

Supplementary Material

TABLES

Supplementary TABLE 1 | Association between comorbidities, demographic factors, and outcome in COVID-19 patients

	PaO₂/FiO₂ ≤ 100	IMV	Non-survival
Characteristics	OR (95% IC), <i>p</i> -value	OR (95% IC), <i>p</i> -value	OR (95% IC), <i>p</i> -value
Sex male	0.83 (0.60-1.15), 0.281	1.6 (1.10-2.31), 0.013	1.26 (0.93-1.71), 0.120
>65 years old	1.63 (1.09-2.41), 0.016	1.22 (0.81-1.84), 0.331	2.77 (1.91-4.01), <0.001
Tobacco smoking	1.34 (0.96-1.87), 0.082	1.19 (0.79-1.78), 0.390	1.06 (0.78-1.45), 0.675
T2D	0.87 (0.61-1.24), 0.461	0.81 (0.54-1.19), 0.269	1.11 (0.81-1.52), 0.490
HAS	0.85 (0.61-1.18), 0.334	1.27 (0.87-1.87), 0.212	1.28 (0.95-1.71), 0.096
PCRD	2.01 (1.17-3.47), 0.011	0.84 (0.43-1.63), 0.618	1.50 (0.89-2.55), 0.126
Obesity	1.38 (1.0-1.89), 0.045	1.37 (0.94-1.99), 0.090	0.57 (0.42-0.76), <0.001

HAS, hypertension arterial systemic; *IMV*, invasive mechanic ventilation; *PCRD*, previous chronic respiratory disease; *T2D*, type 2 diabetes.

Statistical analyses were performed by a multivariate logistic regression model adjusted by sex and age. Significance was set at a *p*-value <0.05.

Supplementary TABLE 2 | Hematological parameters and systemic inflammation indices in COVID-19 patients according to PaO₂/FiO₂ ratio category

Characteristics	PaO ₂ /FiO ₂ ratio			<i>p</i> -value
	>200	200-101	≤100	
WBC, 10 ³ /mm ³	9.3 (5.1-17)	10 (4.8-19.3)	10.45 (5.7-19.2)	0.004
Neutrophil count, 10 ³ /mm ³	8 (3.2-15.8)	8.6 (4-17.3)	9.1 (4.6-17)	0.003
Lymphocyte count, 10 ³ /mm ³	0.7 (0.2-2.0)	0.6 (0.2-1.9)	0.6 (0.2-1.9)	0.010
Monocyte count, 10 ³ /mm ³	0.5 (0.2-1.1)	0.5 (0.2-1.2)	0.5 (0.2-1.3)	0.873
Eosinophil, count 10 ³ /mm ³	0 (0-0.3)	0 (0-0.4)	0 (0-0.4)	0.232
Basophil count, 10 ³ /mm ³	0 (0-0.1)	0 (0-0.1)	0 (0-0.1)	0.103
Erythrocytes, 10 ⁶ /mm ³	4.6 (2.94-5.45)	4.4 (3-5.5)	4.3 (2.8-5.5)	0.004
Hemoglobin, gr/dL	13.8 (9.2-16.8)	13.4 (9.1-16.8)	13 (8.6-17)	0.010
Hematocrit, %	40 (28.3-48.5)	39.4 (26.6-49.2)	38.3 (25.8-49.1)	0.031
Platelet count, 10 ³ /mm ³	274 (134-512)	271 (114-467)	248.5 (123-487)	0.112
MPV, fL	8.5 (7.2-10.6)	8.6 (7.1-10.5)	8.6 (7.2-10.2)	0.343
RDW,	13.9 (12.7-16.0)	14.1 (12.9-18.0)	14.3 (12.9-18.0)	0.001
PLR	348.3 (121.9-1036)	398.6 (134.5-1260)	398.4 (120.8-1325)	0.061
NLR	10.3 (2.6-39.7)	13.4 (3.6-52.6)	15.2 (3.2-52.0)	<0.001
dNLR	5.78 (1.55-15.5)	6.94 (2.0-20.3)	7.85 (1.82-19.2)	0.003
MLR	0.66 (0.2-2.0)	0.76 (0.2-2.5)	0.81 (0.21-3.0)	0.025
ELR	0 (0-0.3)	0 (0-0.36)	0 (0-0.5)	0.483
BLR	0 (0-0.11)	0 (0-0.1)	0 (0-0.16)	0.126
SII	2857.1 (556.5-10670.6)	3528 (884.4-13530)	3685 (693.5-14869.3)	0.005
SIRI	5.44 (0.96-19.87)	6.48 (1.34-34.2)	7.6 (1.22-36.7)	0.003
AISI	1254.2 (247.7-5950)	1732.9 (302.9-9500.1)	1956.8 (294.6-9911.2)	0.023
NHL	0.75 (0.18-3.09)	1.0 (2.8-3.94)	1.21 (0.26-4.12)	<0.001

