Supplementary Online Content

Li L, Zhang W, Hu Y, et al. Effect of convalescent plasma therapy on time to clinical improvement in patients with severe and life-threatening COVID-19: a randomized clinical trial. *JAMA*. Published online May 29, 2020. doi:10.1001/jama.2020.10044

This supplementary material has been provided by the authors to give readers additional information about their work.

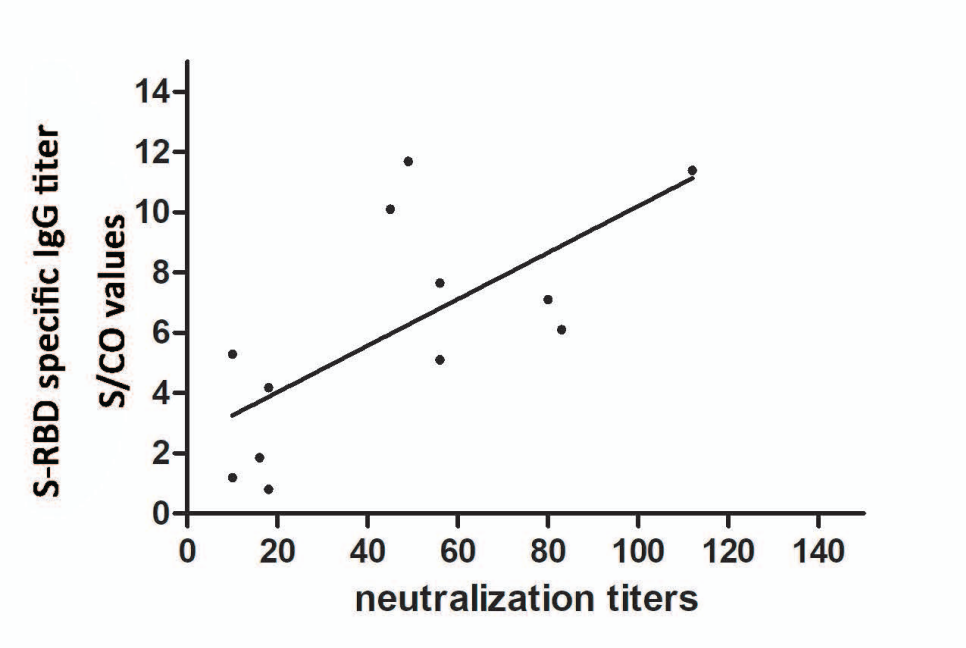
Corrected August 4, 2020

eMethods

We developed the S-RBD-specific IgG ELISA assay in-house. First, 96 well plates (Thermo Scientific, Waltham, Massachusetts, USA) were coated with 100 ng of recombinant RBD polypeptides (Sino Biological, Beijing, China) per well. Then after overnight coating, the plates were emptied of the coating solution and blocked at 37°C for an hour with PBS containing 1% skim milk. The following dilutions were made on patients' plasma: 1:160, 1:320, 1:640, and 1:1280 with 0.5% Triton X-100 phosphate-buffered saline and 5% fetal calf serum (Gibco, Grand Island, New York, USA). Diluted plasma was added to the plates. The plates were then washed and added with mouse-to-human secondary antibodies; then the horseradish peroxidase reaction was observed for OD values at 450 nm and 630 nm absorbance. Titers were reported as the highest plasma dilution when the ELISA assay was still positive.

