

**Tables****Supplementary Table 1: Demographic and clinical characteristics of patients with positive PCR or serology, according to severity of COVID-19**

	All patients (n=408)	Patients with mild infection (n=193)	Patients with moderate infection (n=138)	Patients with severe infection (n=77)	OR [95%CI] <sup>1</sup>	P	aOR [95%CI] <sup>1,2</sup>	P <sup>2</sup>
<b>Age (years)</b>						<0.001		<0.001
18-54	166 (40.7)	112 (58.0)	44 (31.9)	10 (13.0)	1.00 (ref.)	-	1.00 (ref.)	-
55-64	75 (18.4)	40 (20.7)	26 (18.8)	9 (11.7)	2.13 (0.83 to 5.48)	0.12	2.14 (0.83 to 5.53)	0.12
65-74	75 (18.4)	28 (14.5)	29 (21.0)	18 (23.4)	4.93 (2.15 to 11.30)	<0.001	4.88 (2.11 to 11.26)	<0.001
≥75	92 (22.5)	13 (6.7)	39 (28.3)	40 (51.9)	12.00 (5.61 to 25.68)	<0.001	12.47 (5.78 to 26.90)	<0.001
Mean ± SD	59.4 ± 16.8	52.0 ± 14.6	62.6 ± 16.0	72.3 ± 13.7				
<b>Female gender</b>	258 (63.2)	127 (65.8)	92 (66.7)	39 (50.7)	0.53 (0.32 to 0.87)	0.012	0.46 (0.27 to 0.81)	0.006
<b>Comorbidities<sup>3</sup></b>								
Respiratory disease (all)	61 (15.0)	22 (11.5)	19 (13.8)	20 (26.0)	2.47 (1.35 to 4.52)	0.004	1.93 (0.98 to 3.78)	0.057
Interstitial lung disease	22 (5.4)	6 (3.1)	7 (5.1)	9 (11.7)	3.22 (1.32 to 7.83)	0.010	2.64 (0.94 to 7.36)	0.065
COPD	19 (4.7)	8 (4.2)	4 (2.9)	7 (9.1)	2.64 (1.01 to 6.95)	0.049	1.32 (0.46 to 3.77)	0.61
Asthma	25 (6.2)	10 (5.2)	9 (6.5)	6 (7.8)	1.38 (0.53 to 3.58)	0.51	1.75 (0.60 to 5.06)	0.31
Cardiac disease (all)	67 (16.5)	12 (6.3)	28 (20.3)	27 (35.1)	3.90 (2.20 to 6.92)	<0.001	1.59 (0.82 to 3.08)	0.17
Coronary heart diseases	54 (13.3)	9 (4.7)	22 (15.9)	23 (29.9)	4.09 (2.22 to 7.55)	<0.001	1.58 (0.77 to 3.20)	0.21
Stroke	20 (4.9)	3 (1.6)	10 (7.2)	7 (9.1)	2.43 (0.94 to 6.31)	0.068	1.56 (0.55 to 4.46)	0.40
Diabetes	50 (12.3)	7 (3.7)	23 (16.7)	20 (26.0)	3.50 (1.86 to 6.58)	<0.001	2.18 (1.09 to 4.38)	0.029
Obesity						0.16		0.059
<30	268 (74.2)	137 (77.8)	84 (71.8)	47 (69.1)	1.00 (ref.)	-	1.00 (ref.)	-
30-39.9	77 (21.3)	34 (19.3)	28 (23.9)	15 (22.1)	1.14 (0.60 to 2.17)	0.70	1.43 (0.70 to 2.94)	0.33
≥40	16 (4.4)	5 (2.8)	5 (4.3)	6 (8.8)	2.82 (0.98 to 8.14)	0.055	4.16 (1.24 to 13.99)	0.021
Hypertension	123 (30.3)	27 (14.1)	50 (36.2)	46 (59.7)	4.86 (2.88 to 8.19)	<0.001	2.51 (1.37 to 4.59)	0.003
Smoking	34 (8.4)	17 (8.9)	8 (5.8)	9 (11.7)	1.61 (0.72 to 3.60)	0.25	1.69 (0.68 to 4.22)	0.26
Cancer	22 (5.4)	7 (3.7)	9 (6.5)	6 (7.8)	1.65 (0.63 to 4.37)	0.31	0.90 (0.31 to 2.64)	0.85
Chronic renal failure	34 (8.4)	8 (4.2)	10 (7.2)	16 (20.8)	4.53 (2.19 to 9.38)	<0.001	2.36 (1.04 to 5.34)	0.040
<b>No. of patients with at least 1 comorbidity</b>	303 (74.6)	119 (62.3)	112 (81.2)	72 (93.5)	6.11 (2.39 to 15.59)	<0.001	3.42 (1.29 to 9.09)	0.013
<b>Disease History<sup>4</sup></b>						<0.001		0.056
Chronic inflammatory arthritis	249 (61.0)	139 (72.0)	75 (54.3)	35 (45.5)	1.00 (ref.)	-	1.00 (ref.)	-
Auto-inflammatory diseases	8 (2.0)	1 (0.5)	4 (2.9)	3 (3.9)	NA	NA	NA	NA

Vasculitis	50 (12.3)	11 (5.7)	19 (13.8)	20 (26.0)	4.06 (2.08 to 7.88)	<0.001	2.39 (1.14 to 4.98)	0.021
Systemic auto-immune diseases	77 (18.9)	34 (17.6)	30 (21.7)	13 (16.9)	1.27 (0.62 to 2.46)	0.50	1.58 (0.73 to 3.30)	0.24

Values are presented as frequency (percentage) unless otherwise indicated.