AISI, aggregate index of systemic inflammation; *BLR*, basophil-to-lymphocyte ratio; *dNLR*, derived NLR; *ELR*, eosinophil-lymphocyte ratio; *MLR*, Monocyte to lymphocyte ratio; *MPV*, mean platelet volume; *NHL*, neutrophil-to-hemoglobin and lymphocyte; *NLR*, neutrophil to lymphocyte ratio; *PLR*, platelet to lymphocyte ratio; *RDW*, red blood cell distribution width; *SII*, systemic immune-inflammation index; *SIRI*, systemic inflammation response index. *WBC*, white blood cell count.

Statistical analyses were performed by Kruskal Wallis test comparing median (P₅-P₉₅).

p-value <0.05 was considered statistically significant.

Supplementary TABLE 3 | Hematological parameters and systemic inflammation indices according to IMV support and outcome in COVID-19

Characteristics Parameters	IMV			Outcome		
	No (<i>n</i> = 196)	Yes (<i>n</i> = 352)	<i>p</i> -value	Survival (<i>n</i> = 491)	Non-survival (<i>n</i> = 316)	<i>p</i> -value
WBC, 10 ³ /mm ³	8.25 (3.9-16.5)	10.4 (5.3-19.6)	<0.001	9.5 (4.8-17.6)	10.8 (5.4-20.2)	<0.001
Neutrophil count, 10 ³ /mm ³	6.5 (2.7-13.8)	9.1 (4.3-17.3)	<0.001	8 (3.8-16.2)	9.7 (4.5-18.3)	<0.001
Lymphocyte count, 10 ³ /mm ³	0.7 (0.3-2.2)	0.6 (0.2-1.9)	0.002	0.7 (0.3-2.0)	0.6 (0.2-1.6)	<0.001
Monocyte count, 10 ³ /mm ³	0.5 (0.2-1.1)	0.5 (0.2-1.2)	0.042	0.5 (0.2-1.2)	0.5 (0.1-1.1)	0.156
Eosinophil, count 10 ³ /mm ³	0 (0-0.3)	0 (0-0.4)	0.004	0 (0-0.4)	0 (0-0.4)	0.835
