and ESR were associated with increased disease severity and worse clinical outcome but IL-6 was better than Ferritin, NLR, albumin, CRP and ESR predicting disease severity and adverse outcome.