

# **COVID-19’da Anti-Inflamatuvar, Anti-Sitokin Anti-Koagülan Tedaviler**

**Şiran Keske**

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# Future considerations

	Asymptomatic or Presymptomatic	Mild Illness	Moderate Illness	Severe Illness	Critical Illness
Features	Positive SARS-CoV-2 test; no symptoms	Mild symptoms (e.g., fever, cough, or change in taste or smell); no dyspnea	Clinical or radiographic evidence of lower respiratory tract disease; oxygen saturation $\geq 94\%$	Oxygen saturation $< 94\%$ ; respiratory rate $\geq 30$ breaths/min; lung infiltrates $> 50\%$	Respiratory failure, shock, and multiorgan dysfunction or failure
Testing	Screening testing; if patient has known exposure, diagnostic testing	Diagnostic testing	Diagnostic testing	Diagnostic testing	Diagnostic testing
Isolation	Yes	Yes	Yes	Yes	Yes

## Proposed Disease Pathogenesis

Viral replication

Inflammation

## Potential Treatment

Antiviral therapy

Antibody therapy

Antiinflammatory therapy

## Management Considerations

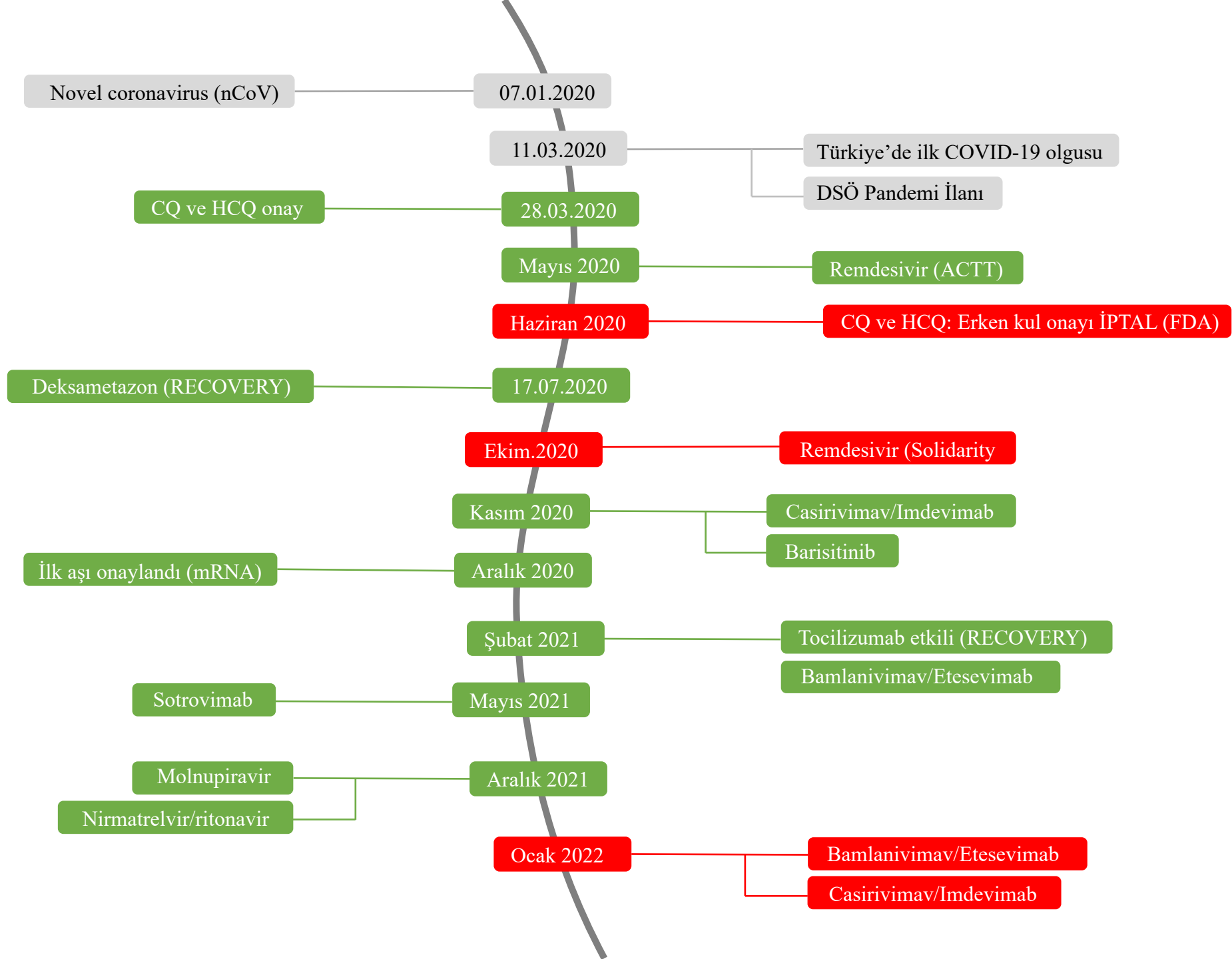
Monitoring for symptoms

Clinical monitoring and supportive care

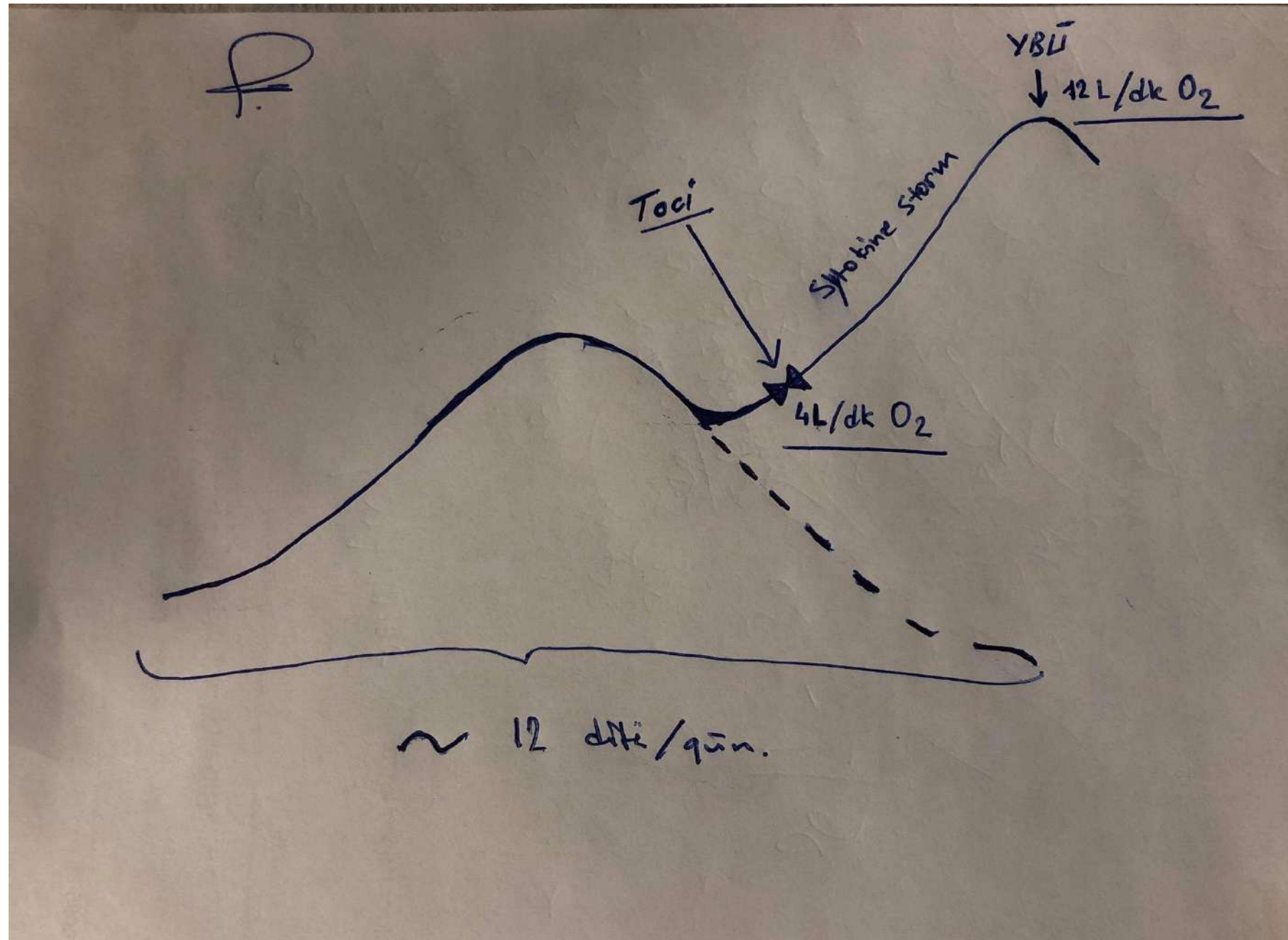
Clinical monitoring; if patient is hospitalized and at high risk for deterioration, possibly remdesivir

Hospitalization, oxygen therapy, and specific therapy (remdesivir, dexamethasone)

Critical care and specific therapy (dexamethasone, possibly remdesivir)