Basophil count, 10 ³ /mm ³	0 (0-0.1)	0 (0-0.1)	0.420	0 (0-0.1)	0 (0-0.1)	0.602
Erythrocytes, 10 ⁶ /mm ³	4.8 (3.8-5.6)	4.3 (2.9-5.4)	<0.001	4.5 (3.0-5.5)	4.2 (2.7-5.4)	<0.001
Hemoglobin, gr/dL	14.5 (11.4-17)	13.1 (8.8-16.8)	<0.001	13.5 (9.3-16.8)	13.1 (8.3-16.9)	0.010
Hematocrit, %	42.3 (33.9-48.8)	38.6 (25.8-49.1)	<0.001	39.7 (27.9-48.9)	38.5 (25.2-49.3)	0.039
Platelet count, 10 ³ /mm ³	278 (145-485)	266 (115-485)	0.203	279 (145-500)	241.5 (95.5-456.5)	<0.001
MPV, fL	8.5 (7.1-10.3)	8.6 (7.2-10.4)	0.321	8.5 (7.1-10.2)	8.7 (7.2-10.6)	0.008
RDW	13.8 (12.7-16.7)	14.2 (13-18.2)	<0.001	14 (12.9-17.4)	14.4 (13-17.9)	0.001
PLR	386.6 (129.1-1036)	390 (126.4-1300)	0.094	379.5 (126.4-1196.6)	419 (130.0-1433.3)	0.112
NLR	8.3 (2.2-28.3)	14 (3.7-52.6)	<0.001	11 (2.9-42.5)	16.5 (4.5-62.0)	<0.001
dNLR	5.2 (1.5-14.0)	7.3 (2.1-20.2)	<0.001	6.0 (1.78-15.7)	8.3 (2.8-23.0)	<0.001
MLR	0.58 (0.20-1.75)	0.78 (0.22-2.7)	<0.001	0.66 (0.22-2.0)	0.83 (0.20-3.2)	0.001
ELR	0 (0-0.2)	0 (0-0.4)	0.004	0 (0-0.35)	0 (0-0.48)	0.476
BLR	0 (0-0.1)	0 (0-0.12)	0.422	0 (0-0.1)	0 (0-0.2)	0.425
SII	2317.7 (556.5-9873.5)	3608.9 (871-13816)	<0.001	3160.2 (688.5-12515.6)	4028.6 (897.8-15261)	<0.001
SIRI	3.89 (0.98-16.8)	7.0 (1.39-34.7)	<0.001	5.8 (1.1-26.3)	7.7 (1.5-41.9)	<0.001
AISI	1043.7 (230.6-4596.8)	1826.3 (306.9-9871.7)	<0.001	1527.2 (260.9-8312.5)	1839.2 (334.3-11295.1)	0.048
NHL	0.59 (0.14-2.16)	1.1 (0.29-4.1)	<0.001	0.83 (0.20-3.2)	1.3 (0.39-4.5)	<0.001

