

Online supplementary material

Online supplementary Table S1. Clinical characteristics at baseline.

	TCZ + SOC group (n = 40)	SOC group (n =40)
Gender		
Male	26 (65.0%)	26 (65.0%)
Age	56.0 (50.3-73.2)	54.5 (50.0-73.0)
Chronic underlying comorbidities		
Arterial hypertension	21 (52.5%)	22 (55.0%)
Diabetes mellitus	5 (12.5%)	8 (20.0%)
Coronary heart disease	3 (7.5%)	4 (10.0%)
Atrial fibrillation	2 (5.0%)	4 (10.0%)
COPD	7 (17.5%)	5 (12.5%)
Chronic kidney disease	1 (2.5%)	3 (7.5%)
Obesity	2 (5.0%)	3 (7.5%)
Liver Cirrhosis	2 (5.0%)	1 (2.5%)
Malignancy	2 (5.0%)	3 (7.5%)
HIV	1 (2.5%)	0
Signs and symptoms on admission		
Fever	38 (95.0%)	40 (100%)
Cough	27 (67.5%)	26 (65.0%)
Dyspnea	26 (65.0%)	19 (47.5%)
Fatigue or myalgia	18 (45.0%)	12 (30.0%)
Nausea, vomit or diarrhea	5 (12.5%)	5 (12.5%)
Headache or confusion	5 (12.5%)	3 (7.5%)
Chest discomfort	2 (5.0%)	3 (7.5%)
Symptoms onset to hospitalization	5.0 (4.0-7.0)	6.0 (3.0-7.0)

Vital signs on admission

Systolic blood pressure, mmHg	132.5 (124.5-150.0)	130.0 (120.0-142.5)
Diastolic blood pressure, mmHg	80.0 (70.0-86.3)	80.0 (70.0-80.0)
Heart rate, beats per minute	90.0 (81.0-98.0)	88.5 (80.0-100.0)
Respiratory rate, breaths per minute	20.0 (18.0-23.0)	18.0 (16.0-20.0)

Concomitant pharmacologic treatment during hospital stay

Hydroxychloroquine	39 (97.5%)	35 (87.5%)
Darunavir/cobicistat	13 (32.5%)	21 (52.5%)
Lopinavir/ritonavir	2 (5.0%)	2 (5.0%)
Systemic corticosteroids	26 (65.0%)	23 (57.5%)

Data presented as N (%) or median (interquartile range).

Abbreviations: TCZ=tocilizumab; SOC=standard of care; COPD=chronic pulmonary obstructive disease; HIV=human immunodeficiency virus.

Online supplementary Table S2. Laboratory values and oxygenation parameters of TCZ+SOC and SOC groups.

	TCZ + SOC group			SOC group			Normal range
	Baseline	Day 1	Day 3	Baseline	Day 1	Day 3	
Laboratory values							
White blood cell count, x10 ³ /μL	5.5 (4.6-7.0)	4.9 (4.0-7.4)	5.7 (3.8-8.1)	6.5 (4.5-8.2)	6.5 (4.5-8.7)	7.1 (5.1-9.4)	4.8-10.8
Neutrophil count, x10 ³ /μL	4.0 (3.1-5.5)	3.6 (2.3-5.5)	3.7 (2.1-5.5)	5.2 (3.3-6.8)	4.5 (4.5-7.3)	4.4 (4.4-7.4)	1.4-6.5
Lymphocyte count, x10 ³ /μL	0.9 (0.7-1.2)	0.9 (0.7-1.2)	1.0 (0.7-1.4)	0.9 (0.6-1.2)	0.9 (0.6-1.3)	1.0 (0.6-1.3)	1.2-3.4
Aspartate aminotransferase, U/L	26.5 (17.8-35.3)	26.5 (19.5-31.0)	30.0 (23.0-41.0)	31.0 (22.0-38.0)	31.0 (23.0-38.8)	30.0 (21.0-45.0)	5-34
Alanine aminotransferase, U/L	18.0 (13.5-33.0)	23.0 (15.0-37.0)	37.0 (19.0-61.0)	25.0 (19.5-33.5)	28.0 (21.3-36.0)	32.0 (20.5-40.0)	0-55
C reactive protein, mg/dL	73.7 (55.1-137.3)	51.4 (26.3-78.5)	14.0 (8.3-34.3)	60.8 (30.8-128.4)	77.2 (47.3-133.5)	77.2 (56.6-121.6)	0.0-5.0
Oxygenation							
P/F	201.0 (164.8-258.5)	218.0 (192.5-269.5)	250.5 (220.3-317.8)	258.5 (212.3-301.0)	201.0 (146.8-264.5)	173.0 (132.5-257.5)	≥400
Body temperature, °C	37.5 (37.2-38.0)	36.5 (36.3-37.0)	36.3 (36.0-36.5)	38.0 (37.8-38.6)	37.6 (37.0-38.0)	37.0 (36.5-37.7)	<37.5