<sup>1</sup>Odds-ratio were calculated for patients with severe infection, using patients with mild or moderate infection as reference. <sup>2</sup>Adjusted for age and sex. <sup>3</sup>2 missing value for comorbidities except for obesity where 47 values are missing. <sup>4</sup>Penalized logistic regression (Firth method) was used due to low number of patients (n<5) in an analyzed group.

Abbreviations: COPD, chronic obstructive pulmonary disease; OR, odds-ratio; CI, confidence interval; SD, standard deviation; NA, not applicable when <10/408 patients or when 0 patients with severe infection.

**Supplementary Table 2: Treatments of patients with positive PCR or serology, according to severity of COVID-19**

	All patients (n=408)	Patients with mild infection (n=193)	Patients with moderate infection (n=138)	Patients with severe infection (n=77)	OR [95% CI] <sup>1</sup>	P	aOR [95% CI] <sup>1,2</sup>	P <sup>2</sup>
<b>Rheumatic or inflammatory disease treatments<sup>3</sup></b>								
Corticosteroid	158 (38.8)	46 (23.8)	68 (49.3)	44 (57.9)	2.62 (1.57 to 4.35)	<0.001	1.72 (0.98 to 3.04)	0.059
<i>Daily prednisone doses ≥10 mg or equivalent</i>	55 (35.0)	15 (32.6)	21 (31.3)	19 (43.2)	1.63 (0.80 to 3.33)	0.18	1.40 (0.64 to 3.04)	0.40
NSAIDs <sup>4</sup>	29 (7.1)	20 (10.4)	8 (5.8)	1 (1.3)	0.21 (0.02 to 0.83)	0.072	0.43 (0.05 to 1.77)	0.33
Colchicine <sup>4</sup>	19 (4.7)	8 (4.1)	7 (5.1)	4 (5.3)	1.27 (0.38 to 3.47)	0.67	2.27 (0.57 to 7.90)	0.22
Hydroxychloroquine <sup>4</sup>	32 (7.9)	18 (9.3)	11 (8.0)	3 (3.9)	0.49 (0.13 to 1.35)	0.22	0.76 (0.19 to 2.35)	0.66
Methotrexate	156 (38.3)	83 (43.0)	48 (34.8)	25 (32.9)	0.75 (0.44 to 1.27)	0.28	1.79 (0.44 to 1.40)	0.42
Leflunomide	11 (2.7)	5 (2.6)	6 (4.3)	0	NA	NA	NA	NA
Sulfasalazine	4 (1.0)	1 (0.5)	3 (2.2)	0	NA	NA	NA	NA
Mycophenolate Mofetil / mycophenolic acid	9 (2.2)	3 (1.6)	4 (2.9)	2 (2.6)	NA	NA	NA	NA
Azathioprine	6 (1.5)	3 (1.6)	2 (1.4)	1 (1.3)	NA	NA	NA	NA
IgIV	6 (1.5)	2 (1.0)	2 (1.4)	2 (2.6)	NA	NA	NA	NA
<b>Biologics</b>								
anti-TNF	90 (22.1)	67 (34.7)	18 (13.0)	5 (6.6)	0.20 (0.08 to 0.52)	<0.001	0.42 (0.16 to 1.15)	0.090
anti-IL6 <sup>4</sup>	13 (3.2)	6 (3.1)	5 (3.6)	2 (2.6)	0.94 (0.18 to 3.26)	0.93	0.65 (0.12 to 2.53)	0.58
Rituximab	21 (5.2)	6 (3.1)	5 (3.6)	10 (13.2)	4.41 (1.80 to 10.80)	0.001	6.35 (2.23 to 18.11)	<0.001
anti-IL17a <sup>4</sup>	16 (3.9)	10 (5.2)	4 (2.9)	2 (2.6)	0.73 (0.14 to 2.47)	0.67	1.96 (0.36 to 7.32)	0.38
anti-IL1	5 (1.2)	0	3 (2.2)	2 (2.6)	NA	NA	NA	NA
Abatacept <sup>4</sup>	14 (3.4)	6 (3.1)	7 (5.1)	1 (1.3)	0.47 (0.05 to 1.96)	0.40	0.32 (0.03 to 1.56)	0.24
JAK inhibitor	9 (2.2)	2 (1.0)	3 (2.2)	4 (5.3)	NA	NA	NA	NA
Other biologic	9 (2.2)	4 (2.1)	5 (3.6)	0	NA	NA	NA	NA

Values are presented as frequency (percentage).