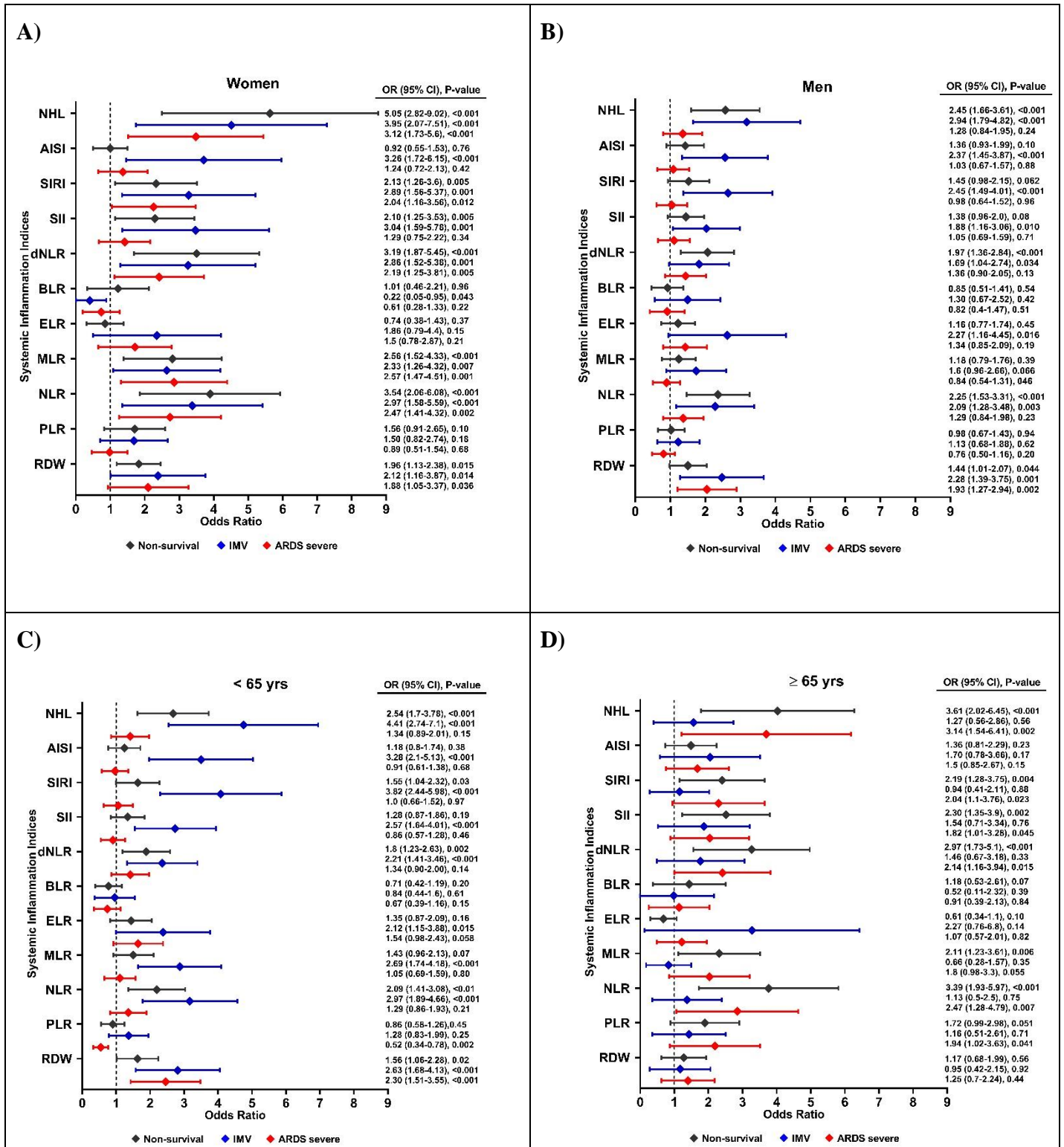
AISI, aggregate index of systemic inflammation; *BLR*, basophil-to-lymphocyte ratio; *dNLR*, derived NLR; *ELR*, eosinophil-lymphocyte ratio; *MLR*, Monocyte to lymphocyte ratio ; *MPV*, mean platelet volume; *NHL*; *NHL*, neutrophil-to-hemoglobin and lymphocyte; *NLR*, neutrophil to lymphocyte ratio; *PLR*, platelet to