Data presented as median (interquartile range).

Abbreviations: TCZ=tocilizumab; SOC=standard of care; P/F=partial pressure of oxygen to fraction of inspired oxygen ratio.

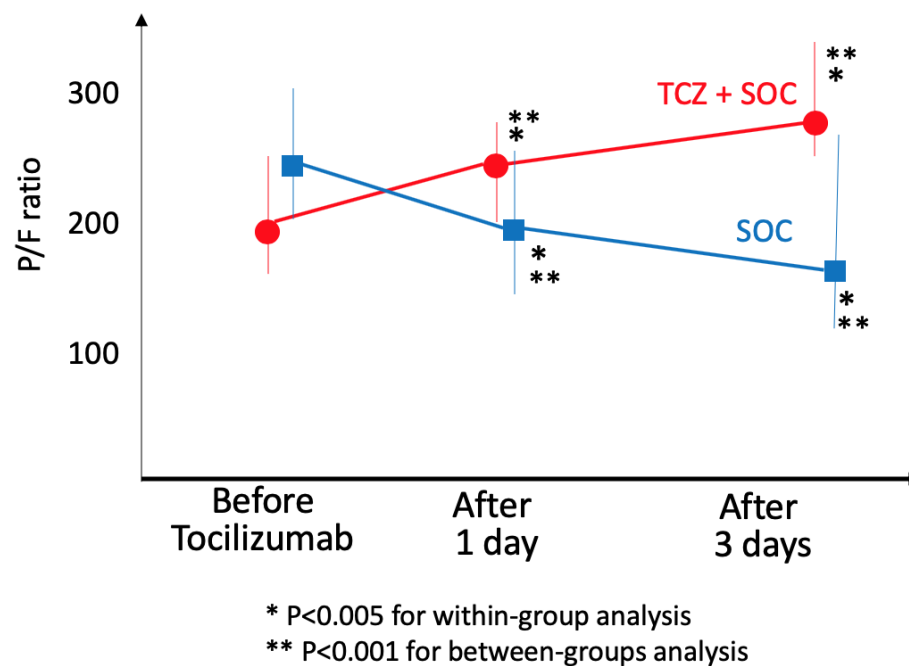
Online supplementary Table S3. WHO Ordinal Scale for Improvement for COVID-19 patients treated with TCZ+SOC and SOC only.

	TCZ+SOC group			SOC group		
	Baseline	Day 14	Day 35	Baseline	Day 14	Day 35
Ambulatory						
Without limitations or oxygen therapy	0	17 (42.5%)	37 (92.5%)	0	17 (42.5%)	28 (70.0%)
With limitations or with oxygen therapy	0	0	0	0	0	0
Hospitalized						
No supplemental oxygen	0	15 (37.5%)	0	0	5 (12.5%)	1 (2.5%)
Oxygen therapy by mask or nasal cannulas	40 (100%)	6 (15.0%)	1 (2.5%)	40 (100%)	7 (17.5%)	0
Non-invasive ventilation or high-flow oxygen	0	0	0	0	1 (2.5%)	0
Invasive mechanical ventilation	0	1 (2.5%)	0	0	4 (10.0%)	0
Invasive mechanical ventilation + additional organ support	0	0	0	0	1 (2.5%)	0
Dead	0	1 (2.5%)	2 (5.0%)	0	5 (12.5%)	11 (27.5%)

For patients with chronic lung diseases on home oxygen, the use of oxygen therapy was considered only if in excess to the chronic use.