<sup>1</sup> Odds-ratio were calculated for patients with severe infection, using patients with mild or moderate infection as reference. <sup>2</sup> Adjusted for age and sex. <sup>3</sup> 1 missing value. <sup>4</sup> Penalized logistic regression (Firth method) was used due to low number of patients (n<5) in an analyzed group.

Abbreviations: OR, odds-ratio; CI, confidence interval; NA, not applicable when <10/408 patients or 0 patients with moderate or severe infection.

**Supplementary Table 3: Demographic and clinical characteristics of rheumatoid arthritis patients according to severity of COVID-19**

	All patients (n=213)	Patients with mild infection (n=129)	Patients with moderate infection (n=55)	Patients with severe infection (n=29)	OR [95% CI] <sup>1</sup>	P	aOR [95% CI] <sup>1,2</sup>	P <sup>2</sup>
<b>Age<sup>3</sup> (years)</b>						<0.001		<0.001
18-54	70 (32.9)	58 (45.0)	10 (18.2)	2 (6.9)	1.00 (ref.)	-	1.00 (ref.)	-
55-64	53 (24.9)	43 (33.3)	8 (14.5)	2 (6.9)	1.33 (0.20 to 8.88)	0.76	1.24 (0.19 to 8.31)	0.82
65-74	44 (20.7)	22 (17.1)	15 (27.3)	7 (24.1)	5.48 (1.38 to 30.51)	0.026	5.00 (1.25 to 27.98)	0.035
≥75	46 (21.6)	6 (4.7)	22 (40.0)	18 (62.1)	17.79 (5.17 to 93.32)	<0.001	16.89 (4.90 to 88.60)	<0.001
Mean ± SD	61.0 ± 15.2	54.3 ± 12.4	68.7 ± 13.8	76.0 ± 10.9				
<b>Female gender</b>	156 (73.2)	100 (77.5)	38 (69.1)	18 (62.1)	0.55 (0.24 to 1.24)	0.15	0.59 (0.23 to 1.47)	0.26
<b>Comorbidities<sup>4</sup></b>								
Respiratory disease (all)	30 (14.2)	11 (8.6)	13 (23.6)	6 (20.7)	1.73 (0.64 to 4.68)	0.28	1.30 (0.42 to 4.07)	0.65
Interstitial lung disease	7 (3.3)	1 (0.8)	3 (5.5)	3 (10.3)	NA	NA	NA	NA
COPD <sup>3</sup>	11 (5.2)	4 (3.1)	5 (9.1)	2 (6.9)	1.67 (0.31 to 6.30)	0.51	0.78 (0.13 to 3.45)	0.77
Asthma <sup>3</sup>	14 (6.6)	6 (4.7)	6 (10.9)	2 (6.9)	1.25 (0.23 to 4.48)	0.77	1.46 (0.21 to 7.53)	0.68
Cardiac disease (all)	32 (15.1)	4 (3.1)	17 (30.9)	11 (37.9)	4.72 (1.96 to 11.33)	<0.001	1.27 (0.46 to 3.56)	0.65
Coronary heart diseases	26 (12.3)	3 (2.3)	14 (25.5)	9 (31.0)	4.39 (1.73 to 11.16)	0.002	1.04 (0.35 to 3.14)	0.94
Stroke	9 (4.2)	1 (0.8)	5 (9.1)	3 (10.3)	NA	NA	NA	NA
Diabetes	26 (12.3)	7 (5.5)	12 (21.8)	7 (24.1)	2.75 (1.04 to 7.28)	0.042	1.24 (0.41 to 3.73)	0.70
Obesity <sup>3</sup>						0.008		0.008
<30	146 (78.9)	96 (82.1)	36 (78.3)	14 (63.6)	1.00 (ref.)	-	1.00 (ref.)	-
30-39.9	33 (17.9)	19 (16.2)	10 (21.7)	4 (18.2)	1.39 (0.40 to 4.06)	0.57	1.73 (0.46 to 5.85)	0.40
≥40	6 (3.2)	2 (1.7)	0	4 (18.2)	NA	NA	NA	NA
Hypertension	74 (34.9)	28 (21.9)	25 (45.5)	21 (72.4)	6.44 (2.69 to 15.44)	<0.001	3.36 (1.23 to 8.60)	0.017
Smoking <sup>3</sup>	20 (9.4)	13 (10.2)	5 (9.1)	2 (6.9)	0.81 (0.16 to 2.78)	0.77	1.21 (0.20 to 5.14)	0.81
Cancer	14 (6.6)	4 (3.1)	5 (9.1)	5 (17.2)	4.03 (1.25 to 13.02)	0.020	3.06 (0.77 to 12.21)	0.11
Chronic renal failure	8 (3.8)	2 (1.6)	1 (1.8)	5 (17.2)	NA	NA	NA	NA
<b>No. of patients with at least 1 comorbidity</b>	159 (75.0)	82 (64.1)	49 (89.1)	28 (96.6)	11.11 (1.47 to 83.81)	0.020	4.39 (0.54 to 35.39)	0.17

Values are presented as frequency (percentage) unless otherwise indicated.

<sup>1</sup>Odds-ratio were calculated for patients with severe infection, using patients with mild or moderate infection as reference. <sup>2</sup>Adjusted for age and sex. <sup>3</sup>Penalized logistic regression (Firth method) was used due to low number of patients (n<5) in an analyzed group. <sup>4</sup>1 missing value for comorbidities except for obesity where 28 values are missing.