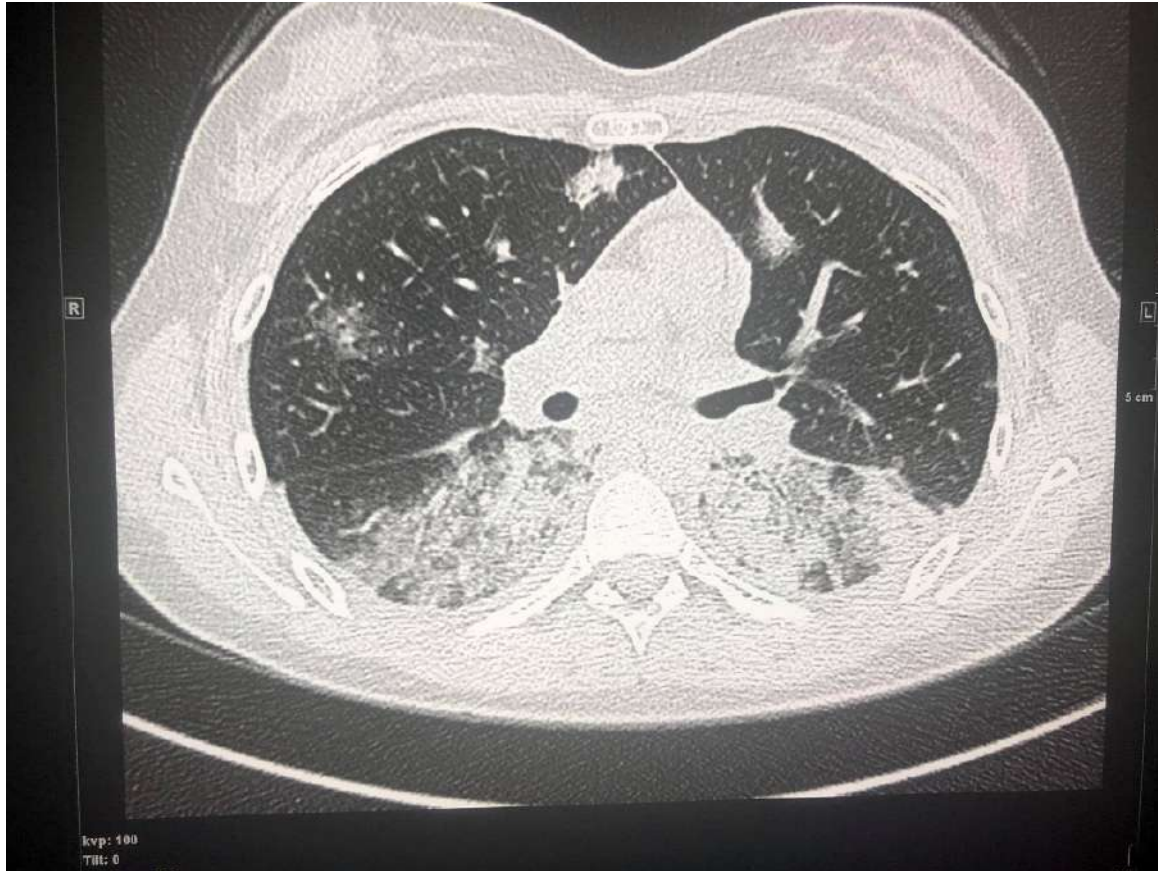


27 Mart 2020

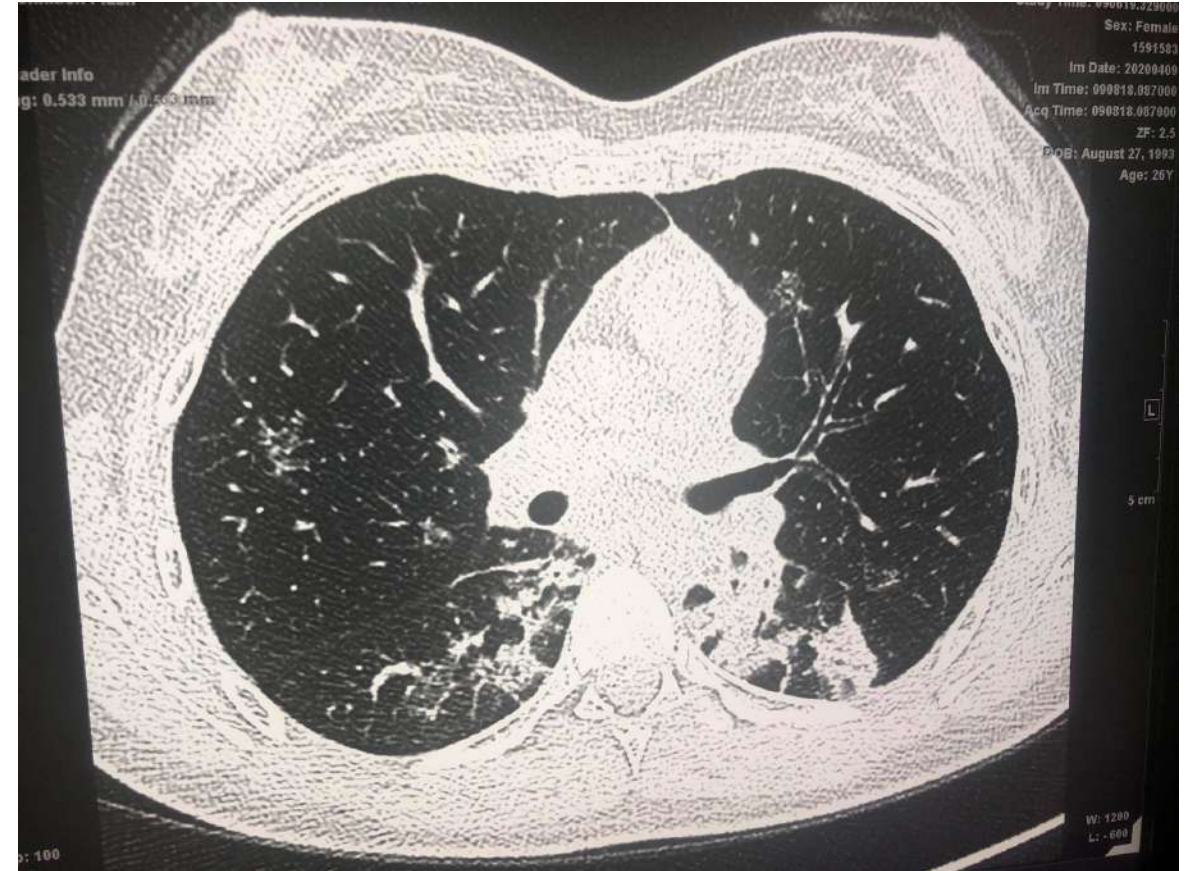




# 27 yaş kadın Myasthenia gravis



**8th day of onset of symptom  
Toci was started !! (31<sup>st</sup> March, 2020)**



**15th day of onset of symptom  
7th day of Toci !!**



**8th day of onset of symptom  
Tocilizumab was started !! (31<sup>st</sup> March, 2020)**



**15th day of onset of symptom  
7th day of Tocilizumab !!**





Contents lists available at [ScienceDirect](#)

## International Journal of Infectious Diseases

journal homepage: [www.elsevier.com/locate/ijid](http://www.elsevier.com/locate/ijid)

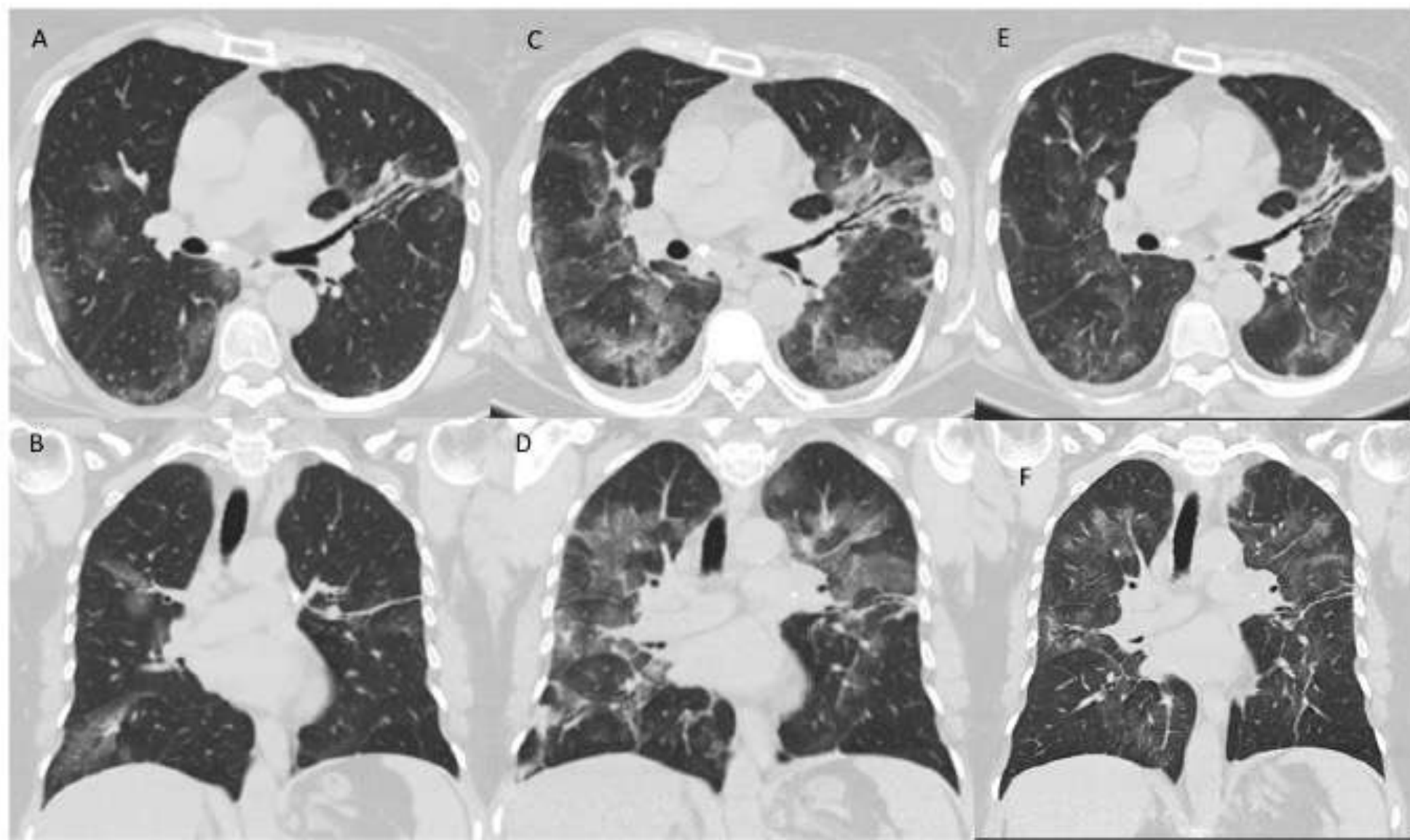


INTERNATIONAL  
SOCIETY  
FOR INFECTIOUS  
DISEASES

### Appropriate use of tocilizumab in COVID-19 infection

Şiran Keske<sup>a</sup>, Süda Tekin<sup>b</sup>, Bilgin Sait<sup>c</sup>, Pelin İrkören<sup>b</sup>, Mahir Kapmaz<sup>b</sup>,  
Cansu Çimen<sup>a</sup>, Semra Uğur<sup>d</sup>, İrfan Çelebi<sup>h</sup>, Veli Oğuzalp Bakır<sup>e</sup>, Erhan Palaoğlu<sup>f</sup>,  
Evren Şentürk<sup>d</sup>, Benan Çağlayan<sup>g</sup>, Nahit Çakar<sup>d</sup>, Levent Tabak<sup>g</sup>, Önder Ergönül<sup>b,\*</sup>





**Figure 3.** A 59-year-old woman with Covid-19. Same level of mid-axial (A, C and E) and mid-coronal (B, D and F) chest CT scans on admission (A–B), on the day of tocilizumab given because of requirement of oxygen support and progressive lung imaging (C–D) and 7 days after onset of tocilizumab (E–F), retrospectively. A–B: Focal peripheral ground-glass opacities. The left upper lobe lesions were accompanied by consolidation with bronchiectasis.



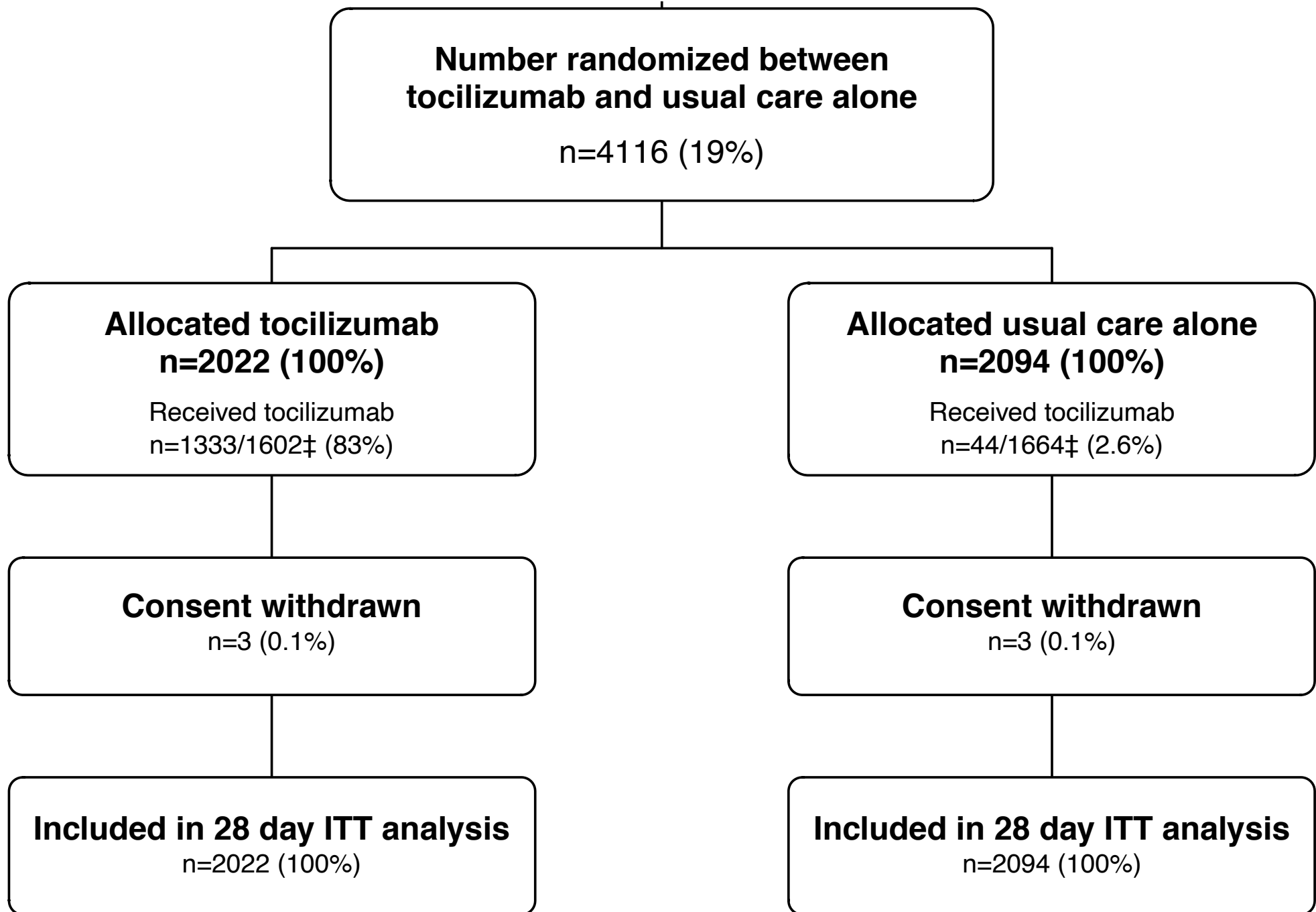
## Araştırma sonucu

In conclusion, earlier use of TCZ in COVID-19 infection was beneficial for survival, length of hospitalization and duration of oxygen support. This recommendation for the administration of TCZ was based on the increase in requirement of oxygen support, progression of thoracic CT, and elevation of inflammation markers including IL-6, CRP, ferritin, D-dimer, and decrease in % lymphocytes. Secondary bacterial infections should be borne in mind after TCZ use.

