

# Penghambat Sistem Komplemen Dan Mortalitas Coronavirus Disease 2019 (COVID-19): Telaah Sistematis Dan Meta-Analisis = Complement Inhibitors and Coronavirus Disease 2019 (COVID-19) Mortality: a Systematic Review and Meta-Analysis

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## Abstrak

Latar Belakang: Aktivasi komplemen dapat menyebabkan respon imun berlebihan dan merupakan salah satu faktor yang berpengaruh terhadap morbiditas serta mortalitas pasien COVID-19. Beberapa penghambat aktivasi komplemen saat ini sedang dipelajari untuk menghambat aktivasi sistem komplemen yang berlebihan pada pasien COVID-19. Resiko, keuntungan, waktu pemberian dan bagian dari sistem yang akan ditargetkan perlu dipertimbangkan pada saat akan menggunakan penghambat komplemen, oleh karena itu telaah sistematis ini dibuat untuk mengambil kesimpulan apakah pemberian terapi penghambat sistem komplemen dapat menurunkan mortalitas pasien COVID-19 yang dirawat di Rumah Sakit berdasarkan penelitian-penelitian yang tersedia.

Tujuan: Mengetahui efek pemberian terapi penghambat sistem komplemen terhadap mortalitas pasien COVID-19 yang dirawat di Rumah Sakit.

Metode: Dengan menggunakan kata kunci spesifik, dilakukan pencarian artikel potensial secara komprehensif pada PubMed, Embase, Cochrane, dan Scopus database dengan pembatasan waktu 2019 sampai dengan sampai 31 Desember 2022. Protokol studi ini telah diregistrasi di PROSPERO (CRD42022306632). Semua penelitian pemberian terapi penghambat komplemen pada pasien COVID-19 dimasukkan. Analisis statistik dilakukan dengan menggunakan perangkat lunak Review Manager 5.4.

Hasil: 5 penelitian memenuhi kriteria dan dimasukkan dalam telaah sistematis serta meta-analisis dengan total 739 pasien COVID-19. Hasil analisis Forest plot menunjukkan bahwa pemberian terapi penghambat sistem komplemen menurunkan mortalitas sebesar 28% pada pasien COVID-19 yang dirawat di Rumah Sakit (RR 0,72; 95% CI: 0,46 – 1,14, I2 = 61%, P-value = 0.16).

Kesimpulan: Pemberian terapi penghambat sistem komplemen secara statistik tidak signifikan menurunkan mortalitas pada pasien COVID-19 yang dirawat di Rumah Sakit

.....Background: Complement activation can cause an exaggerated immune response and is one of the factors that influence the morbidity and mortality of COVID-19 patients. Several complement activation inhibitors are currently being studied to inhibit excessive complement activation in COVID-19 patients. The risks, benefits, time of administration and the part of the system to be targeted need to be considered when using complement inhibition, therefore this systematic review was made to conclude whether the administration of complement system inhibition therapy can reduce the mortality of COVID-19 patients who are hospitalized based on available studies.

Objective: To determine the effect of complement system inhibitory therapy on the mortality of hospitalized COVID-19 patients

Methods: Using specific keywords, we comprehensively searched the PubMed, Embase, Cochrane, and Scopus databases for potential articles from 2019 to December 31, 2022. The research protocol was registered with PROSPERO (CRD42022306632). All studies administering complement inhibitory therapy

to COVID-19 patients were processed. Statistical analysis was performed using Review Manager 5.4 software.

Result: 5 studies met the criteria and were included in a systematic review and meta-analysis of a total of 739 COVID-19 patients. The results of the Forest plot analysis showed that administration of complement system inhibitor therapy reduced mortality by 28% in hospitalized COVID-19 patients (RR 0.72; 95% CI: 0.46 – 1.14, I<sup>2</sup> = 61%, P -value = 0.16).

Conclusion: Providing complement system inhibitor therapy did not statistically significantly reduce mortality in hospitalized COVID-19 patients