Abbreviations: OR, odds-ratio; CI, confidence interval; SD, standard deviation; NA, not applicable when <10/213 patients or 0 patients with moderate or severe infection.

**Supplementary Table 4: Treatments of rheumatoid arthritis patients according to severity of COVID-19**

	All patients (n=213)	Patients with mild infection (n=129)	Patients with moderate infection (n=55)	Patients with severe infection (n=29)	OR [95% CI] <sup>1</sup>	P	aOR [95% CI] <sup>1,2</sup>	P <sup>2</sup>
Corticosteroid	72 (34.0)	31 (24.0)	23 (41.8)	18 (64.3)	4.33 (1.88 to 9.99)	<0.001	2.57 (1.01 to 6.52)	0.047
<i>Daily prednisone doses ≥10 mg or equivalent</i>	13 (18.1)	3 (9.7)	3 (13.0)	7 (38.9)	5.09 (1.43 to 18.17)	0.012	4.10 (0.99 to 16.96)	0.051
NSAIDs <sup>4</sup>	22 (10.4)	19 (14.7)	3 (5.5)	0	NA	NA	NA	NA
Hydroxychloroquine <sup>4</sup>	10 (4.7)	5 (3.9)	3 (5.5)	2 (7.1)	1.96 (0.36 to 7.59)	0.39	5.13 (0.77 to 29.07)	0.079
Methotrexate	131 (61.8)	86 (66.7)	31 (56.4)	14 (50.0)	0.57 (0.26 to 1.27)	0.17	0.49 (0.20 to 1.20)	0.12
Leflunomide	18 (8.5)	13 (10.1)	5 (9.1)	0	NA	NA	NA	NA
Sulfasalazine	1 (0.5)	0	1 (1.8)	0	NA	NA	NA	NA
<b>Biologics</b>								
anti-TNF <sup>4</sup>	50 (23.6)	41 (31.8)	8 (14.5)	1 (3.6)	0.15 (0.02 to 0.60)	0.028	0.33 (0.04 to 1.47)	0.22
anti-IL6 <sup>4</sup>	17 (8.0)	14 (10.9)	2 (3.6)	1 (3.6)	0.56 (0.06 to 2.38)	0.52	0.89 (0.08 to 4.95)	0.91
Rituximab <sup>4</sup>	13 (6.1)	7 (5.4)	3 (5.5)	3 (10.7)	2.28 (0.55 to 7.61)	0.22	5.97 (1.18 to 27.63)	0.027
Abatacept <sup>4</sup>	16 (7.5)	9 (7.0)	6 (10.9)	1 (3.6)	0.60 (0.06 to 2.56)	0.57	0.45 (0.04 to 2.45)	0.43
JAK inhibitor <sup>4</sup>	17 (8.0)	9 (7.0)	4 (7.3)	4 (14.3)	2.33 (0.67 to 6.95)	0.16	2.79 (0.68 to 10.39)	0.14
Other biologic	2 (0.9)	2 (1.6)	0	0	NA	NA	NA	NA

Values are presented as frequency (percentage).

<sup>1</sup> Odds-ratio were calculated for patients with severe infection, using patients with mild or moderate infection as reference. <sup>2</sup> Adjusted for age and sex. <sup>3</sup> 1 missing value. <sup>4</sup> Penalized logistic regression (Firth method) was used due to low number of patients (n<5) in an analyzed group.

Abbreviations: OR, odds-ratio; CI, confidence interval; NA, not applicable when <10/213 patients or 0 patients with moderate or severe infection.