# **Tocilizumab in patients admitted to hospital with COVID-19 (RECOVERY): preliminary results of a randomised, controlled, open-label, platform trial**

**Running title:** Tocilizumab for COVID-19

**RECOVERY Collaborative Group\***





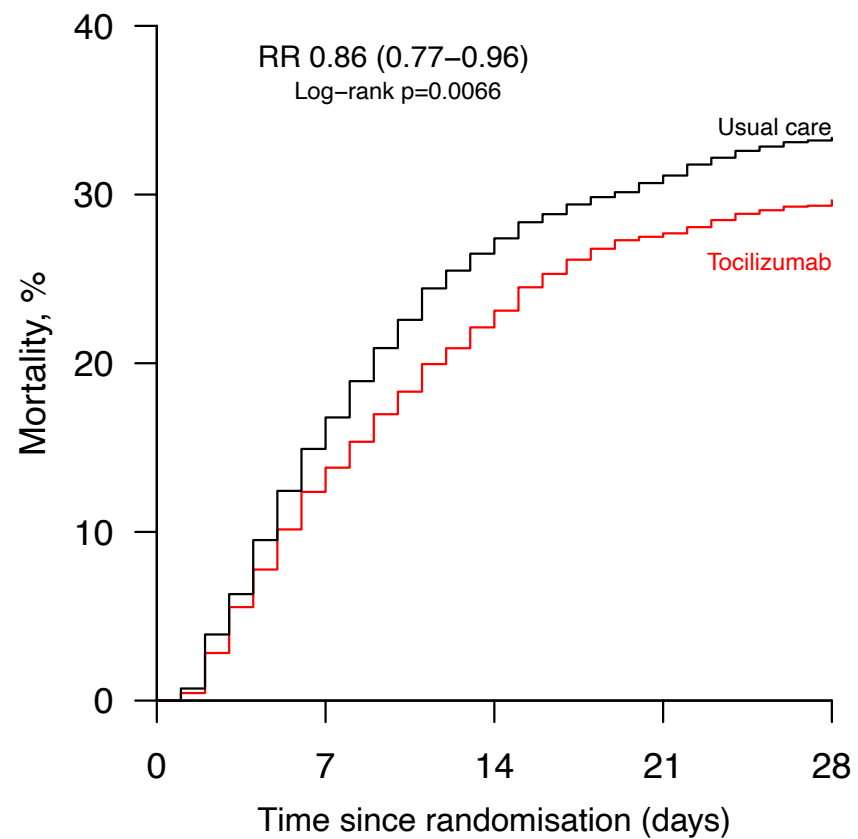
	<b>Tocilizumab (n=2022)</b>	<b>Usual care (n=2094)</b>
<b>Part A allocation</b>		
Usual care	839 (41%)	869 (41%)
Lopinavir/ritonavir	51 (3%)	64 (3%)
Dexamethasone	49 (2%)	45 (2%)
Hydroxychloroquine	37 (2%)	38 (2%)
Azithromycin	197 (10%)	177 (8%)
<b>Use of systemic corticosteroids^</b>		
Yes	1664 (82%)	1721 (82%)
No	357 (18%)	367 (18%)
Unknown	1 (<1%)	6 (<1%)

**Table 2: Effect of allocation to tocilizumab on main study outcomes**

	Treatment allocation		RR (95% CI)	p value
	Tocilizumab (n=2022)	Usual care (n=2094)		
<b>Primary outcome</b>				
Total: 28-day mortality	596 (29%)	694 (33%)	0.86 (0.77-0.96)	0.0066
<b>Secondary outcomes</b>				
Median time to being discharged alive, days	20	>28		
Discharged alive from hospital within 28 days	1093 (54%)	990 (47%)	1.22 (1.12-1.34)	<0.0001
Receipt of invasive mechanical ventilation or death*	571/1754 (33%)	687/1800 (38%)	0.85 (0.78-0.93)	0.0005
Invasive mechanical ventilation	215/1754 (12%)	273/1800 (15%)	0.81 (0.68-0.95)	0.01
Death	471/1754 (27%)	552/1800 (31%)	0.88 (0.79-0.97)	0.01
<b>Subsidiary clinical outcomes</b>				
Receipt of ventilation†	233/935 (25%)	242/933 (26%)	0.96 (0.82-1.12)	0.61
Non-invasive ventilation	222/935 (24%)	223/933 (24%)	0.99 (0.84-1.17)	0.94
Invasive mechanical ventilation	45/935 (5%)	63/933 (7%)	0.71 (0.49-1.03)	0.07
Successful cessation of invasive mechanical ventilation‡	91/268 (34%)	94/294 (32%)	1.07 (0.80-1.43)	0.64
Use of haemodialysis or haemofiltration§	103/2003 (5%)	142/2075 (7%)	0.75 (0.59-0.96)	0.02

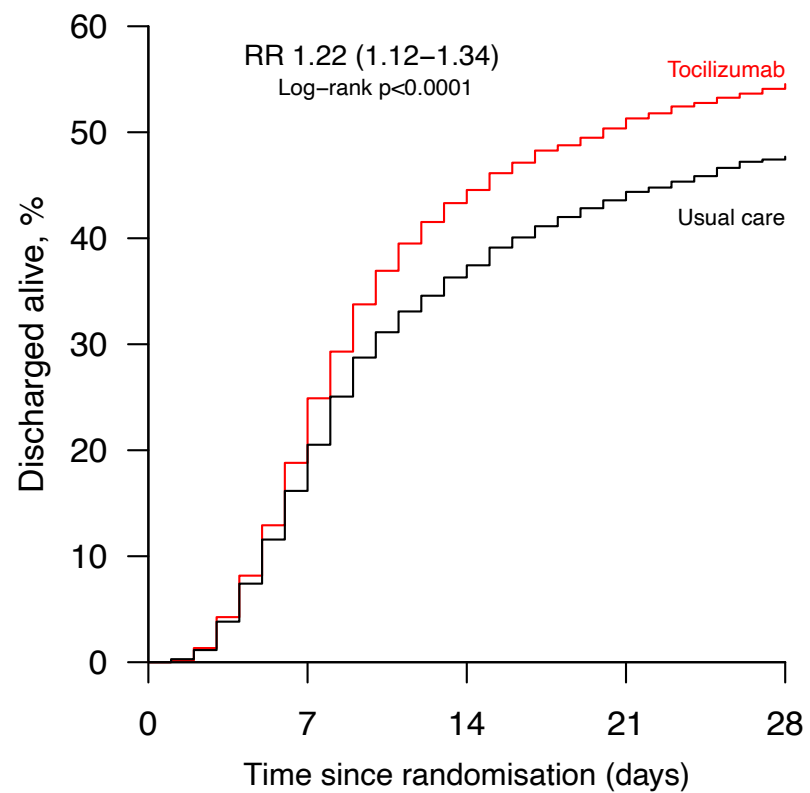
Data are n(%), n/N (%), or median (interquartile range). RR=rate ratio for the outcomes of 28-day mortality, hospital discharge and successful cessation of invasive mechanical ventilation, and risk ratio for other outcomes. \* Analyses include only those on no ventilator support or non-invasive ventilation at second randomisation. † Analyses include only those on no ventilator support at second randomisation. ‡ Analyses restricted to those on invasive mechanical ventilation at second randomisation. § Analyses exclude those on haemodialysis or haemofiltration at second randomisation.

(a)



Number at risk					
Active	2022	1741	1553	1386	1284
Control	2094	1740	1518	1372	1250

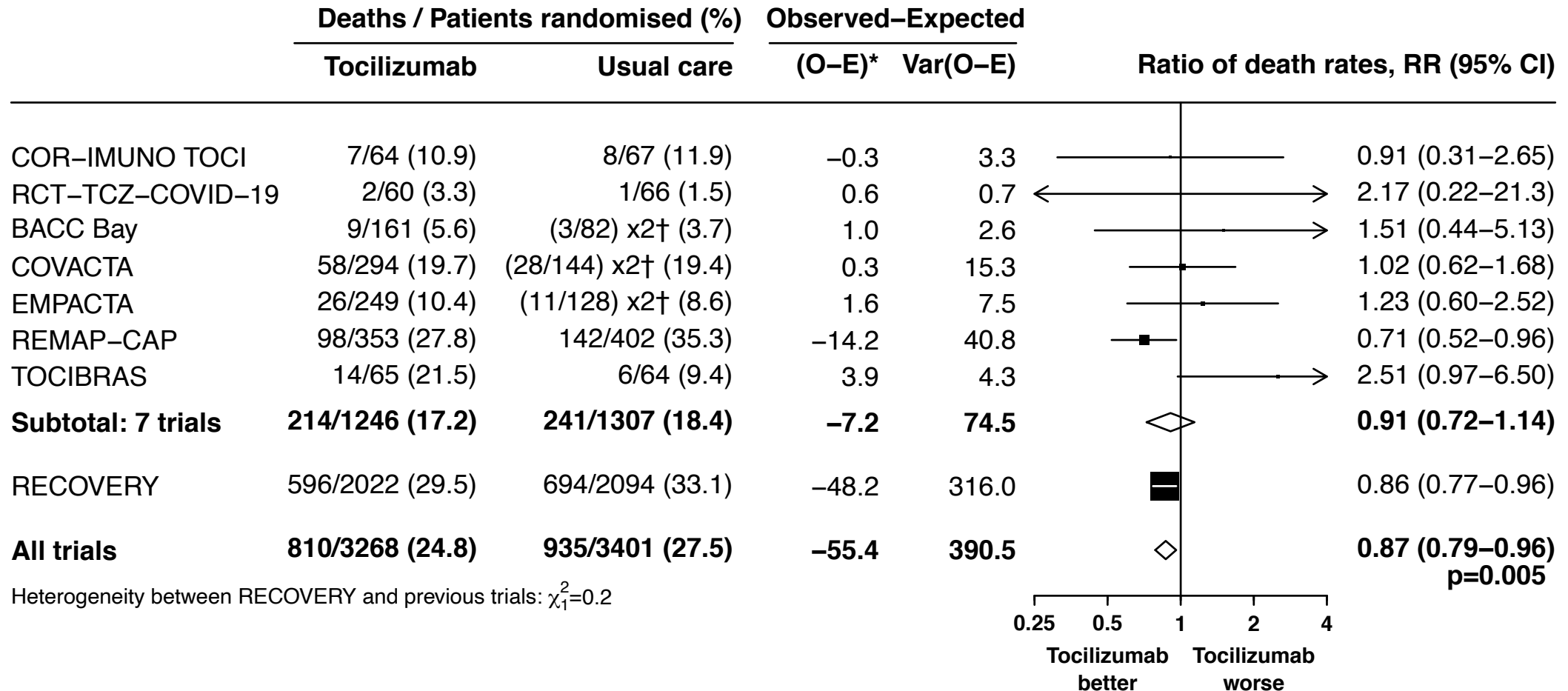
(b)



Number at risk					
Active	2022	1517	1120	911	787
Control	2094	1662	1308	1096	954



**Figure 4: Tocilizumab vs usual care in patients hospitalised with COVID – Meta-analysis of mortality in RECOVERY and other trials**



\* Log-rank O-E for RECOVERY, O-E from 2x2 tables for the other trials. RR is calculated by taking  $\ln RR$  to be  $(O-E)/V$  with Normal variance  $1/V$ . Subtotals or totals of (O-E) and of V yield inverse-variance-weighted averages of the  $\ln RR$  values.

† For balance, controls in the 2:1 studies count twice in the control totals and subtotals.