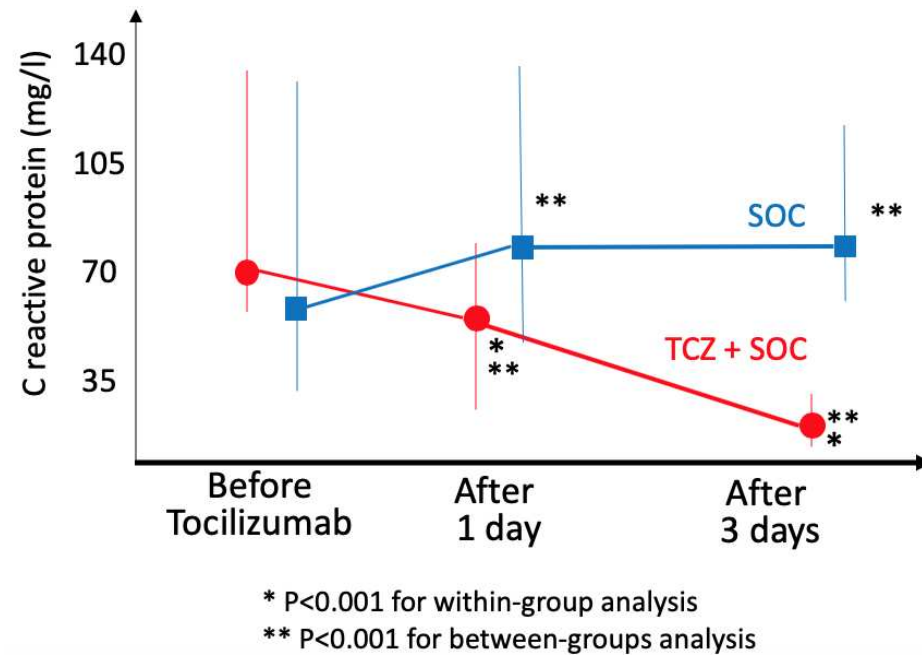
Abbreviations: TCZ=tocilizumab; SOC=standard of care.

Online supplementary Figure S1. Changes in P/F ratio.



Interval changes are shown in partial pressure of oxygen to fraction of inspired oxygen (P/F), a measure of hypoxemia, in the patients who received tocilizumab (TCZ) on top of standard of care (SOC)(N=40) as compared with patients who received standard of care only (SOC)(N=40). Patients receiving TCZ had a significant improvement in CRP and P/F at 1 and 3 days (P=0.005 and P<0.001 for within-group changes day 1 and 3 respectively). P/F ratio significantly worsened in the SOC only group (P <0.001). When compared with patients receiving SOC only, patients receiving TCZ on top of SOC had a significantly greater reduction in CRP and improvement in P/F ratio (P<0.001 for between-groups differences at each timepoint).

Online supplementary Figure S2. Changes in C reactive protein.



Interval changes are shown in C reactive protein (CRP) in the patients who received tocilizumab (TCZ) on top of standard of care (SOC)(N=40) as compared with patients who received SOC only (N=40). Patients receiving TCZ had a significant improvement in CRP at 1 and 3 days (P<0.001 for within-group changes at each timepoint). When compared with patients receiving SOC only, patients receiving TCZ on top of SOC had a significantly greater reduction in CRP (P<0.001 for between-groups differences at each timepoint).