**Supplementary Table 5: Demographic and clinical characteristics according to hospitalization status**

	Outpatients (n=438)	Inpatients (n=256)	OR [95% CI] <sup>1</sup>	P	aOR [95% CI] <sup>1,2</sup>	p <sup>2</sup>
<b>Age (years)</b>				<0.001		<0.001
18-54	268 (61.2)	68 (26.6)	1.00 (ref.)	-	1.00 (ref.)	-
55-64	95 (21.7)	43 (16.8)	1.78 (1.14 to 2.79)	0.011	1.80 (1.14 to 2.82)	0.011
65-74	52 (11.9)	55 (21.5)	4.17 (2.62 to 6.62)	<0.001	4.06 (2.55 to 6.47)	<0.001
≥75	23 (5.3)	90 (35.2)	15.42 (9.08 to 26.19)	<0.001	15.51 (9.11 to 26.40)	<0.001
Mean ± SD	50.6 ± 13.9	65.4 ± 16.1				
<b>Female gender</b>	309 (70.6)	153 (59.8)	0.62 (0.45 to 0.86)	0.004	0.63 (0.44 to 0.90)	0.012
<b>Comorbidities<sup>3</sup></b>						
Respiratory disease (all)	53 (12.2)	46 (18.0)	1.58 (1.03 to 2.43)	0.036	1.24 (0.76 to 2.02)	0.38
Interstitial lung disease	10 (2.3)	16 (6.3)	2.84 (1.27 to 6.36)	0.011	2.36 (0.92 to 6.06)	0.075
COPD	14 (3.2)	14 (5.5)	1.74 (0.82 to 3.72)	0.15	0.62 (0.27 to 1.43)	0.26
Asthma	32 (7.3)	20 (7.8)	1.07 (0.60 to 1.91)	0.82	1.34 (0.70 to 2.57)	0.37
Cardiac disease (all)	22 (5.0)	63 (24.6)	6.14 (3.67 to 10.28)	<0.001	2.41 (1.35 to 4.30)	0.003
Coronary heart diseases	15 (3.4)	53 (20.7)	7.33 (4.03 to 13.31)	<0.001	2.73 (1.40 to 5.30)	0.003
Stroke	7 (1.6)	18 (7.0)	NA	NA	NA	NA
Diabetes	12 (2.8)	50 (19.5)	8.58 (4.47 to 16.46)	<0.001	5.37 (2.66 to 10.85)	<0.001
Obesity				0.032		0.027
<30	303 (78.7)	156 (70.9)	1.00 (ref.)	-	1.00 (ref.)	-
30-39.9	74 (19.2)	52 (23.6)	1.37 (0.91 to 2.04)	0.13	1.55 (0.99 to 2.44)	0.055
≥40	8 (2.1)	12 (5.5)	NA	NA	NA	NA
Hypertension	71 (16.3)	111 (43.4)	3.94 (2.76 to 5.61)	<0.001	1.99 (1.33 to 2.98)	<0.001
Smoking	48 (11.0)	22 (8.6)	0.76 (0.45 to 1.29)	0.31	0.78 (0.44 to 1.41)	0.42
Cancer	13 (3.0)	20 (7.8)	2.76 (1.35 to 5.64)	0.006	1.56 (0.70 to 3.47)	0.27
Chronic renal failure	11 (2.5)	31 (12.1)	5.32 (2.63 to 10.79)	<0.001	2.76 (1.26 to 6.04)	0.011
<b>No. of patients with at least 1 comorbidity</b>	274 (62.8)	218 (85.2)	3.39 (2.28 to 5.04)	<0.001	2.05 (1.33 to 3.14)	0.001
<b>Disease History</b>				<0.001		<0.001
Chronic inflammatory arthritis	325 (74.2)	139 (54.3)	1.00 (ref.)	-	1.00 (ref.)	-
Auto-inflammatory diseases	5 (1.14)	7 (2.7)	NA	NA	NA	NA
Vasculitis	21 (4.8)	44 (17.2)	4.90 (2.81 to 8.54)	<0.001	2.61 (1.40 to 4.87)	0.003
Systemic auto-immune diseases	73 (16.7)	49 (19.1)	1.57 (1.04 to 2.37)	0.032	2.06 (1.29 to 3.29)	0.003

Values are presented as frequency (percentage) unless otherwise indicated.

<sup>1</sup>Odds-ratio were calculated for inpatients, using outpatients as reference. <sup>2</sup>Adjusted for age and sex. <sup>3</sup>2 missing values for comorbidities except for obesity where 89 values are missing. Abbreviations: OR, odds-ratio; CI, confidence interval; SD, standard deviation; NA, not applicable when <10/438 patients.

**Supplementary Table 6: Rheumatic and inflammatory disease treatments according to hospitalization status**

	Outpatient (n=438)	Inpatient (n=256)	OR [95% CI] <sup>1</sup>	P	aOR [95% CI] <sup>1,2</sup>	P <sup>2</sup>
<b>Rheumatic or inflammatory disease treatments<sup>3</sup></b>						
Corticosteroid	88 (20.1)	127 (50.0)	3.98 (2.83 to 5.58)	<0.001	2.76 (1.90 to 4.02)	<0.001
<i>Daily prednisone doses ≥10 mg or equivalent</i>	28 (31.8)	45 (36.0)	1.21 (0.68 to 2.15)	0.53	1.01 (0.53 to 1.92)	0.99
NSAIDs	61 (13.9)	12 (4.7)	0.31 (0.16 to 0.58)	<0.001	0.45 (0.23 to 0.89)	0.021
Colchicine	12 (2.7)	12 (4.7)	1.76 (0.78 to 3.98)	0.17	4.13 (1.59 to 10.74)	0.004
hydroxychloroquine	40 (9.1)	17 (6.7)	0.71 (0.40 to 1.29)	0.26	1.17 (0.60 to 2.28)	0.65
Methotrexate	164 (37.4)	88 (34.6)	0.89 (0.64 to 1.22)	0.46	0.71 (0.50 to 1.02)	0.066
Leflunomide	19 (4.3)	8 (3.1)	0.72 (0.31 to 1.66)	0.44	0.94 (0.38 to 2.29)	0.89
Sulfasalazine	5 (1.1)	4 (1.6)	NA	NA	NA	NA
Mycophenolate Mofetil / mycophenolic acid	9 (2.1)	7 (2.8)	1.35 (0.50 to 3.67)	0.56	3.22 (1.09 to 9.57)	0.035
Azathioprine	5 (1.1)	4 (1.6)	NA	NA	NA	NA
IgIV	3 (0.7)	4 (1.6)	NA	NA	NA	NA
<b>Biologics</b>						
anti-TNF	170 (38.8)	32 (12.6)	0.23 (0.15 to 0.35)	<0.001	0.35 (0.22 to 0.55)	<0.001
anti-IL6	19 (4.3)	7 (2.8)	0.63 (0.26 to 1.51)	0.30	0.56 (0.21 to 1.49)	0.24
Rituximab	16 (3.7)	18 (7.1)	2.01 (1.01 to 4.02)	0.048	1.95 (0.90 to 4.23)	0.091
anti-IL17a	19 (4.3)	8 (3.1)	0.72 (0.31 to 1.66)	0.44	1.45 (0.60 to 3.53)	0.41
anti-IL1	3 (0.7)	5 (2.0)	NA	NA	NA	NA
anti-IL4/IL13	1 (0.2)	0 (0.0)	NA	NA	NA	NA
abatacept	10 (2.3)	8 (3.1)	1.39 (0.54 to 3.57)	0.49	1.24 (0.43 to 3.60)	0.69
JAK inhibitor	13 (3.0)	8 (3.1)	1.06 (0.44 to 2.60)	0.89	0.94 (0.35 to 2.53)	0.91
Other biologic	11 (2.5)	5 (2.0)	0.78 (0.27 to 2.27)	0.65	0.89 (0.28 to 2.81)	0.84