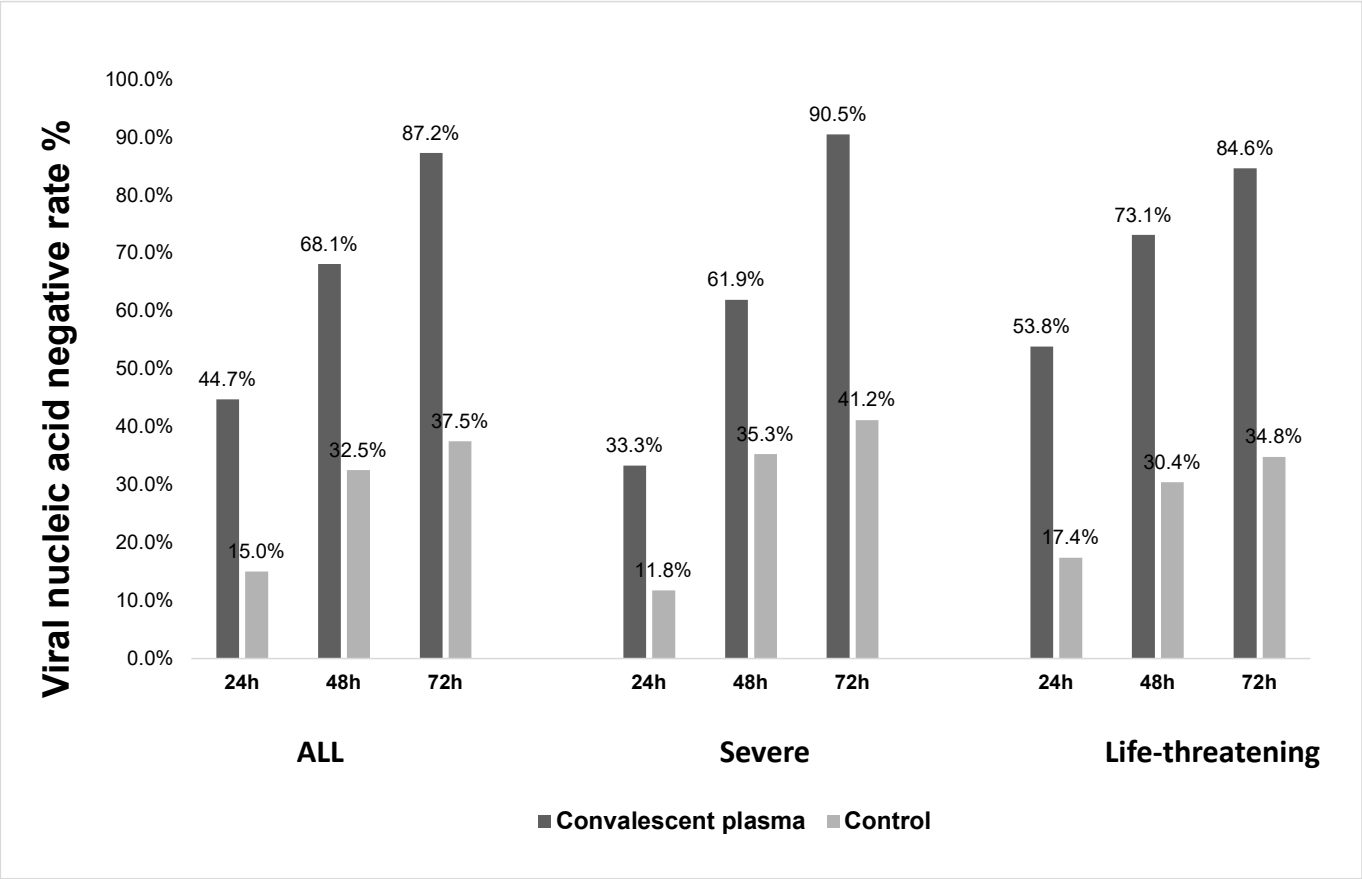
The S-RBD-specific IgG ELISA was tested for correlation with a SARS-CoV-2 viral neutralization assay. SARS-CoV-2 virus was isolated from a COVID-19 patient and was cultured on Vero cells (American Tissue Culture Collection [ATCC], CCL-81). Then the viral neutralization activity was determined based on TCID50 (Median Tissue Culture Infectious Dose). Subject's sera were incubated at 56°C for 30 minutes to deactivate the complements and then diluted from 1:10, 1:20, 1:40, 1:80, to 1:160. Equal volumes of SARS-CoV-2 virus at a dose of 100 TCID50 were then mixed with the diluted serum and then incubated at 37°C for one hour. Quadruplicates of the mixtures was added to Vero cells cultured in 96- well microtiter plates, then decanted after one hour and replaced with 200 ml fresh growth medium. Samples of normal volunteers were used as the control. After 5 days of incubation, the cytopathic effect was examined. The Reed-Muench method was used to calculate the neutralizing antibody titers.

