Supplemental Digital Content

Clinical outcomes following tocilizumab administration in mechanically ventilated COVID-19 patients

Table S1. Concomitant Therapies and Tocilizumab Characteristics				
	Total	**Clinical improvement at 21 days**		**p-value**
		No	**Yes**	
	(*n*=62)	**(*n*=26)**	**(*n*=36)**	
Steroids	43 (69.4)	20 (76.9)	23 (63.9)	0.40
Any concomitant therapy other than steroids	59 (95.2)	24 (92.3)	35 (97.2)	0.57
Hydroxychloroquine	51 (82.3)	21 (80.8)	30 (83.3)	1.00
Ribavirin	46 (74.2)	16 (61.5)	30 (83.3)	0.053
Lopinavir/Ritonavir	19 (30.6)	8 (30.8)	11 (30.6)	1.00
Azithromycin	36 (58.1)	14 (53.8)	22 (61.1)	0.61
Remdesivir	11 (17.7)	4 (15.4)	7 (19.4)	0.75
Convalescent plasma	11 (17.7)	4 (15.4)	7 (19.4)	0.75
Symptom onset to tocilizumab (days), median (IQR)	10.0 (8.0, 14.0)	9.0 (8.0, 14.0)	11.0 (8.0, 14.0)	0.51

Dose of tocilizumab (mg/kg), mean (±SD)	4.9 (±1.2)	4.7 (±1.0)	4.9 (±1.4)	0.52
Repeat dose of tocilizumab	15 (24.2)	8 (30.8)	7 (19.4)	0.37
Unless specified, data shown as n (%).				

Table S2. Univariable Cox regression for mortality within 21 days post-tocilizumab

	Alive at 21 days (*n*=49)	**Death within 21 days (*n*=13)**	**Unadjusted HR (95% CI)**	**p-value**
Age ≥60 (years)	21 (42.9)	11 (84.6)	5.72 (1.27, 25.84)	0.02
Male gender	25 (51.0)	12 (92.3)	9.52 (1.24, 73.28)	0.03
Hypertension	27 (55.1)	12 (92.3)	8.12 (1.06, 62.47)	0.04
Smoking history	9 (18.4)	6 (46.2)	3.08 (1.03, 9.18)	0.04
Cancer history	5 (10.2)	4 (30.8)	3.73 (1.14, 12.18)	0.03
Absolute lymphocyte count, (cells/µL), median (IQR)	888.0 (614.0, 1133.3)	523.0 (479.0, 598.9)	0.99 (0.99, 1.00)	0.02
SOFA total score, mean (±SD)	8.8 (±3.3)	11.2 (±3.0)	1.26 (1.04, 1.52)	0.02

Unless specified, data shown as n (%)

Abbreviations: CI, confidence interval; HR, hazard ratio; IQR, interquartile range; SD, standard deviation; SOFA, sequential organ failure assessment