Values are presented as frequency (percentage).

<sup>1</sup>Odds-ratio were calculated for inpatients, using outpatients as reference. <sup>2</sup>Adjusted for age and sex. <sup>3</sup>2 missing values.

Abbreviations: OR, odds-ratio; CI, confidence interval; NA, not applicable when <10/438 patients.

**Supplementary Table 7: Multivariable analyses for hospitalization status**

Variable	Imputed analysis <sup>1</sup> (n=694)			Available case analysis (n=601)		
	n / N	OR [95% CI]	P	n / N	OR [95% CI]	P
<b>Age</b>	256 / 694	1.05 (1.04 to 1.07)	<0.001	218 / 601	1.05 (1.04 to 1.06)	<0.001
<b>Female gender</b>	153 / 462	0.65 (0.43 to 0.99)	0.046	129 / 365	0.62 (0.41 to 0.93)	0.21
<b>Diabetes</b>	50 / 62	4.33 (2.07 to 9.07)	<0.001	44 / 55	4.39 (2.08 to 9.27)	<0.001
<b>BMI</b>	256 / 694	1.06 (1.02 to 1.10)	0.002	218 / 601	1.06 (1.02 to 1.09)	0.003
<b>Disease History</b>			0.039	-	-	-
Chronic inflammatory arthritis	139 / 464	1.00 (ref.)	-	-	-	-
Auto-inflammatory diseases	7 / 12	6.37 (1.45 to 28.05)	0.014	-	-	-
Vasculitis	44 / 65	1.60 (0.76 to 3.31)	0.21	-	-	-
Systemic auto-immune diseases	49 / 122	1.51 (0.87 to 2.62)	0.15	-	-	-
<b>Corticosteroids</b>	128 / 216	1.94 (1.24 to 3.05)	0.004	108 / 188	2.25 (1.47 to 3.45)	<0.001
<b>Colchicine</b>	12 / 24	3.34 (1.14 to 9.79)	0.028	12 / 22	3.87 (1.39 to 10.75)	0.009
<b>Anti-TNF</b>	32 / 202	0.55 (0.32 to 0.95)	0.031	28 / 175	0.47 (0.28 to 0.78)	0.003

Odds-ratio were calculated using multivariable penalized logistic regression models (Firth method), using a forward selection method, with patients with mild or moderate infection as reference. Only variables selected by the model are presented. Full model included age, sex, cardiac disease, diabetes, BMI, hypertension, chronic renal failure, disease history, corticosteroids, NSAIDs, colchicine, Mycophenolate Mofetil / mycophenolic acid and anti-TNF.

n / N indicates the number of events / number of cases.

<sup>1</sup>Odds-ratio and p-value were calculated after multiple imputations (m=10) to handle missing data.

Abbreviations: OR, odds-ratio; CI, confidence interval; BMI, body mass index.



**Supplementary Table 8: Differences in predefined confounders factors between cases and controls before and after propensity score matching**

	<u>Before matching</u>			<u>After matching</u>		
	Cases from French RMD COVID-19 cohort (n=218)	Controls from LICORNE (n=280)	ASD (%)	Cases from French RMD COVID-19 cohort (n=175)	Controls from LICORNE (n=175)	ASD (%)
Age	65.0 ± 16.4	62.9 ± 15.0	13.2	64.1 ± 16.2	64.6 ± 15.3	3.3
Sex (Male)	89 (40.8)	194 (69.3)	59.7	89 (50.9)	93 (53.1)	4.6
BMI	27.5 ± 6.3	29.2 ± 6.7	26.0	28.1 ± 6.6	28.3 ± 6.3	3.2
Cardiac disease	57 (26.1)	66 (23.6)	6.0	44 (25.1)	43 (24.6)	1.3
Diabetes	45 (20.6)	79 (28.2)	17.7	42 (24.0)	40 (22.9)	2.7
Hypertension	97 (44.5)	141 (50.4)	11.8	80 (45.7)	79 (45.1)	1.2
Renal failure	27 (12.4)	26 (9.3)	10.0	19 (10.9)	18 (10.3)	1.9

Values are presented as mean ± standard deviation or frequency (percentage).  
Abbreviations: ASD, absolute standardized difference; BMI, body mass index.