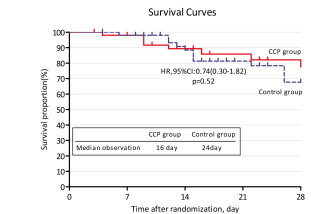
There was a positive correlation between the SARS-CoV-2 viral neutralization titer and the S-RBD- specific IgG titer ($r = 0.622$, $p = 0.030$), please see the eFigure below. A serum neutralization titer of 1:80 is approximately equivalent to a titer of 1:1280 for S-RBD-specific IgG.

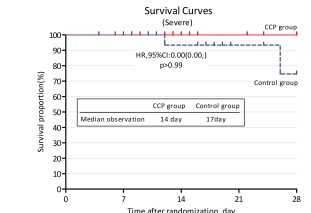


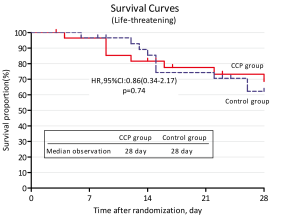
The correlation between the SARS-CoV-2 viral neutralization titer and the S-RBD–specific IgG titer

eFigure 1. Accumulative Viral Nucleic Acid Negative Rate at 24, 48, and 72 h









eFigure 2. Survival Curves in Patients with COVID-19

eTable 1. Baseline Demographics and Clinical Characteristics of Patients with Severe COVID-19[a]

Characteristics	Convalescent plasma group n=23	Control group n=22
Age, Median (IQR), y	72.00 (65.00-83.00)	71.00 (66.00-77.00)
Male, No. (%)	13 (56.5%)	11 (50.0%)
Female, No. (%)	10 (43.5%)	11 (50.0%)
Allergic history, No. (%)[b]	2 (8.7%)	1 (4.6%)
Coexisting diseases[c]		
Hypertension, No. (%)	17 (73.9%)	11 (50.0%)
Cardiovascular disease, No. (%)	7 (30.4%)	6 (27.3%)
Cerebrovascular disease, No. (%)	6 (26.1%)	2 (9.1%)
Diabetes, No. (%)	5 (21.7%)	4 (18.2%)
Cancer, No. (%)	2 (8.7%)	0 (0.0%)
Kidney disease, No. (%)	2 (8.7%)	1 (4.6%)
Liver disease, No. (%)	2 (8.7%)	0 (0.0%)
Body temperature, Median (IQR), ℃[d]	36.40 (36.20-36.80)	36.50 (36.30-36.80)
≥37.3℃, No. (%)	2 (8.7%)	1 (4.6%)
Respiratory rate>24/min, No. (%)[d]	3 (13.0%)	3 (13.6%)
Heart rate>100/min, No. (%)[d]	5 (21.7%)	3 (13.6%)
Systolic blood pressure>140 mmHg, No. (%)†[d]	2 (8.7%)	9 (40.9%)
White blood cell count, Median (IQR), /μL[e]	6700 (4800-7600)	6720 (4600-9800)
<4000/μL	4 (17.4%)	2 (9.1%)
4000-10000/μL	17 (73.9%)	15 (68.2%)