Original Investigation | Critical Care Medicine

# Mortality Rates Among Hospitalized Patients With COVID-19 Infection Treated With Tocilizumab and Corticosteroids

## A Bayesian Reanalysis of a Previous Meta-analysis

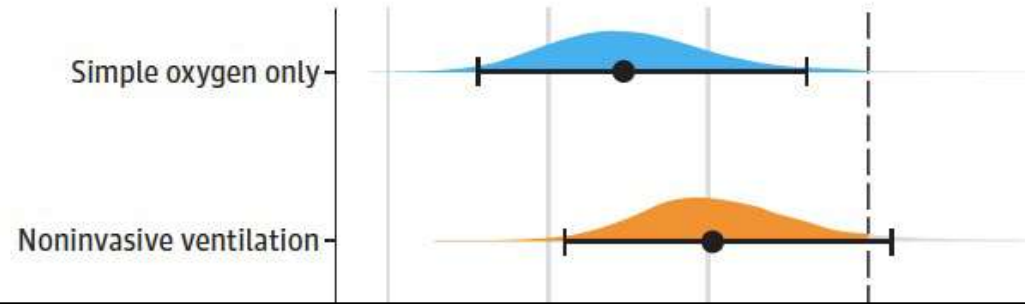
Arthur M. Albuquerque; Lucas Tramujas, MD; Lorenzo R. Sewanan, MD, PhD; Donald R. Williams, BA; James M. Brophy, MD, PhD

15 RKÇ dahil edilmiş

Sadece steroid alanlar dahil edilmiş

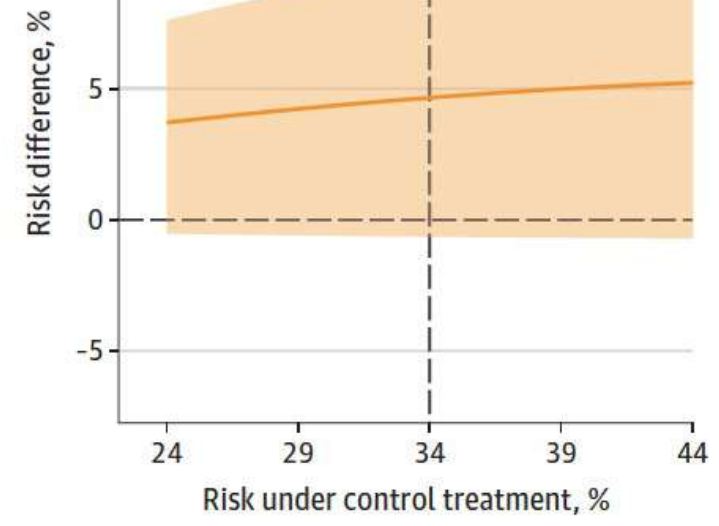
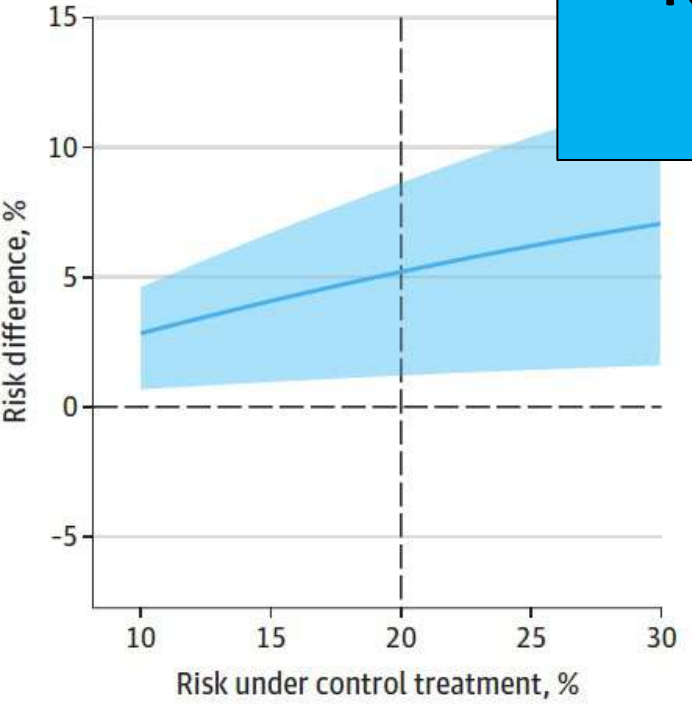
- 5339 hasta
  - 2117 basit oksijen desteği
  - 2505 NIV
  - 717 IMV

**A** Posterior distributions

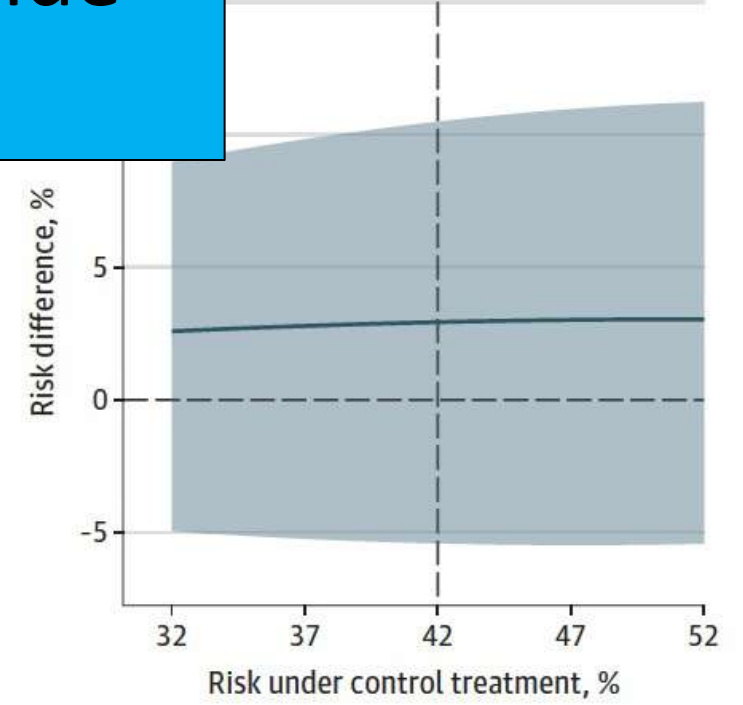


Bu metaanalize göre basit oksijen desteği veya NIV alan hastalarda klinik olarak anlamlı bir şekilde mortaliteyi azaltmıştır.

**C** Simple oxygen only



mechanical ventilation





**ANAKINRA**

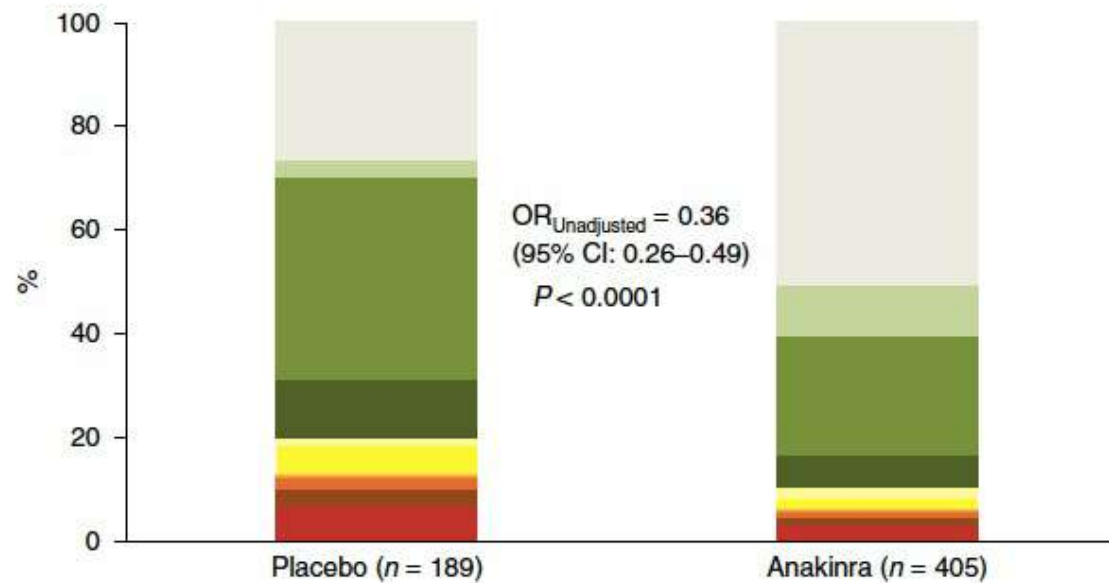
**a**

Goodness-of-fit test  
(Pearson's chi-square  
test)

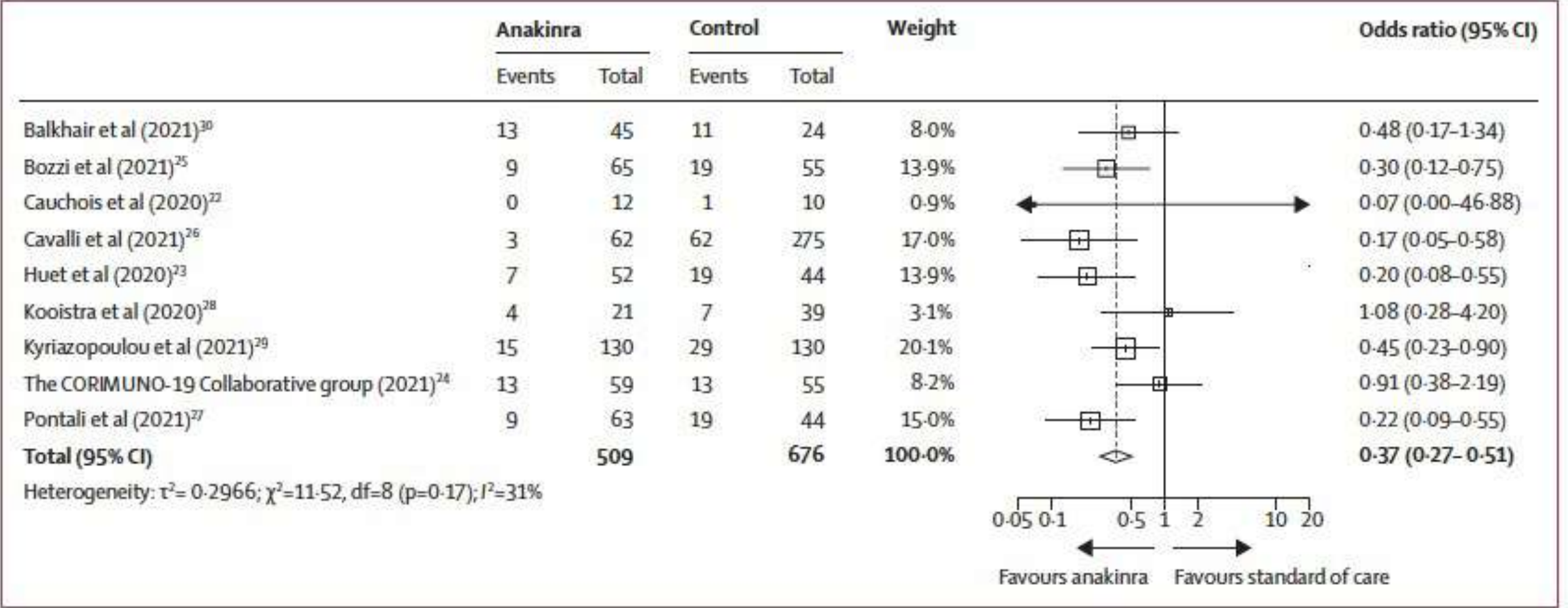
$P = 0.172$

Assumption of  
proportional odds  
(test of parallel lines)

$P = 0.131$

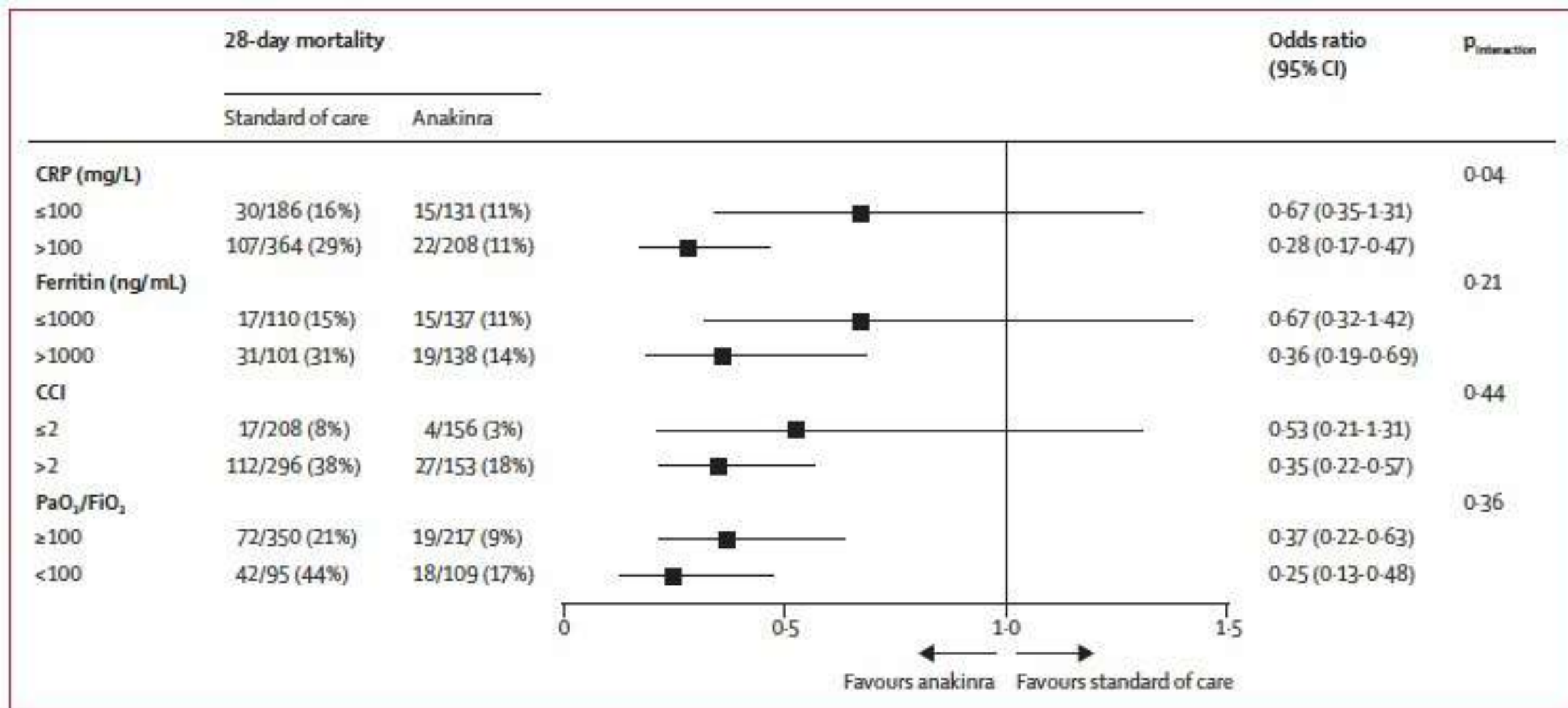
**b**

Variable	Univariate analysis			Multivariate analysis		
	OR	95% CI	<i>P</i> value	OR	95% CI	<i>P</i> value
Group of treatment (Anakinra vs placebo)	0.36	0.26–0.49	<0.0001	0.36	0.26–0.50	<0.0001
Intake of dexamethasone (Yes/No)	1.90	1.28–2.83	0.002	1.49	0.59–3.80	0.395
Severe COVID-19 by WHO (Yes/No)	1.95	1.31–2.90	0.001	1.29	0.51–3.27	0.582
BMI >30 kg m <sup>-2</sup> (Yes/No)	1.27	0.87–1.61	0.267	1.10	0.81–1.50	0.530
Country (Italy vs Greece)	1.18	0.74–1.88	0.482	1.25	0.77–2.03	0.350



**Figure 2: Forest plot showing mortality from aggregate data meta-analysis**  
 Odds ratios calculated with a fixed-effects Mantel-Haenszel test.