**Supplementary Table 9. Summary of deaths during study**

<i>Patient Number</i> Age/Gender	Type of inflammatory RMD	Comorbidities	Concomitant corticosteroids	DMARDs	COVID-19 Pulmonary complication	COVID-19 treatment
1 34/M	Behçet disease	Diabetes Hypertension Obesity (BMI=43)	none	Colchicine	Yes	HCQ Corticosteroids Anti-IL6
2 37/M	Systemic Sclerosis	Cardiac disease Hypertension ILD Stroke	10 mg/day	Mycophenolate Mofetil Rituximab	Yes	none
3 50/M	Rheumatoid Arthritis	Cancer	4 mg/day	Methotrexate Rituximab	Yes	Azithromycin
4 57/M	Recurrent periodic fever and AA amyloidosis	Hypertension Renal insufficiency	none	Colchicine Anakinra	Yes	none
5 58/M	Inflammatory Myopathy	Smoker	10 mg/day	none	Yes	Lopinavir Ritonavir
6 61/F	Sarcoidosis	Cardiac disease COPD Diabetes Hypertension Obesity (BMI=38) Smoker	7.5 mg/day	Methotrexate Infliximab	Yes	Lopinavir Ritonavir
7 62/M	Spondyloarthritis	Renal insufficiency		Adalimumab	Yes	none
8 63/F	Systemic Lupus Erythematosus	Diabetes Hypertension Obesity (BMI=33)	15 mg/day	HCQ	Yes	none
9 63/F	Systemic Lupus Erythematosus	Hypertension Renal insufficiency	5 mg/day	Mycophenolate Mofetil	Yes	none
10 64/F	Rheumatoid Arthritis	Diabetes Hypertension PID	5 mg/day	HCQ Rituximab	Yes	Azithromycin HCQ Corticosteroids
11 66/M	Psoriatic arthritis	Asthma		Adalimumab	Yes	none
12 67/F	Rheumatoid Arthritis	Cancer Hypertension Smoker	75 mg/day	none	Yes	none
13 68/M	ANCA vasculitis	Renal insufficiency	5 mg/day	Rituximab	Yes	none
14 69/M	ANCA vasculitis	Renal insufficiency	none	Azathioprine	Yes	none
15 69/F	UCTD	none	none	Methotrexate	Yes	none

16 70/M	Systemic Sclerosis	Cardiac disease PID Stroke	none	Bosentan	Yes	none
17 72/M	Polymyalgia rheumatica	Diabetes	10 mg/day	none	Yes	none
18 75/M	ANCA vasculitis	Cancer COPD Hypertension	30 mg/day	Rituximab	No	Azithromycin HCQ Corticosteroids
19 75/F	Auto-inflammatory disease	Cardiac disease COPD	3 mg/day	Lenalidomide Bortezomib	Yes	Lopinavir Ritonavir
20 75/M	Sjögren syndrome	Cardiac disease Diabetes Hypertension Renal insufficiency	none	none	Yes	none
21 76/F	Inflammatory Myopathy	Cardiac disease Hypertension Obesity (BMI=30)	10 mg/day	Immunoglobulin	Yes	none
22 77/F	Rheumatoid Arthritis	Cardiac disease Hypertension	7.5 mg/day	none	No	Corticosteroids
23 78/M	ANCA vasculitis	none	50 mg/day	Rituximab	Yes	none
24 78/F	Rheumatoid Arthritis	Hypertension Renal insufficiency	2.5 mg/day	Methotrexate	Yes	none
25 78/M	Rheumatoid Arthritis	Cancer Obesity (BMI=31)	5 mg/day	Methotrexate Abatacept	Yes	none
26 78/M	MCTD	Hypertension Obesity (BMI=34) PID	10 mg/day	Cyclophosphamide	Yes	none
27 80/F	Rheumatoid Arthritis	Cardiac disease	1 mg/day	Etanercept	No	none
28 80/M	Periodic fever	COPD Cardiac disease Hypertension Smoker	none	Colchicine Anakinra	Yes	none
29 80/M	Rheumatoid Arthritis	Diabetes Hypertension Renal insufficiency	5 mg/day	none	No	Lopinavir Ritonavir
30 81/F	Rheumatoid Arthritis	Hypertension	20 mg/day	Methotrexate	Yes	Corticosteroids
31 81/F	Rheumatoid Arthritis	Hypertension	3 mg/day		Yes	none
32 82/M	Psoriatic arthritis	none	none	none	Yes	none
33 82/F	Rheumatoid Arthritis	Hypertension	5 mg/day	Methotrexate	No	none
34	Rheumatoid Arthritis	Cardiac disease	18 mg/day	Tofacitinib	Yes	none