Characteristics	Convalescent plasma group n=23	Control group n=22
>10000/μL	2 (8.7%)	5 (22.7%)
Neutrophil count, Median (IQR), /μL[e]	5050 (2610-5690)	4800 (3340-7530)
<1800/μL	0 (0.0%)	1 (4.6%)
1800-6300/μL	18 (78.3%)	14 (63.6%)
>6300/μL	5 (21.7%)	7 (31.8%)
Lymphocyte count, Median (IQR), /μL[e]	1180 (750-1660)	1090 (750-1530)
<1000/μL	10 (43.5%)	10 (45.5%)
≥1000/μL	13 (56.5%)	12 (54.6%)
Platelet count, Median (IQR), $\times 10^3$/μL[e]	213.00 (144.00-283.00)	241.00 (213.00-282.00)
<100×10^3/μL	2 (8.7%)	0 (0.0%)
≥100×10^3/μL	21 (91.3%)	22 (100.0%)
CRP, Median (IQR), mg/L[e]	8.59 (2.76-58.82) [n=21]	7.40 (1.86-14.67) [n=22]
>5mg/L	14/21 (66.7%)	12/22 (54.6%)
IL-6>7pg/mL	11/20 (55.0%)	11/16 (68.8%)
PT, Median (IQR), s[e]	12.40 (11.40-13.80) [n=23]	13.00 (11.70-13.75) [n=20]
APTT, Median (IQR), s[e]	29.80 (27.80-36.50) [n=22]	32.35 (29.85-41.05) [n=20]
TT, Median (IQR), s[e]	15.60 (14.60-17.30) [n=21]	15.45 (14.95-17.30) [n=20]
FIB, Median (IQR), mg/dL[e]	428 (337-495) [n=23]	401 (329-505) [n=20]
D-dimer >0.2μg/mL	19/21 (90.5%)	18/21 (85.7%)
ALT, Median (IQR), U/L[e]	35.00 (24.00-53.80)	30.00 (19.00-51.80)
≤50U/L	16 (69.6%)	16 (72.7%)

Characteristics	Convalescent plasma group n=23	Control group n=22
>50U/L	7 (30.4%)	6 (27.3%)
AST, Median (IQR), U/L[e]	23.10 (20.00-34.00)	24.10 (19.20-29.60)
≤40U/L	19 (82.6%)	18 (81.8%)
>40U/L	4 (17.4%)	4 (18.2%)
Urea nitrogen, Median (IQR), mg/dL[e]	14.99 (12.69-21.43)	19.33 (16.08-23.39)
<5.0mg/dL	0 (0.0%)	0 (0.0%)
5.0-19.9mg/dL	16 (69.6%)	13 (59.1%)
>19.9mg/dL	7 (30.4%)	9 (40.9%)
Serum creatinine, Median (IQR), mg/dL[e]	0.76 (0.67-0.89)	0.79 (0.61-1.04)
≤1.5mg/dL	21 (91.3%)	21 (95.5%)
>1.5mg/dL	2 (8.7%)	1 (4.6%)

Abbreviations: IQR: Interquartile Range; CRP, C-reactive protein; IL-6, Interleukin-6; PT, Prothrombin time; APTT, Activated partial thromboplastin time; TT, Thrombin time; FIB, Fibrinogen; ALT, Alanine aminotransferase; AST, Aspartate aminotransferase.
SI conversion factors: To convert D-dimer to nmol/L, multiply values by 5.476; to convert urea nitrogen to mmol/L, multiply values by 0.357; to convert creatinine to umol/L, multiply values by 88.4.
[a]The values shown were based on total number of patients who contributed values.
[b]History of allergy to certain allergens, including food, medicine, etc.
[c]Details of "coexisting diseases" were collected from medical record.
[d]The vital signs and laboratory values are the last available values within 72 h prior to randomization.
[e]The laboratory values are the last available values within 72 h prior to randomization. The laboratory values selected were associated with the clinical status and factors that may affect convalescent plasma therapy. The values used for categorization of laboratory values are local divisions of low/normal/high values.
†The between group difference was statistically significant.

eTable 2. Baseline Demographics and Clinical Characteristics of Patients with Life-Threatening COVID-19[a]

Characteristics	Convalescent plasma group n=29	Control group n=29
Age, Median (IQR), y	68.00 (61.00-78.00)	69.00 (63.00-76.00)
Male, No. (%)†	14 (48.3%)	22 (75.9%)
Female, No. (%)†	15 (51.7%)	7 (24.1%)
Allergic history, No. (%)[b]	4 (13.8%)	4 (13.8%)
Coexisting diseases[c]		
Hypertension, No. (%)	12 (41.4%)	16 (55.2%)
Cardiovascular disease, No. (%)	7 (24.1%)	6 (20.7%)
Cerebrovascular disease, No. (%)	5 (17.2%)	5 (17.2%)
Diabetes, No. (%)	4 (13.8%)	8 (27.6%)
Liver disease, No. (%)	3 (10.3%)	5 (17.2%)
Cancer, No. (%)	1 (3.5%)	0 (0.0%)
Kidney disease, No. (%)	0 (0.0%)	3 (10.3%)
Body temperature, Median(IQR), ℃[d]	36.50 (36.20-36.60) [n=29]	36.40 (36.20-37.00) [n=28]
≥37.3℃, No. (%)	2/29 (6.9%)	6/28 (21.4%)
Respiratory rate>24/min, No. (%)[d]	8/29 (27.6%)	4/27 (14.8%)
Heart rate>100/min, No. (%)[d]	8/29 (27.6%)	5/28 (17.9%)
Systolic blood pressure>140 mmHg, No. (%)[d]	8/29 (27.6%)	6/28 (21.4%)
White blood cell count, Median (IQR), /μL[e]	9500 (7000-12 380)	7890 (6400-12 100)
<4000/μL	1 (3.5%)	2 (6.9%)
4000-10000/μL	14 (48.3%)	14 (48.3%)