**Figure 3: Subgroup analysis of mortality in patients treated with anakinra versus those treated with standard of care**

$p$  values of the interaction effect of the treatment on mortality, in each subgroup and among the studies are provided. CRP=C-reactive protein. CCI=Charlson comorbidity index. PaO<sub>2</sub>/FiO<sub>2</sub>=ratio of the arterial partial oxygen pressure divided by the fraction of inspired oxygen.

	Univariate analysis		Multivariate analysis	
	Odds ratio (95% CI)	p value	Odds ratio (95% CI)	p value
Anakinra treatment	0.38 (0.26–0.56)	<0.0001	0.32 (0.20–0.51)	<0.0001
Age >72 years*	4.97 (3.5–7.06)	<0.0001	1.89 (1.12–3.20)	0.018
Charlson comorbidity index >2*	6.35 (4.01–10.06)	<0.0001	3.75 (1.99–7.07)	<0.0001
PaO <sub>2</sub> /FiO <sub>2</sub> <100	2.18 (1.50–3.17)	<0.0001	2.89 (1.80–4.64)	<0.0001
CRP >100 mg/L	1.76 (1.21–2.55)	0.003	1.21 (0.76–1.92)	0.42
Lymphopenia (<580 lymphocytes per mm <sup>3</sup> )*	3.08 (2.12–4.49)	<0.0001	3.05 (1.90–4.89)	<0.0001
Study	..	0.15	..	..

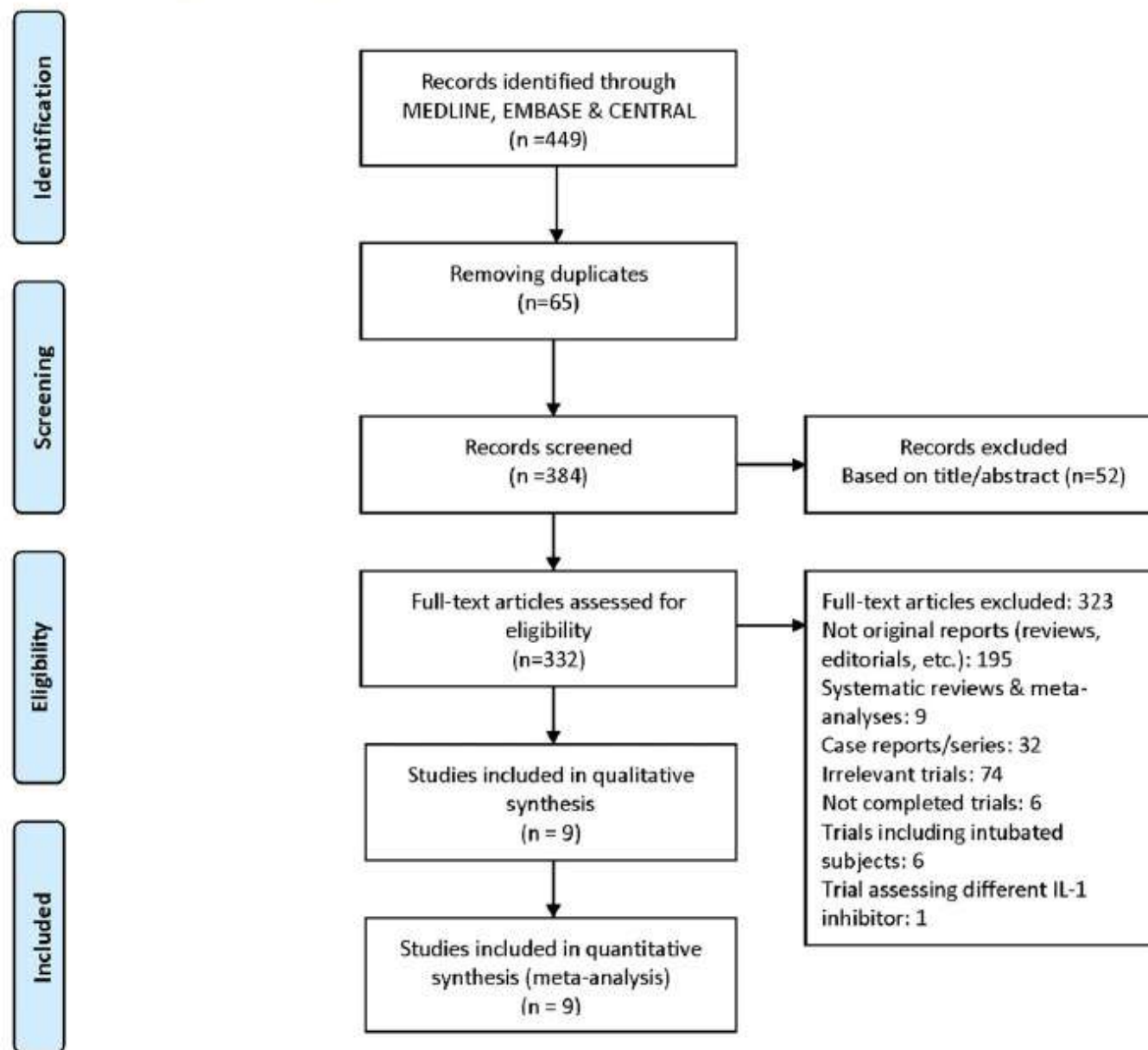
CRP=C-reactive protein. PaO<sub>2</sub>/FiO<sub>2</sub>=ratio of the arterial partial oxygen pressure divided by the fraction of inspired oxygen. \*For continuous variables, the best cutoff was estimated from the receiver operating characteristic using the Youden Index.

**Table 2: Univariate and multivariate logistic regression analysis of variables associated with mortality in the individual patient-level data analysis of 895 patients**

## Systematic review and meta analysis

**Anakinra in hospitalized non-intubated patients with coronavirus disease 2019: a Systematic review and meta-analysis**

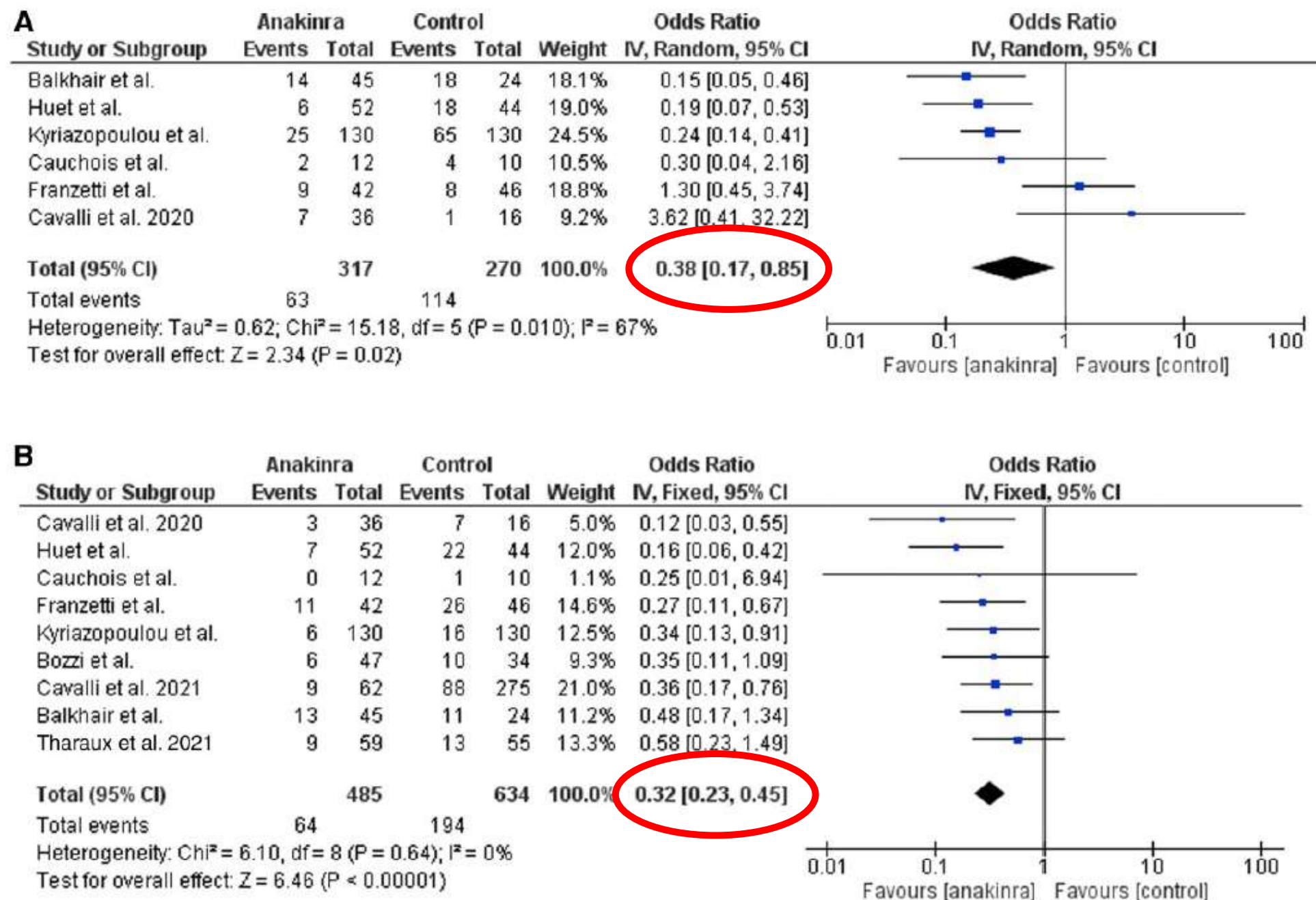
Fotios Barkas<sup>1</sup>, Sebastian Filippas-Ntekouan<sup>1</sup>, Maria Kosmidou<sup>1</sup>, Evangelos Liberopoulos<sup>1</sup>, Angelos Lontos<sup>1</sup> and Haralampos Milionis<sup>1</sup>

**Fig. 1** PRISMA flowchart of study selection

PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses.



**Fig. 2** Forest plot for the need for invasive mechanical ventilation (A) and mortality risk (B)



## Özetle Anakinra

COVID-19'da etkinliğini gösteren az sayıda çalışma var

- Çalışmalarda kullanılan dozlar çok farklı
  - 3x200
    - 7 & 14 gün
  - 2x100 (7 gün)

Çalışma sayısı daha az.