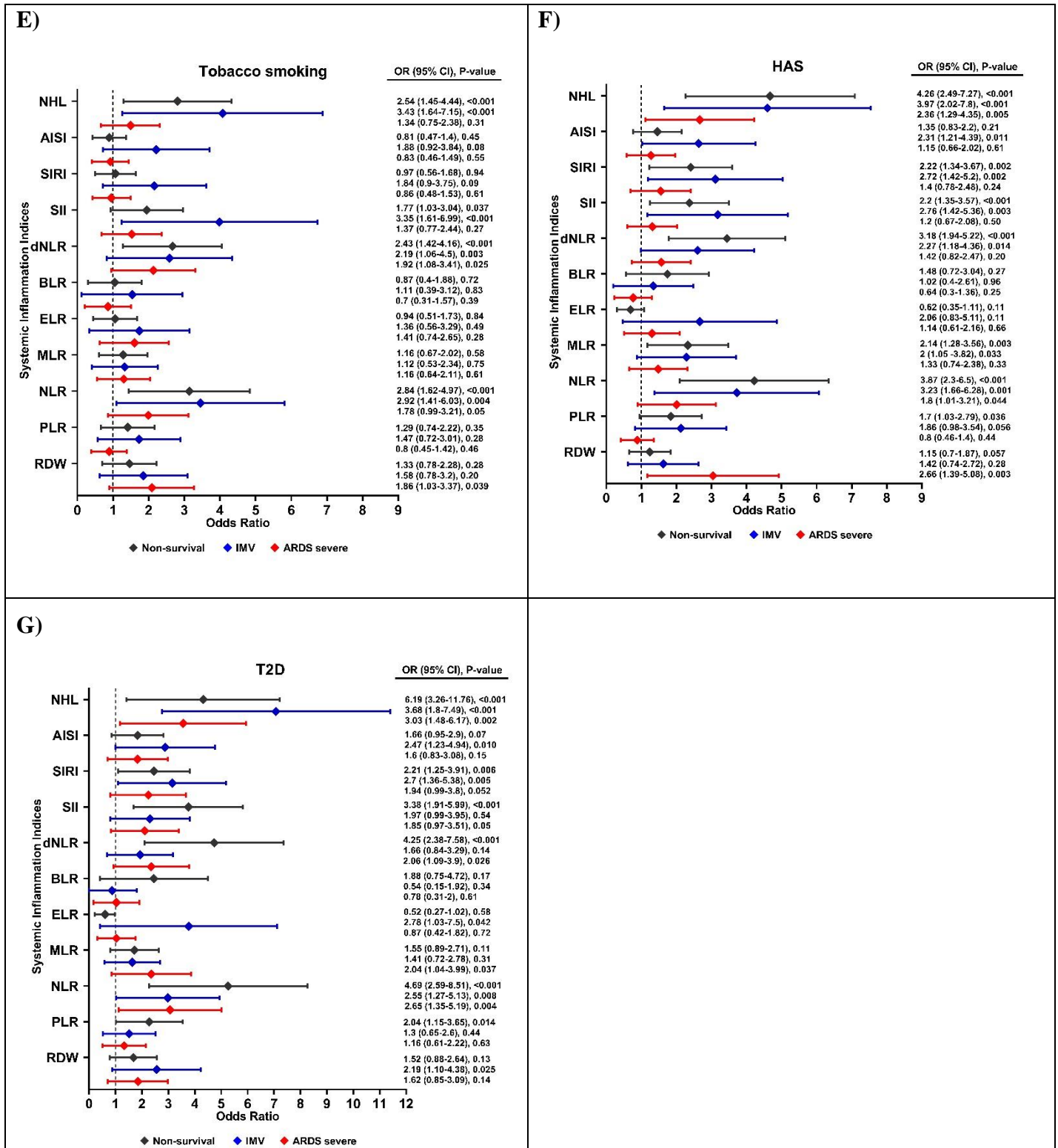
lymphocyte ratio; *RDW*, red blood cell distribution width; *SII*, systemic immune-inflammation index; *SIRI*, systemic inflammation response index; *WBC*, white blood cell count.

Statistical analyses were performed by Mann Whitney U test comparing median (P₅-P₉₅).