Characteristics	Convalescent plasma group n=29	Control group n=29
>10000/μL	14 (48.3%)	13 (44.8%)
Neutrophil count, Median (IQR), /μL[e]	8540 (6020-10 830)	7190 (4810-10 780)
<1800/μL	0 (0.0%)	2 (6.9%)
1800-6300/μL	9 (31.0%)	12 (41.4%)
>6300/μL	20 (69.0%)	15 (51.7%)
Lymphocyte count, Median (IQR), /μL[e]	680 (480-960)	690 (430-970)
<1000/μL	22 (75.9%)	22 (75.9%)
≥1000/μL	7 (24.1%)	7 (24.1%)
Platelet count, Median (IQR), $\times 10^3$/μL[e]	119.00 (79.00-207.00)	181.00 (104.00-218.00)
<100×10^3/μL	11 (37.9%)	7 (24.1%)
≥100×10^3/μL	18 (62.1%)	22 (75.9%)
CRP, Median (IQR), mg/L[e]	28.26 (7.40-81.08) [n=28]	13.54 (1.60-54.00) [n=26]
>5mg/L	23/28 (82.1%)	17/26 (65.4%)
IL-6>7pg/mL	21/24 (87.5%)	14/19 (73.7%)
PT, Median (IQR), s[e]	14.42 (12.65-15.60) [n=28]	13.40 (12.95-14.50) [n=28]
APTT, Median (IQR), s[e]	38.00 (30.20-46.50) [n=27]	38.75 (32.20-46.40) [n=28]
TT, Median (IQR), s[e]	16.70 (16.00-19.30) [n=25]	16.30 (15.20-18.55) [n=28]
FIB, Median (IQR), mg/dL[e]	375 (206-458) [n=27]	393 (297-524) [n=28]
D-dimer >0.2μg/mL	26/26 (100.0%)	25/25 (100.0%)
ALT, Median (IQR), U/L[e]	36.00 (21.50-58.00) [n=29]	28.00 (17.00-71.00) [n=26]
≤50U/L	20/29 (69.0%)	17/26 (65.4%)

Characteristics	Convalescent plasma group n=29	Control group n=29
>50U/L	9/29 (31.0%)	9/26 (34.6%)
AST, Median (IQR), U/L[e]	38.00 (25.00-56.00) [n=29]	24.50 (19.00-35.00) [n=26]
≤40U/L	16/29 (55.2%)	22/26 (84.6%)
>40U/L	13/29 (44.8%)	4/26 (15.4%)
Urea nitrogen, Median (IQR), mg/dL[e]	24.15 (18.21-35.29) [n=27]	25.32 (17.31-48.04) [n=27]
<5.0mg/dL	0/27 (0.0%)	0/27 (0.0%)
5.0-19.9mg/dL	7/27 (25.9%)	11/27 (40.7%)
>19.9mg/dL	20/27 (74.1%)	16/27 (59.3%)
Serum creatinine, Median (IQR), mg/dL[e]	0.74 (0.55-0.95) [n=27]	0.88 (0.62-1.09) [n=27]
≤1.5mg/dL	25/27 (92.6%)	26/27 (96.3%)
>1.5mg/dL	2/27 (7.4%)	1/27 (3.7%)