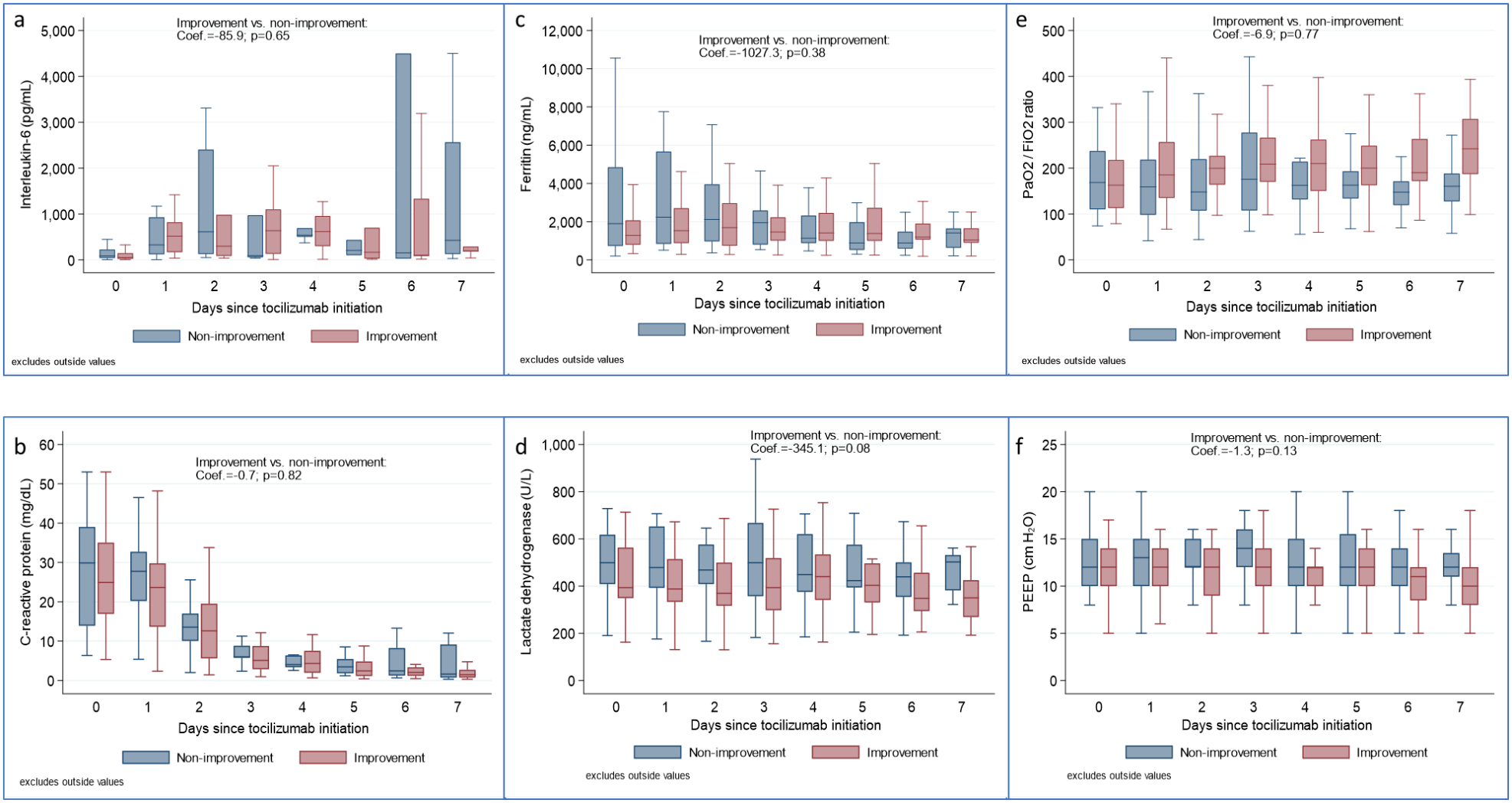
a
Improvement vs. non-improvement:
Coef.=-85.9; p=0.65
Interleukin-6 (pg/mL)
Days since tocilizumab initiation
Non-improvement
Improvement
excludes outside values
c
Improvement vs. non-improvement:
Coef.=-1027.3; p=0.38
Ferritin (ng/mL)
Days since tocilizumab initiation
Non-improvement
Improvement
excludes outside values
e
Improvement vs. non-improvement:
Coef.=-6.9; p=0.77
PaO2 / FiO2 ratio
Days since tocilizumab initiation
Non-improvement
Improvement
excludes outside values
b
Improvement vs. non-improvement:
Coef.=-0.7; p=0.82
C-reactive protein (mg/dL)
Days since tocilizumab initiation
Non-improvement
Improvement
excludes outside values
d
Improvement vs. non-improvement:
Coef.=-345.1; p=0.08
Lactate dehydrogenase (U/L)
Days since tocilizumab initiation
Non-improvement
Improvement
excludes outside values
f
Improvement vs. non-improvement:
Coef.=-1.3; p=0.13
PEEP (cm H2O)
Days since tocilizumab initiation
Non-improvement
Improvement
excludes outside values