82/F		Hypertension				
35 82/F	Sjögren syndrome	Asthma Diabetes Hypertension Obesity (BMI=35) ILD	65 mg/day	none	Yes	none
36 83/F	Giant cell arteritis	Cardiac disease Diabetes Hypertension Obesity (BMI=33) Renal insufficiency	3 mg/day	Tocilizumab	Yes	none
37 83/F	Psoriatic arthritis	Cardiac disease Diabetes Hypertension Obesity (BMI=30)	none	none	Yes	Lopinavir Ritonavir
38 84/F	ANCA vasculitis	Hypertension Stroke	none	none	Yes	none
39 84/M	Polymyalgia rheumatica	Cardiac disease Hypertension	10 mg/day	none	Yes	Darunavir Ritonavir
40 84/M	Adult onset Still disease	Cancer Cardiac disease Renal insufficiency Smoker Stroke	none	none	Yes	none
41 85/F	Rheumatoid Arthritis	Hypertension	10 mg/day	none	Yes	none
42 85/M	Giant cell arteritis	Diabetes Hypertension	10 mg/day	none	Yes	none
43 85/M	Giant cell arteritis	Hypertension Obesity (BMI=37)	4 mg/day	Methotrexate	Yes	Azithromycin HCQ
44 85/M	Giant cell arteritis	Cardiac disease Hypertension	10 mg/day	none	No	none
45 85/F	Inflammatory Myopathy	Hypertension Obesity (BMI=33)	70 mg/day	Colchicine	Yes	HCQ
46 86/F	Rheumatoid Arthritis	Cardiac disease Diabetes Hypertension Obesity (BMI=31)	none	none	No	none
47 86/F	Rheumatoid Arthritis	Diabetes Hypertension Obesity (BMI=42) Renal insufficiency	none	Tofacitinib	Yes	HCQ Azithromycin
48 86/F	Rheumatoid Arthritis	Diabetes Hypertension	none	Methotrexate	Yes	none
49	ANCA vasculitis	Cardiac disease	10 mg/day	none	Yes	Corticosteroids

87/F		COPD Hypertension Renal insufficiency				
50 87/F	Rheumatoid Arthritis	Asthma Diabetes Obesity (BMI=42) ILD Renal insufficiency	none	Methotrexate	Yes	none
51 87/F	Sarcoidosis	Cardiac disease Diabetes Obesity (BMI=45) Renal insufficiency	7.5 mg/day	none	Yes	HCQ
52 87/M	Rheumatoid Arthritis	Cancer Cardiac disease Diabetes Hypertension	10 mg/day	Methotrexate	Yes	Corticosteroids
53 88/M	ANCA vasculitis	Cardiac disease Renal insufficiency	55 mg/day	Rituximab	Yes	Corticosteroids
54 88/F	Rheumatoid Arthritis	Cardiac disease Hypertension Stroke Renal insufficiency	75 mg/day	none	Yes	HCQ
55 88/F	Giant cell arteritis	Cardiac disease Diabetes Hypertension ILD Smoker	none	none	Yes	none
56 89/M	Rheumatoid Arthritis	Cardiac disease Hypertension ILD	5 mg/day	Methotrexate	Yes	none
57 95/M	Polymyalgia rheumatica	Cardiac disease	7 mg/day	none	Yes	Corticosteroids
58 98/F	Polymyalgia rheumatica	Cardiac disease COPD Hypertension Renal insufficiency	none	none	Yes	none

HCQ, hydroxychloroquine; RMD, rheumatic musculoskeletal diseases; BMI, body mass index; COPD, chronic obstructive pulmonary disease; ILD, interstitial lung disease; UCTD, undifferentiated connective tissue diseases; MCTD, mixed connective tissue diseases.

**Supplementary Table 10. Anti-viral and immunomodulating therapies used for the management of COVID-19 in the French COVID-19 RMD cohort**

Treatment	All patients (n=694)	Patients with mild infection (n=438)	Patients with moderate infection (n=169)	Patients with severe infection (n=87)
<b>Total</b>	129 (18.6%)	45 (10.3%)	51 (30.2%)	33 (37.9%)
<b>HCQ</b>	40 (5.8%)	10 (2.2%)	22 (13%)	8 (9.2%)
<b>AZI</b>	26 (3.7%)	23 (5.2%)	2 (1.2%)	1 (1.1%)
<b>Lopinavir/Ritonavir</b>	21 (3%)	4 (0.9%)	6 (3.5%)	11 (12.6%)
<b>Darunavir/Ritonavir</b>	10 (1.4%)	-	9 (5.3%)	1 (1.1%)
<b>Remdesivir</b>	2 (0.3%)	-	-	2 (2.3%)
<b>Tocilizumab</b>	3 (0.4%)	1 (0.2%)	1 (0.6%)	1 (1.1%)
<b>Anakinra</b>	1 (0.1%)	-	1 (0.6%)	-
<b>HCQ + AZI</b>	24 (3.5%)	7 (1.6%)	10 (5.9%)	7 (8%)
<b>HCQ + AZI + anakinra</b>	1 (0.1%)	-	-	1 (1.1%)

HCQ: hydroxychloroquine; AZI: azithromycin