Abbreviations: IQR: Interquartile Range; CRP, C-reactive protein; IL-6, Interleukin-6; PT, Prothrombin time; APTT, Activated partial thromboplastin time; TT, Thrombin time; FIB, Fibrinogen; ALT, Alanine aminotransferase; AST, Aspartate aminotransferase.
SI conversion factors: To convert D-dimer to nmol/L, multiply values by 5.476; to convert urea nitrogen to mmol/L, multiply values by 0.357; to convert creatinine to umol/L, multiply values by 88.4.
[a]The values shown were based on total number of patients who contributed values.
[b]History of allergy to certain allergens, including food, medicine, etc.
[c]Details of "coexisting diseases" were collected from medical record.
[d]The vital signs and laboratory values are the last available values within 72 h prior to randomization.
[e]The laboratory values are the last available values within 72 h prior to randomization. The laboratory values selected were associated with the clinical status and factors that may affect convalescent plasma therapy. The values used for categorization of laboratory values are local divisions of low/normal/high values.
[†]The between group difference was statistically significant.

eTable 3. Clinical Status at Randomization and Medications Received of Patients with Severe COVID-19[a]

	Convalescent plasma group n=23	Control group n=22
Interval time between symptom onset and randomization, Median (IQR), days	32.00 (23.00-41.00)	35.50 (19.00-43.00)
≤14 days	3 (13.0%)	2 (9.1%)
>14 days	20 (87.0%)	20 (90.9%)
Interval time between symptom onset and admission, Median (IQR), days	10.00 (2.00-16.00)	10.00 (7.00-29.00)
Six-point scale at study day 1, No. (%)		
Hospitalization, no supplemental oxygen	1 (4.4%)	1 (4.6%)
Hospitalization, requiring supplemental oxygen (no high-flow or noninvasive ventilation)	13 (56.5%)	14 (63.6%)
Hospitalization, requiring non-invasive ventilation and /or high-flow supplemental oxygen	8 (34.8%)	7 (31.8%)
Hospitalization, requiring extracorporeal membrane oxygenation (ECMO) and/or invasive mechanical ventilation	1 (4.4%)	0 (0.0%)
Medications used after randomization[b]		
Antiviral	21/22 (95.5%)	21/22 (95.5%)
Interferon	8/22 (36.4%)	5/22 (22.7%)
Chinese herbal medicine	17/22 (77.3%)	17/22 (77.3%)
Antibacterial	15/22 (68.2%)	12/22 (54.6%)
Antifungal	1/22 (4.6%)	1/22 (4.6%)
Steroids	6/22 (27.3%)	4/22 (18.2%)
Human immunoglobulin	3/22 (13.6%)	3/22 (13.6%)

[a]The values shown were based on total number of patients who contributed values.
[b]Details of medications used were provided in eTable 7.

eTable 4. Clinical Status at Randomization and Medications Received of the Patients with Life-Threatening COVID-19[a]

	Convalescent plasma group n=29	Control group n=29
Interval time between symptom onset and randomization, Median (IQR), days	25.00 (22.00-35.00) [n=26]	28.00 (19.00-36.00) [n=26]
≤14 days	0/26 (0.0%)	3/26 (11.5%)
>14 days	26/26 (100.0%)	23/26 (88.5%)
Interval time between symptom onset and admission, Median (IQR), days	13.50 (9.00-20.00) [n=26]	9.50 (5.00-13.00) [n=26]
Six-point scale at study day 1, No. (%)		
Hospitalization, no supplemental oxygen	0/28 (0.0%)	0/28 (0.0%)
Hospitalization, requiring supplemental oxygen (no high-flow or noninvasive ventilation)	2/28 (7.1%)	1/28 (3.6%)
Hospitalization, requiring non-invasive ventilation and /or high-flow supplemental oxygen	13/28 (46.4%)	16/28 (57.1%)
Hospitalization, requiring extracorporeal membrane oxygenation (ECMO) and/or invasive mechanical ventilation	13/28 (46.4%)	11/28 (39.3%)
Medications used after randomization[b]		
Antiviral	20/24 (83.3%)	23/27 (85.2%)
Interferon	4/24 (16.7%)	2/27 (7.4%)
Chinese herbal medicine	9/24 (37.5%)	13/27 (48.2%)
Antibacterial	23/24 (95.8%)	27/27 (100.0%)
Antifungal	14/24 (58.3%)	12/27 (44.4%)
Steroids	15/24 (62.5%)	12/27 (44.4%)
Human immunoglobulin	10/24 (41.7%)	8/27 (29.6%)

[a]The values shown were based on total number of patients who contributed values.