Figure S1

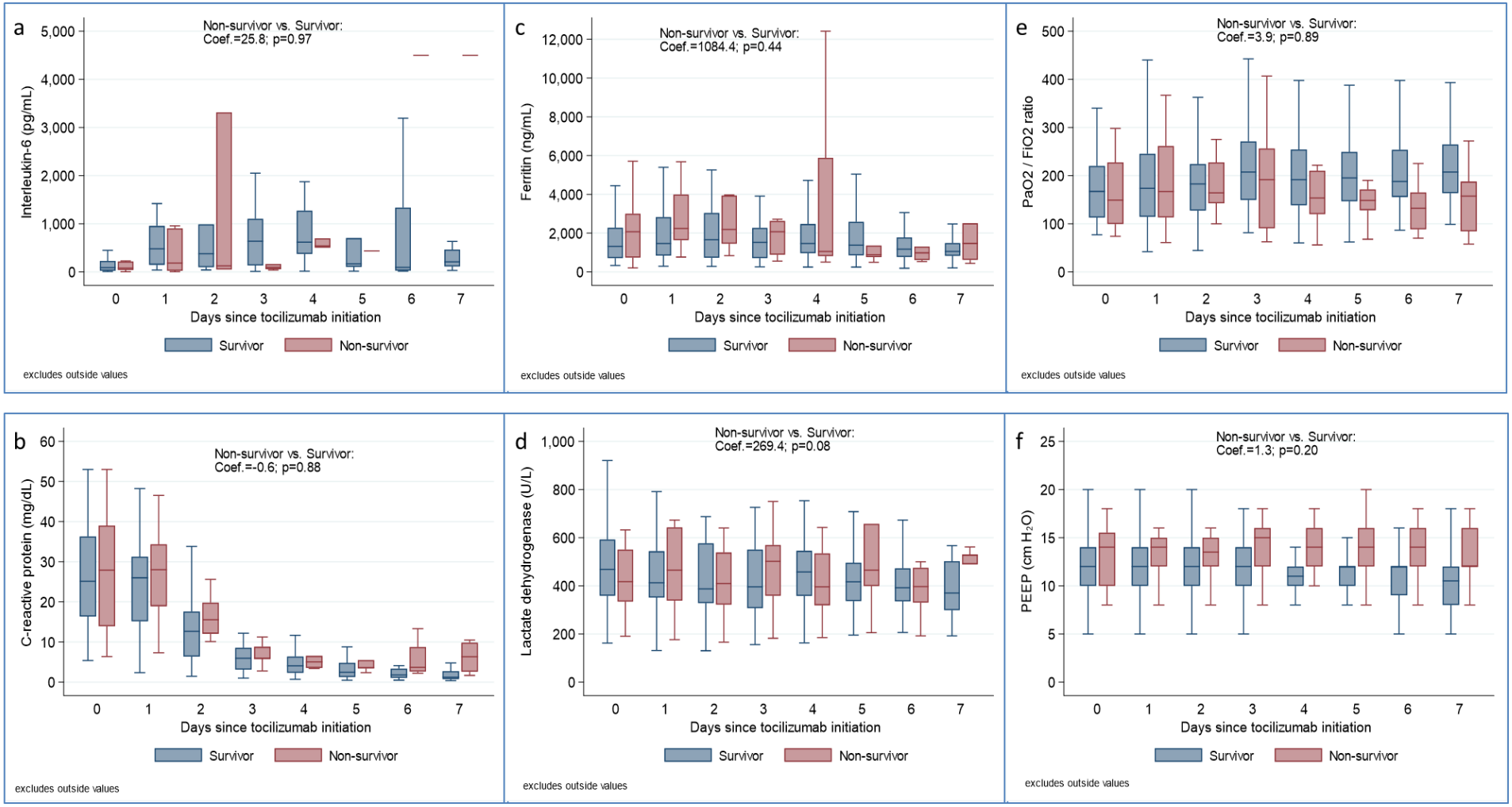
a
Non-survivor vs. Survivor:
Coef.=25.8; p=0.97
Interleukin-6 (pg/mL)
Days since tocilizumab initiation
Survivor
Non-survivor
excludes outside values
c
Non-survivor vs. Survivor:
Coef.=1084.4; p=0.44
Ferritin (ng/mL)
Days since tocilizumab initiation
Survivor
Non-survivor
excludes outside values
e
Non-survivor vs. Survivor:
Coef.=3.9; p=0.89
PaO2 / FiO2 ratio
Days since tocilizumab initiation
Survivor
Non-survivor
excludes outside values
b
Non-survivor vs. Survivor:
Coef.=-0.6; p=0.88
C-reactive protein (mg/dL)
Days since tocilizumab initiation
Survivor
Non-survivor
excludes outside values
d
Non-survivor vs. Survivor:
Coef.=269.4; p=0.08
Lactate dehydrogenase (U/L)
Days since tocilizumab initiation
Survivor
Non-survivor
excludes outside values
f
Non-survivor vs. Survivor:
Coef.=1.3; p=0.20
PEEP (cm H2O)
Days since tocilizumab initiation
Survivor
Non-survivor
excludes outside values