Rehberlerde yer bulamadı

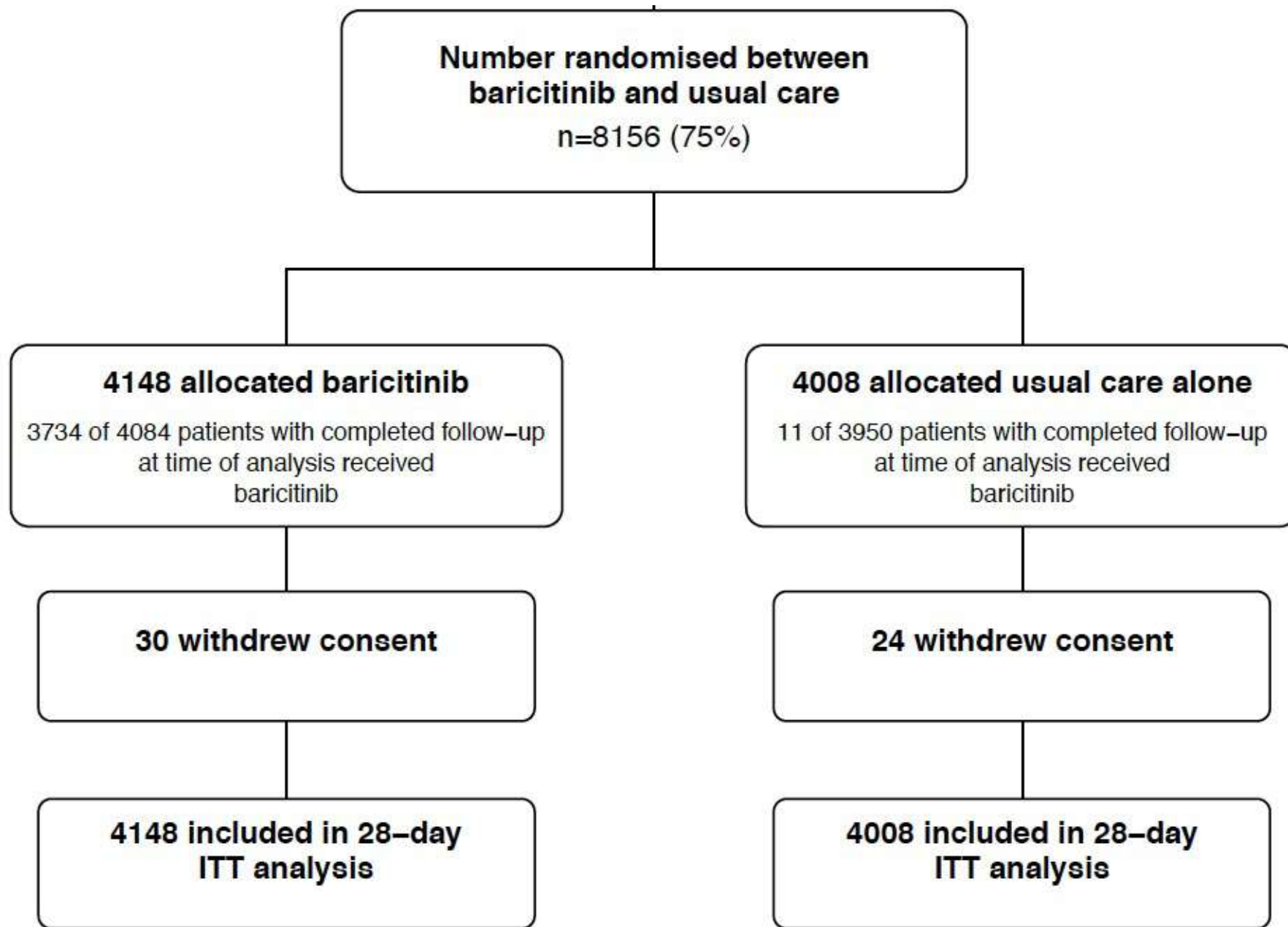


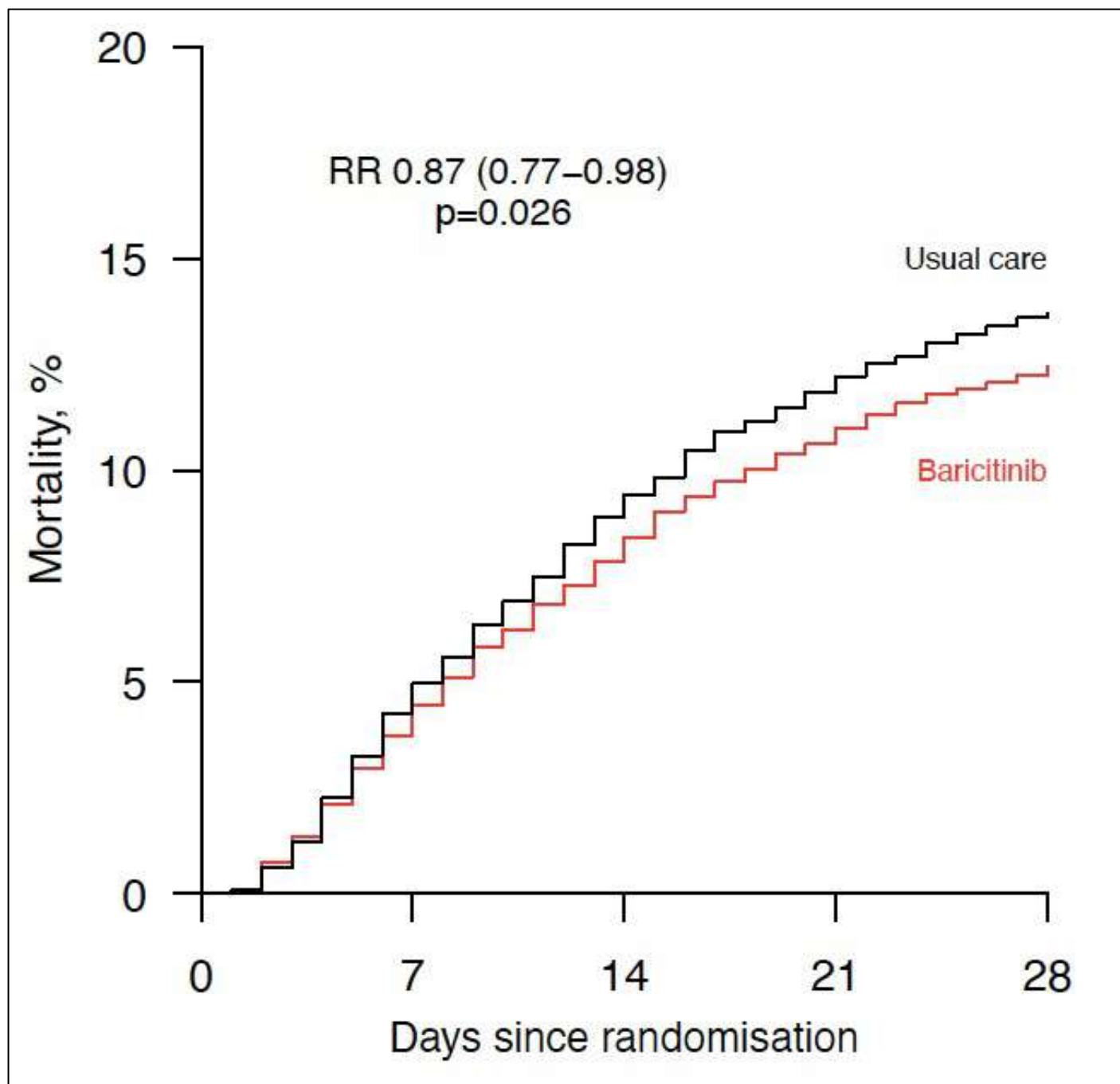
# **JAK Inhibitörleri**

**Baricitinib in patients admitted to hospital with  
COVID-19 (RECOVERY): a randomised, controlled,  
open-label, platform trial and updated meta-analysis**

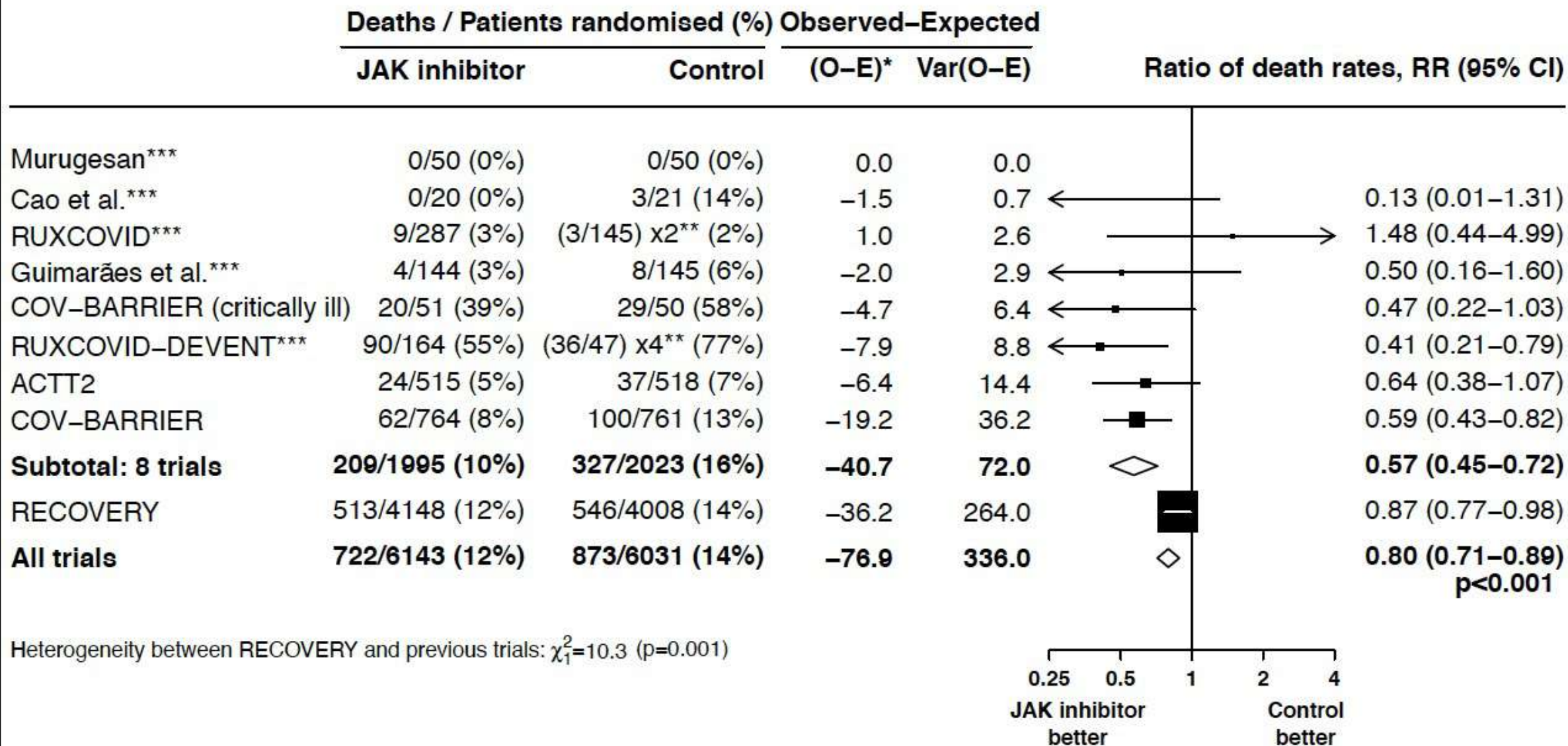
**Running title:** Baricitinib for COVID-19

**RECOVERY Collaborative Group\***





**Figure 4: JAK inhibitor vs usual care in patients hospitalised with COVID – Meta-analysis of mortality in RECOVERY and other trials**



# **Sorular**

**Antisitokinler için doğru zaman ne zaman?**

**CRP ya da diğer belirteçler için bir eşik değer olabilir mi?**

**Önce antisitokinler mi steroid mi ya da aynı anda mı?**

**İlaçların dozları süreleri nedir?**

**Anti-sitokinlerin yan etkileri?**



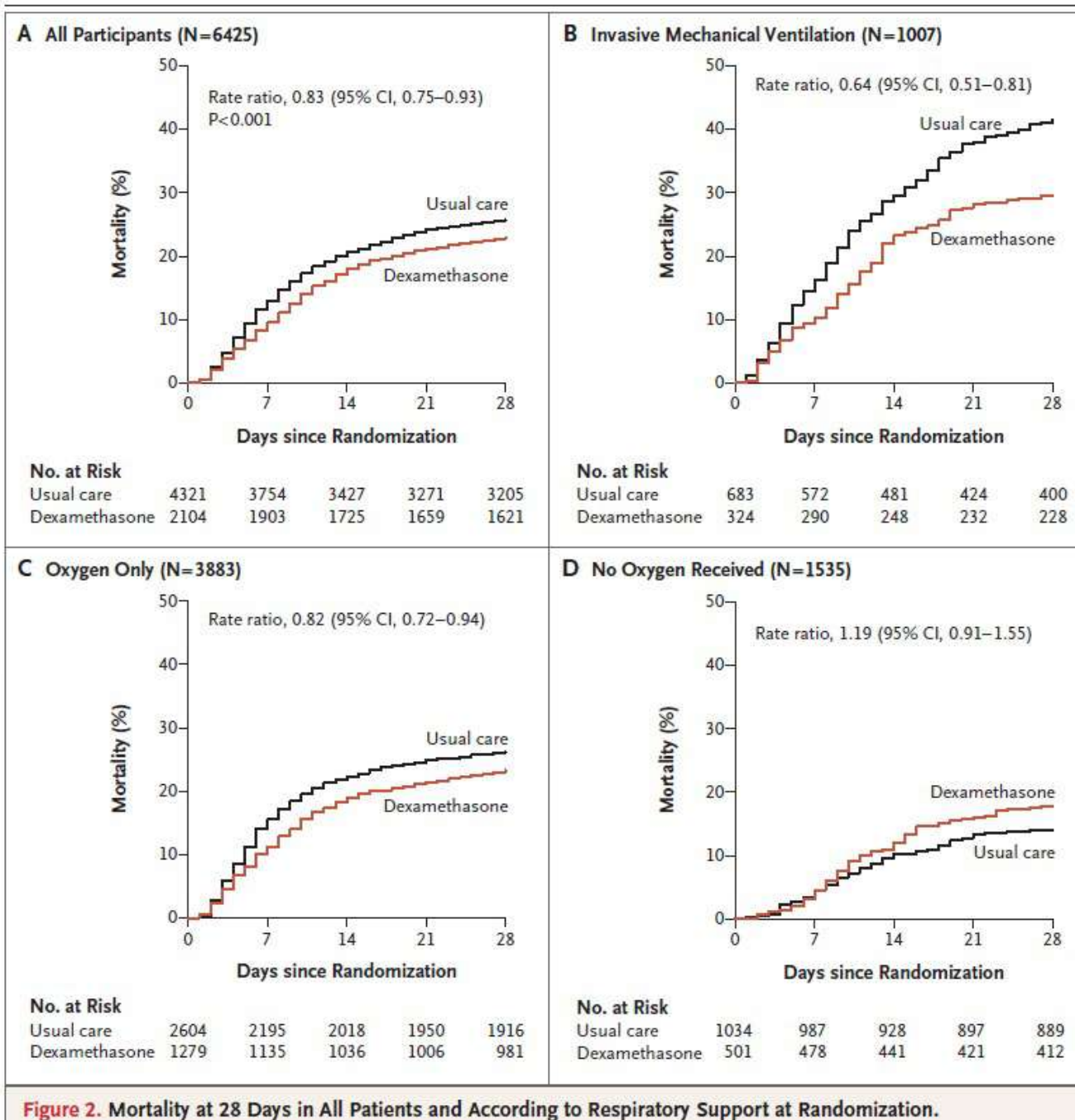
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