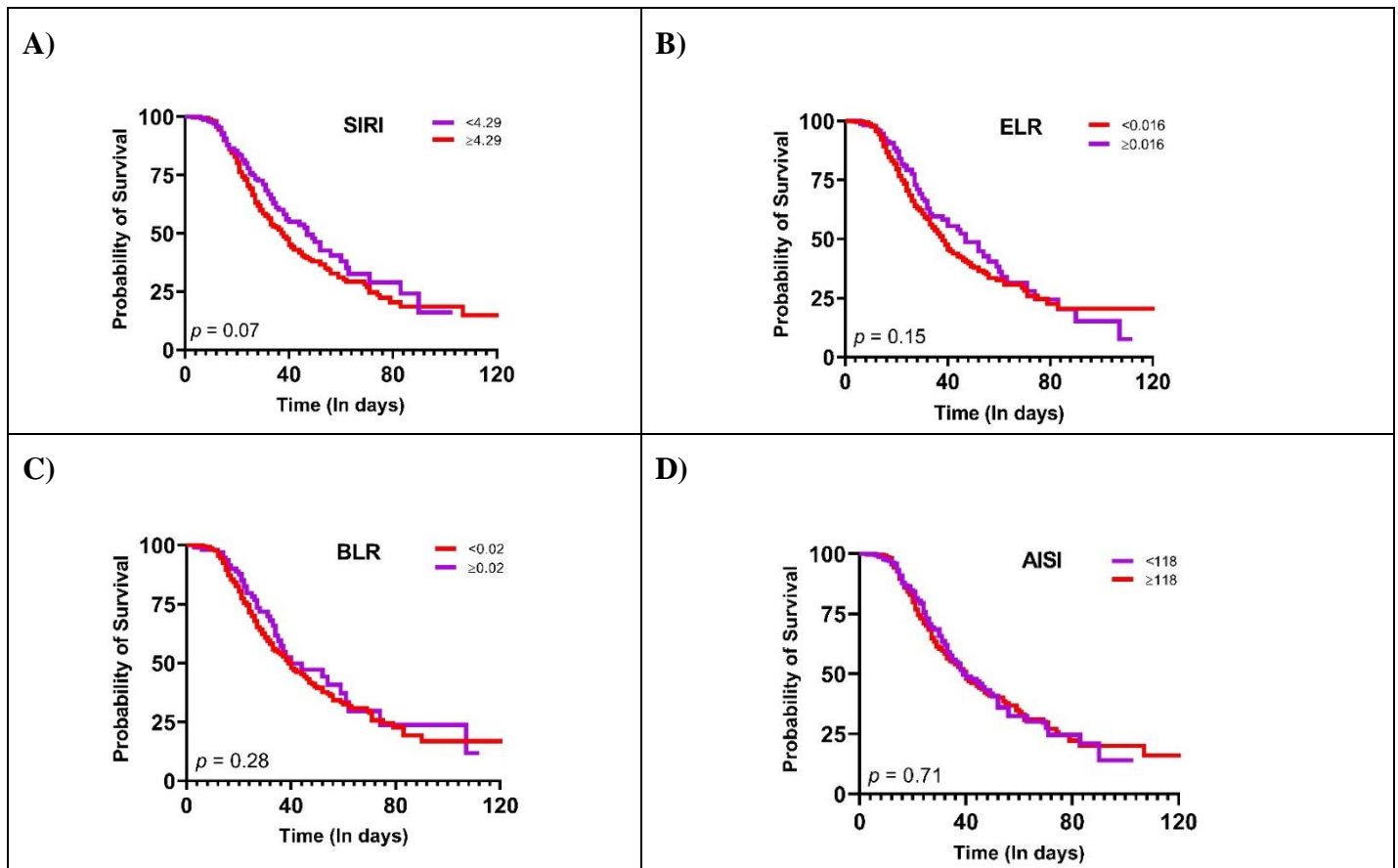
p-value <0.05 was considered statistically significant.

FIGURE





Supplementary Figure 1 | Association between systemic inflammation indices and severe COVID-19, IMV support, and non-survival by COVID-19 according to sex, age, and comorbidities presence in Mexican patients. (A) Women, (B) Men, (C) ≤65 yrs, (D) ≥65 yrs, (E) Tobacco smoking, (F) HAS, and (G) T2D. A logistic regression crude analysis. Significance was set at p -value <0.05

FIGURE


Supplementary Figure 2 | Kaplan–Meier survival curves during hospitalization of COVID-19 in Mexican patients with different cut-off values of the systemic inflammation indices not significantly related. (A) SIRI, (B) ELR, (C) BLR, (D) AISI. Statistical analyses were performed by the Kaplan-Meier method and compared using the Log-rank test. Significance was set at p -value <0.05 .