Figure S2

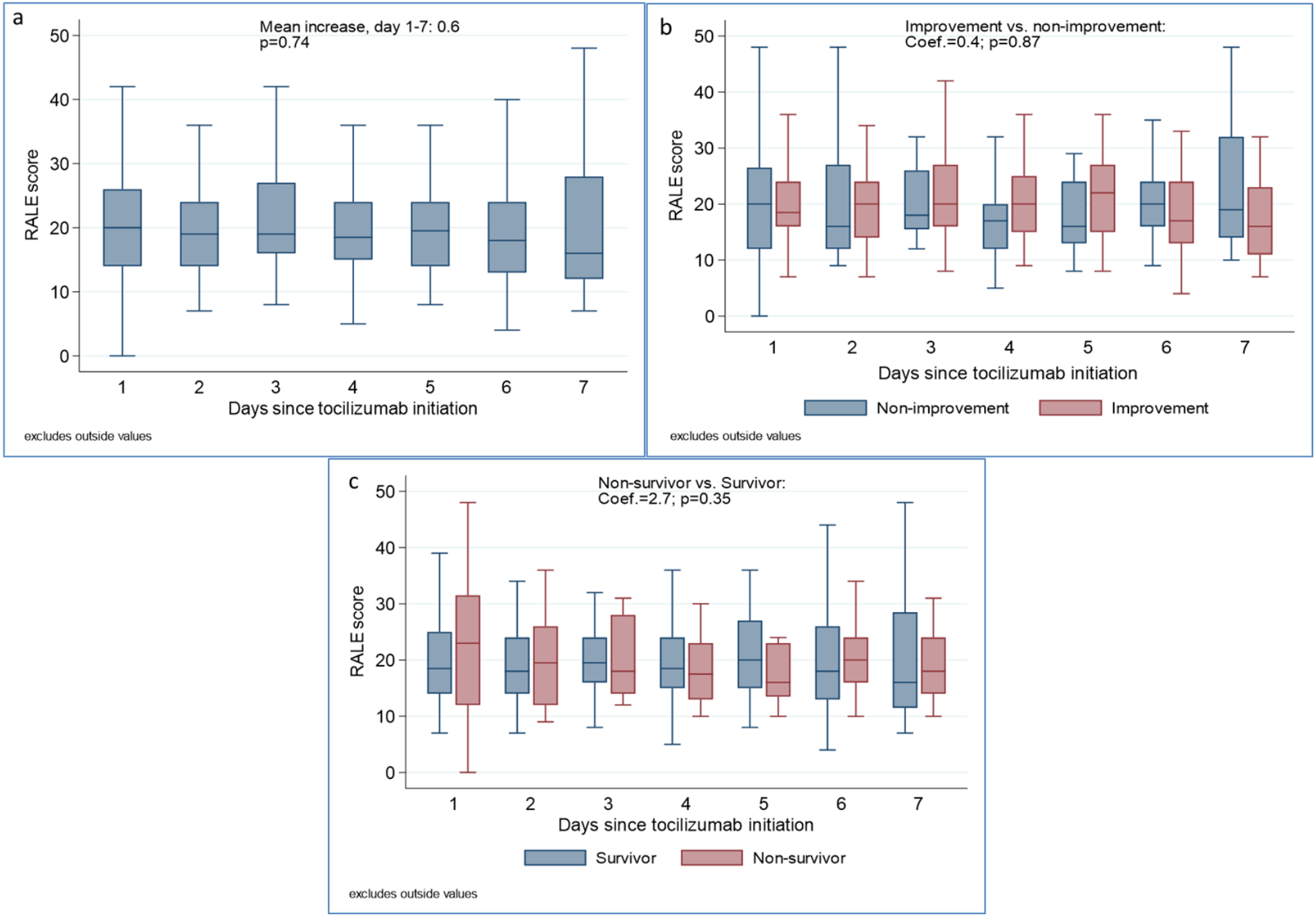
a
Mean increase, day 1-7: 0.6
p=0.74
RALE score
Days since tocilizumab initiation
excludes outside values
b
Improvement vs. non-improvement:
Coef.=0.4; p=0.87
RALE score
Days since tocilizumab initiation
Non-improvement
Improvement
excludes outside values
c
Non-survivor vs. Survivor:
Coef.=2.7; p=0.35
RALE score
Days since tocilizumab initiation
Survivor
Non-survivor
excludes outside values

Figure S3