# Dexamethasone in Hospitalized Patients with Covid-19 — Preliminary Report

The RECOVERY Collaborative Group\*

17 Temmuz, 2020







Respiratory Support  
at Randomization

Dexamethasone

Usual Care

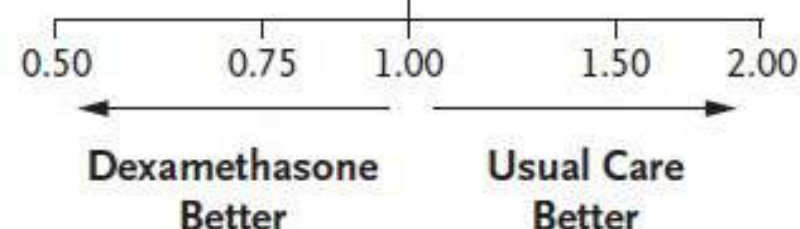
Rate Ratio (95% CI)

*no. of events/total no. (%)*

Invasive mechanical ventilation	95/324 (29.3)	283/683 (41.4)		0.64 (0.51–0.81)
Oxygen only	298/1279 (23.3)	682/2604 (26.2)		0.82 (0.72–0.94)
No oxygen received	89/501 (17.8)	145/1034 (14.0)		1.19 (0.91–1.55)
<b>All Patients</b>	<b>482/2104 (22.9)</b>	<b>1110/4321 (25.7)</b>		<b>0.83 (0.75–0.93)</b>

**P<0.001**

Chi-square trend across three categories: 11.5

**Figure 3. Effect of Dexamethasone on 28-Day Mortality, According to Respiratory Support at Randomization.**

Shown are subgroup-specific rate ratios for all the patients and for those who were receiving no oxygen, receiving oxygen only, or undergoing invasive mechanical ventilation at the time of randomization. Rate ratios are plotted as squares, with the size of each square proportional to the amount of statistical information that was available; the horizontal lines represent 95% confidence intervals.



# Comparing efficacy and safety of different doses of dexamethasone in the treatment of COVID-19: a three-arm randomized clinical trial

Negar Toroghi<sup>1</sup> · Ladan Abbasian<sup>2</sup> · Anahid Nourian<sup>1</sup> · Effat Davoudi-Monfared<sup>1</sup> · Hossein Khalili<sup>1</sup> · Malihe Hasannezhad<sup>2</sup> · Fereshteh Ghiasvand<sup>2</sup> · Sirous Jafari<sup>2</sup> · Hamid Emadi-Kouchak<sup>2</sup> · Mir Saeed Yekaninejad<sup>3</sup>

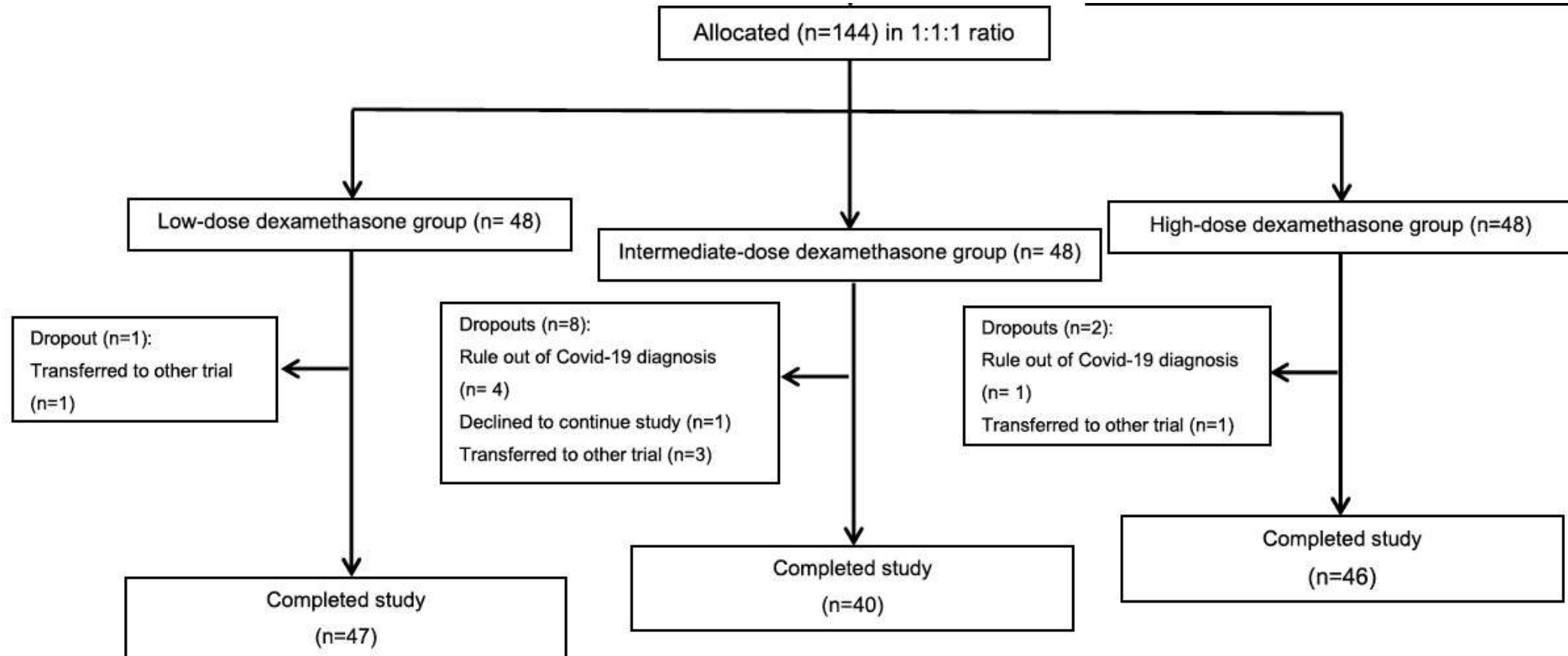
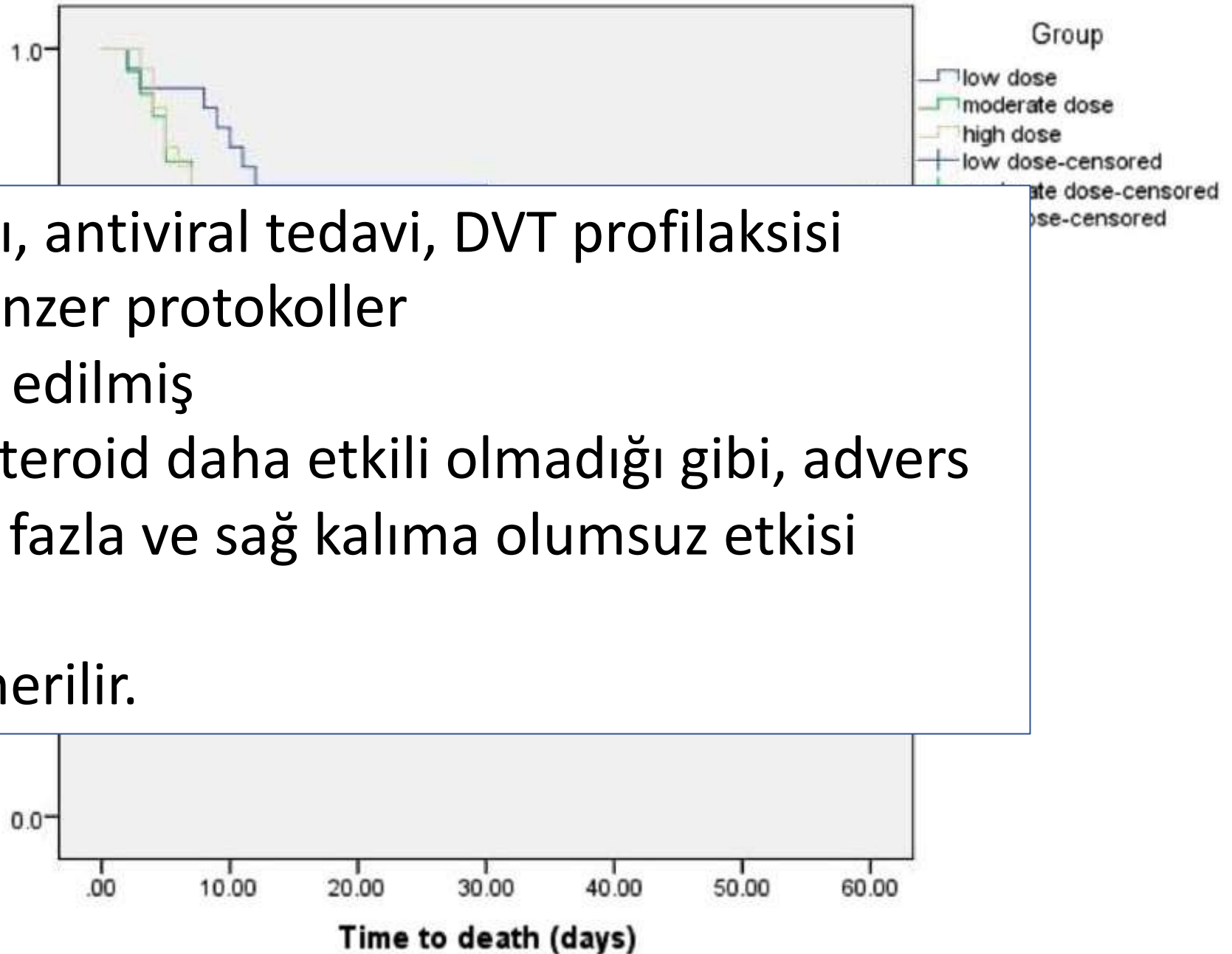




Fig. 2 Kaplan–Meier plot for survival time. In Kaplan–Meier plot, survival was significantly longer in the low-dose than the high-dose group ( $p=0.02$ ).

However, this was not significantly different between intermediate-dose and high-dose groups ( $p=0.15$ ).





## High-dose *versus* low-dose prednisolone in symptomatic patients with post-COVID-19 diffuse parenchymal lung abnormalities: an open-label, randomised trial (the COLDSTER trial)

We allocated subjects 1:1 by computer-generated simple randomisation (allocation concealment in consecutively numbered sealed opaque envelopes) to receive either high-dose prednisolone (40 mg·day<sup>-1</sup> for 1 week, followed by 30 mg·day<sup>-1</sup> for 1 week, 20 mg·day<sup>-1</sup> for 2 weeks and 10 mg·day<sup>-1</sup> for 2 weeks) or low-dose prednisolone (10 mg·day<sup>-1</sup> for 6 weeks). We assessed the resting oxygen saturation, dyspnoea

In conclusion, we did not find high-dose prednisolone better than low-dose prednisolone in improving the clinical, radiological, physiological and HRQoL outcomes in PC-DPLAS. A placebo-controlled trial of glucocorticoids is required to better inform clinical practice for treating PC-DPLAS.