[b]Details of medications used were provided in eTable 7.

eTable 5. Primary Clinical Outcome of Patients with COVID-19 in Per-protocol set[a]

	Convalescent plasma group	Control group	Difference[b]
All patients			
Time to clinical improvement - median no. of days (IQR)	24.00 (13.00, indeterminate)	indeterminate (18.00, indeterminate)	HR=1.40 (0.79, 2.50); *P*=0.25
Clinical improvement rate at Day 7 -No. (%)	5/51 (9.8%)	5/50 (10.0%)	OR=0.98 (0.27, 3.61); *P*=0.97
Clinical improvement rate at Day 14 -No. (%)	17/51 (33.3%)	9/50 (18.0%)	OR=2.28 (0.90, 5.76); *P*=0.08
Clinical improvement rate at Day 28 -No. (%)	27/51 (52.9%)	22/50 (44.0%)	OR=1.43 (0.65, 3.13); *P*=0.37
Patients with severe disease			
Time to clinical improvement - median no. of days (IQR)	13.00 (9.00-21.00)	19.00 (15.00, indeterminate)	HR=2.15 (1.07, 4.32); *P*=0.03
Clinical improvement rate at Day 7 -No. (%)	3/23 (13.0%)	4/22 (18.2%)	OR=0.68 (0.13, 3.43); *P*=0.70
Clinical improvement rate at Day 14 -No. (%)	14/23 (60.9%)	6/22 (27.3%)	OR=4.15 (1.18, 14.59); *P*=0.02
Clinical improvement rate at Day 28 -No. (%)	21/23 (91.3%)	15/22 (68.2%)	OR=4.90 (0.89, 26.97); *P*=0.07
Patients with life-threatening disease			
Time to clinical improvement - median no. of days (IQR)	indeterminate	indeterminate	HR=0.89 (0.30, 2.64); *P*=0.83
Clinical improvement rate at Day 7 -No. (%)	2/28 (7.1%)	1/28 (3.6%)	OR=2.08 (0.18, 24.31); *P*>0.99
Clinical improvement rate at Day 14 -No. (%)	3/28 (10.7%)	3/28 (10.7%)	OR=1.00 (0.18, 5.44); *P*>0.99
Clinical improvement rate at Day 28 -No. (%)	6/28 (21.4%)	7/28 (25.0%)	OR=0.82 (0.24, 2.84); *P*=0.75

Abbreviation: IQR: Interquartile Range.

[a]The values shown were based on total number of patients who contributed values. The primary clinical outcome was analyzed by per-protocol set. The "indeterminate" indicated the estimator cannot be calculated due to the low percentage of clinical improvement by the end of study.

[b]Differences were expressed as hazards ratio or odds ratio and 95% confidence intervals. *P* value was calculated by Cox regression, chi-square test or Fisher exact test.

eTable 6. Cox Regression Analysis of Primary and Secondary Clinical Outcomes[a]

			Unadjusted				Model1				Model2			
Clinical outcomes	Indicators		HR	95%CI	Chi-square value	*P* value	HR	95%CI	Chi-square value	*P* value	HR	95%CI	Chi-square value	*P* value
TTCI-FAS	Treatment	Convalescent plasma group	1.41	(0.78,2.53)	1.30	0.26	1.65	(0.91,2.96)	2.75	0.10	2.12	(1.06,4.26)	4.46	0.04
	Severe	Life-threatening					0.17	(0.09,0.33)	26.13	<0.001	0.27	(0.11,0.69)	7.55	0.01
	Interactions	Convalescent plasma group× Life-threatening									0.41	(0.11,1.49)	1.85	0.17
TTCI-PPS	Treatment	Convalescent plasma group	1.41	(0.78,2.53)	1.32	0.25	1.65	(0.92,2.96)	2.77	0.10	2.12	(1.06,4.26)	4.46	0.04
	Severe	Life-threatening					0.18	(0.09,0.35)	25.00	<0.001	0.28	(0.11,0.71)	7.13	0.01
	Interactions	Convalescent plasma group× Life-threatening									0.41	(0.11,1.49)	1.84	0.18
Time from randomization to discharge	Treatment	Convalescent plasma group	1.68	(0.91,3.10)	2.76	0.10	1.89	(1.02,3.48)	4.13	0.04	1.91	(0.97,3.75)	3.52	0.06
	Severe	Life-threatening					0.10	(0.04,0.21)	34.45	<0.001	0.10	(0.03,0.34)	13.27	<.001
	Interactions	Convalescent plasma group× Life-threatening									0.93	(0.19,4.53)	0.01	0.93
Time from admission to discharge	Treatment	Convalescent plasma group	1.57	(0.85,2.92)	2.06	0.15	1.69	(0.91,3.13)	2.76	0.10	1.68	(0.85,3.33)	2.24	0.14
	Severe	Life-threatening					0.13	(0.06,0.30)	23.38	<0.001	0.13	(0.04,0.46)	10.01	0.002
	Interactions	Convalescent plasma group× Life-threatening									1.02	(0.21,5.01)	<0.001	0.98

[a]Model 1 included disease severity (severe or life-threatening) and treatment group. Model 2 further considered the interaction between disease severity treatment group based on Model 1. Study sites were considered as a random effect in these models. Proportionality hazard assumption was assessed for treatment group and disease severity by extending the Cox models. Hazard ratios with 95% CIs were calculated by Cox proportional-hazards model. *P* value was calculated by chi-square test.

eTable 7. Antiviral and Steroids Used during Study Period[a]

Medication	Convalescent plasma group	Control group
All patients		
Antiviral-No. (%)		
Lopinavir–Ritonavir	6/46 (13.0%)	7/49 (14.3%)
Oseltamivir	5/46 (10.9%)	3/49 (6.1%)
Arbidol	19/46 (41.3%)	21/49 (42.9%)
Ribavirin	4/46 (8.7%)	6/49 (12.2%)
Other antiviral	10/46 (21.7%)	9/49 (18.4%)
Steroids-No. (%)		
Metacortandracin, Prednisone, methylprednisolone, Solu-Medrol	19/46 (41.3%)	16/49 (32.7%)
Dexamethasone	3/46 (6.5%)	1/49 (2.0%)
Budesonide	2/46 (4.4%)	2/49 (4.1%)
Severe patients		
Antiviral-No. (%)		
Lopinavir–Ritonavir	2/22 (9.1%)	4/22 (18.2%)
Oseltamivir	2/22 (9.1%)	0/22 (0.0%)
Arbidol	10/22 (45.5%)	11/22 (50.0%)
Ribavirin	2/22 (9.1%)	4/22 (18.2%)
Other antiviral	2/22 (9.1%)	2/22 (9.1%)
Steroids-No. (%)		
Metacortandracin, Prednisone, methylprednisolone, Solu-Medrol	5/22 (22.7%)	4/22 (18.2%)
Dexamethasone	1/22 (4.6%)	0/22 (0.0%)
Budesonide	0/22 (0.0%)	1/22 (4.6%)
Life-threatening patients		
Antiviral-No. (%)		
Lopinavir–Ritonavir	4/24 (16.7%)	3/27 (11.1%)
Oseltamivir	3/24 (12.5%)	3/27 (11.1%)
Arbidol	9/24 (37.5%)	10/27 (37.0%)

Ribavirin	2/24 (8.3%)	2/27 (7.4%)
Other antiviral	8/24 (33.3%)	7/27 (25.9%)
Steroids-No. (%)		
Metacortandracin, Prednisone, methylprednisolone, Solu-Medrol	14/24 (58.3%)	12/27 (44.4%)
Dexamethasone	2/24 (8.3%)	1/27 (3.7%)
Budesonide	2/24 (8.3%)	1/27 (3.7%)

[a]The values shown were based on total number of patients who contributed values.