# COVID-19'da Antikoagölan Kullanımı

Hasta özellikleri	Ayaktan	Yatan Servis (Hipoksik)	Süre	Yatan Yoğun Bakım Ünitesi
Gebe		Profilaktik DMAH		
Gebe olmayan	Önerilmez <sup>1</sup>	Tedavi Dozu <sup>2</sup> DMAH	14 gün veya taburcu edilene kadar	Profilaktik <sup>3</sup> DMAH

<sup>1</sup> -Taburculuk sonrası profilaktik AKA önerilmez.  
-MICHELLE çalışması: Düşük doz rivaroksaban VTE riski olanlara verilsin.

<sup>2</sup> -D-dimer normalden yüksek  
-Kanama riski yoksa ( $PLT < 50$ ,  $Hb < 8$ ,  
*son 30 günde kanama öyküsü, kanama diyatezi sorunu*)

<sup>3</sup> -Servisten yoğun bakım ünitesine geçenlerde profilaktik doza geçilmeli  
-Orta doz ya da tam tedavi dozu  
**ÖNERİLMEZ**

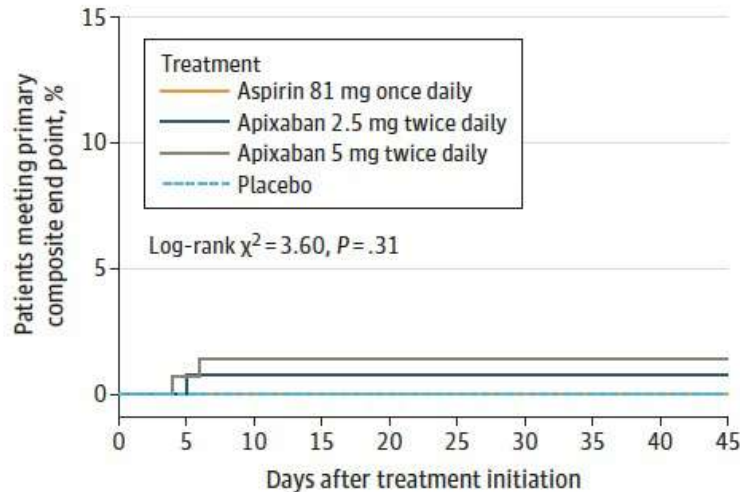
# COVID-19'da Aspirin Kullanımı

JAMA | Original Investigation

## Effect of Antithrombotic Therapy on Clinical Outcomes in Outpatients With Clinically Stable Symptomatic COVID-19 The ACTIV-4B Randomized Clinical Trial

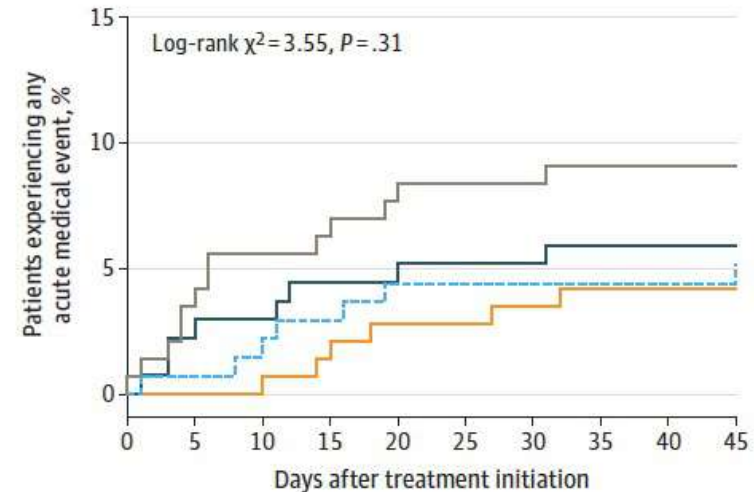
Figure 2. Cumulative Incidence of the Adjudicated Primary Trial End Point and the Cumulative Incidence for Any Acute Medical Event Among Randomized Trial Participants Who Initiated Trial Therapy, Stratified by Assigned Treatment

**A** Cumulative incidence of adjudicated primary end point



No. at risk										
Aspirin 81 mg	144	144	144	144	144	144	144	144	143	140
Apixaban 2.5 mg	135	135	134	134	134	134	134	134	133	132
Apixaban 5.0 mg	143	142	141	141	141	141	140	140	140	137
Placebo	136	136	136	136	136	136	136	136	135	132

**B** Cumulative incidence of any acute medical event



No. at risk										
Aspirin 81 mg	144	144	144	142	140	140	139	138	137	134
Apixaban 2.5 mg	135	132	131	129	129	128	128	127	126	125
Apixaban 5.0 mg	143	138	135	134	132	131	130	129	129	126
Placebo	136	135	134	132	130	130	130	130	129	126

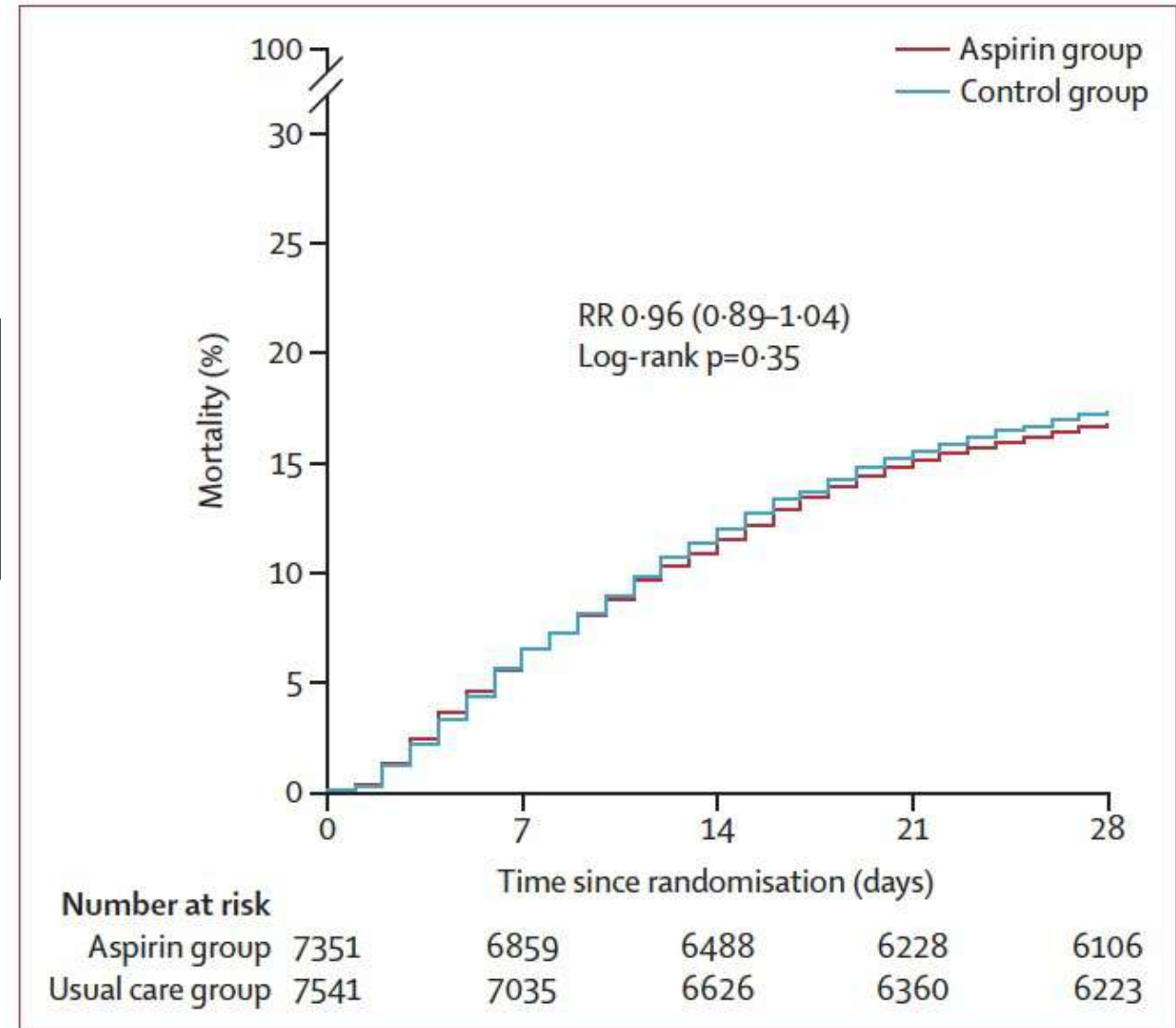
# COVID-19'da Aspirin Kullanımı

**Aspirin in patients admitted to hospital with COVID-19 (RECOVERY): a randomised, controlled, open-label, platform trial**

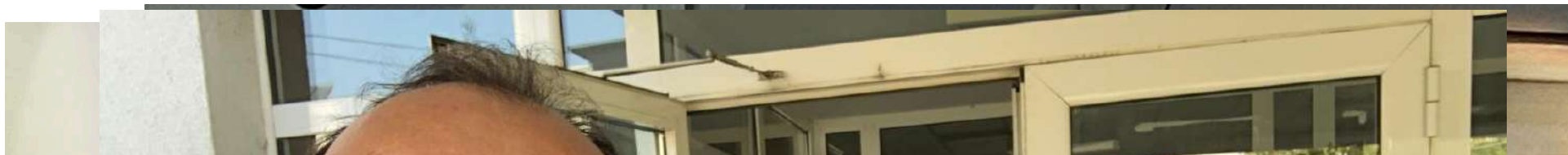
RECOVERY Collaborative Group\*

**Summary**  
**Background** Aspirin has been proposed as a treatment for COVID-19 on the basis of its anti-thrombotic properties. *Lancet 2022; 399: 143-51*



**Figure 2: Effect of allocation to aspirin on 28 day mortality**  
RR=rate ratio.



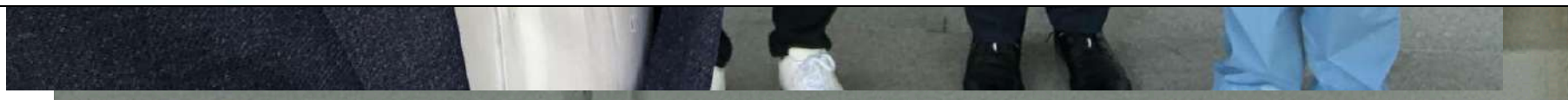
## Management of COVID-19 cases in Kosova

Salih Ahmeti<sup>1\*</sup>, Şiran Keske<sup>2,3\*</sup>, Sadije Namani-Avdiu<sup>1</sup>, Lindita Ajazaj-Berisha<sup>1</sup>, Arben Vishaj<sup>1</sup>,  
Izet Sadik<sup>1</sup>, Mentor Alimusaj<sup>4</sup>, Faik Hoti<sup>5</sup>, Hysen Ahmeti<sup>6</sup>, Bilgin Sait<sup>7</sup>, Nahit Çakar<sup>8</sup>, Önder  
Ergönül<sup>2,3</sup>

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COVID-19 case

$\text{SpO}_2 \geq 90\%$

Assess risk factors<sup>1</sup>

If risk factors present;  
Inform patients about signs of progression  
Suggest pulse oxymeter measurement at home between 7-12. days of OoS  
No Cortiosteroid  
No Antibiotic  
Consider for hospitalization 7 days after OoS

If there is no risk factor:  
Outpatient follow up and give information about signs of progression,  
Suggest pulse oxymeter measurement at home between 7-12. days of OoS  
No Cortiosteroid  
No Antibiotic

$\text{SpO}_2 < 90\%$

Hospitalization

if there is progression in CT findings,  
elevation of CRP, ferritin, IL-6 levels, and lymphopenia  
consider disease progression

Dexamethazon<sup>2,3</sup> 6 mg/gün  
Tocilizumab<sup>4</sup> 8 mg/kg q12-24





# Future considerations

	Asymptomatic or Presymptomatic	Mild Illness	Moderate Illness	Severe Illness	Critical Illness
Features	Positive SARS-CoV-2 test; no symptoms	Mild symptoms (e.g., fever, cough, or change in taste or smell); no dyspnea	Clinical or radiographic evidence of lower respiratory tract disease; oxygen saturation $\geq 94\%$	Oxygen saturation $< 94\%$ ; respiratory rate $\geq 30$ breaths/min; lung infiltrates $> 50\%$	Respiratory failure, shock, and multiorgan dysfunction or failure
Testing	Screening testing; if patient has known exposure, diagnostic testing	Diagnostic testing	Diagnostic testing	Diagnostic testing	Diagnostic testing
Isolation	Yes	Yes	Yes	Yes	Yes

## Proposed Disease Pathogenesis

Viral replication

Inflammation

## Potential Treatment

Antiviral therapy

Antibody therapy

Antiinflammatory therapy

## Management Considerations

Monitoring for symptoms

Clinical monitoring and supportive care

Clinical monitoring; if patient is hospitalized and at high risk for deterioration, possibly remdesivir

Hospitalization, oxygen therapy, and specific therapy (remdesivir, dexamethasone)

Critical care and specific therapy (dexamethasone, possibly remdesivir)

# Teşekkürler



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