BEST DRUG INTERACTION FOR COVID-19 THERAPEUTIC MANAGEMENT: A METANALYSIS

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November 27, 2020

Abstract

Background and Purpose: The Covid-19 is a viral infection classified as a pandemic by the World Health Organization. There is not currently therapy against the Sars-cov-2. We aimed to assess the best drug therapy approach for the management of Covid-19. Experimental Approach: We did a systematic review and meta-analysis of randomized controlled trials of drugs used in patients with Covid-19. We performed research in the PubMed and the Medrxiv. The trials were included if the patients were over 12 years old, diagnosed through the rt-PCR test and who assessed as primary outcomes or decreased mortality, or time to clinical improvement, or hospitalization time. Random-effects meta-analysis was used to pool individual studies. Heterogeneity was assessed using I^2. The review has been registered on PROSPERO, number 179879. Key Results: Nine trials were included for analysis. Remdesivir, mainly early after the onset of symptoms, led to a reduction in mortality (OR, 0·85; 95% CI, 0·05 to 0·98; P=0·045). Although this meta-analysis did not observe a reduction using dexamethasone, the Recovery Trial indicates that it can be an option for a patient that needs oxygen support. Our study did not demonstrate the efficacy of any treatment to minimize the effects of Covid-19 related to large hospital stay or time to clinical improvement. Conclusion and Implications: Remdesivir is the only drug that can change the course of Covid-19, reducing mortality rates. Despite this result, other studies must evaluate the effectiveness of this and other drugs in the management of Covid-19 mainly studies with robust methods.

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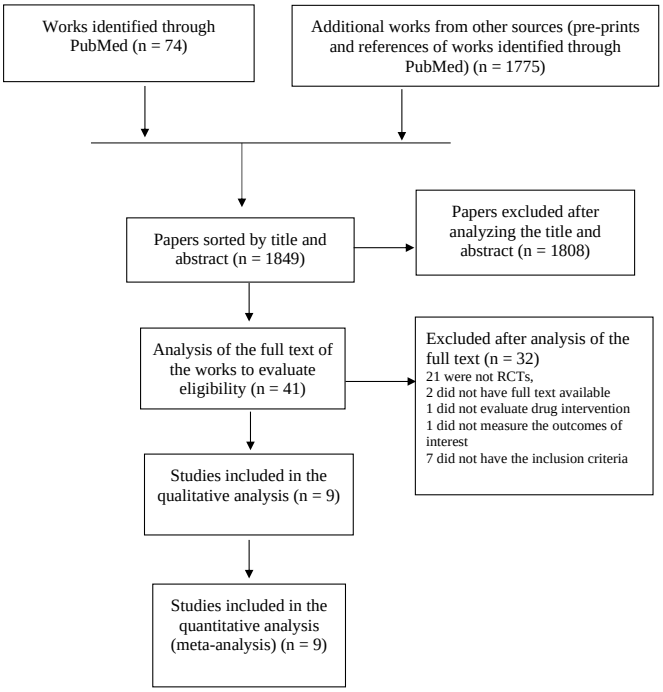
Figure 1. **Flowchart of study selection**



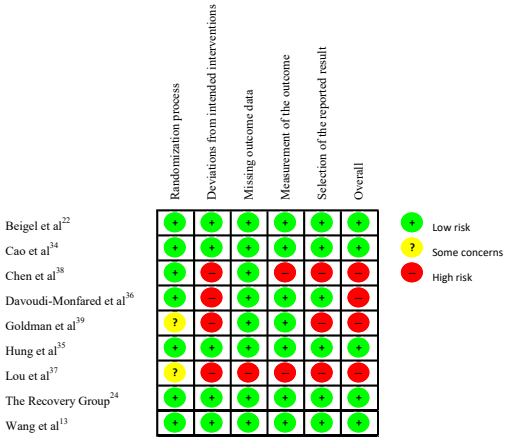


Figure 2. Analysis of the risk of bias

no. of studies	n_1	n_2	Total	Parameter	Odds ratio (95%CI)	p-value
9	2049	1209	3258	**Male**	1·98 (0·44 to 5·99)	0·366
9	3258	5320	8578	**Age (years)**	1·74 (0·34 to 3·93)	0·374
9	1806	1452	3258	**Comorbidity**	1·25 (0·28 to 4·71)	0·784
9	479	203	1958	**Adverse events**	0·68 (0·21 to 2·80)	0·674
9	3230	5298	8528	**Days hospitalization**	0·23 (0·04 to 5·90)	0·874
2	699	600	1299	**Remdesivir**	0·85 (0·05 to 0·98)	0·045
1	185	141	326	**Lopinavir-ritonavir**	0·34(0·07 to 2·21)	0·934
1	2104	4321	6425	**Dexametasona**	3·50 (0·80 to 4·21)	0·543

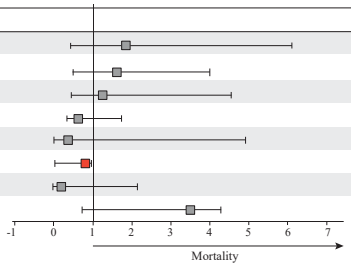


Figure 3. Metaregression of mortality in patients with COVID-19
I^2 statistic =77%. **Abbreviatures:** n1: Cases, n2: controls

no. of studies	n_1	n_2	Total	Parameter	Odds ratio (95%CI)	p-value
9	2049	1209	3258	**Male**	1·85 (1·43 to 2·10)	0·013
9	3258	5320	8578	**Age (years)**	1·40 (0·44 to 19·01)	0·851
9	1806	1452	3258	**Comorbidity**	1·41 (1·11 to 2·20)	0·032
9	479	203	1958	**Adverse events**	1·23 (0·82 to 1·86)	0·431
2	699	600	1299	**Remdesivir**	1·53 (0·00 to 7·45)	0·672

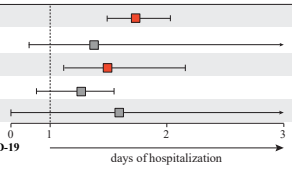


Figure 4. Metaregression of days of hospitalization in patients with COVID-19
I^2 statistic =75%. **Abbreviatures:** n1: Cases, n2: controls

no. of studies	n_1	n_2	Total	Parameter	Odds ratio (95%CI)	p-value
9	2049	1209	3258	**Male**	0·97(0·50 to 1·50)	0·267
9	3258	5320	8578	**Age (years)**	0·09 (0·05 to 20·21)	0·519
9	1806	1452	3258	**Comorbidity**	0·35 (0·11 to 1·58)	0·108
9	479	203	1958	**Adverse events**	0·43 (0·08 to 1·61)	0·213
2	699	600	1299	**Remdesivir**	1·50 (0·00 to 2·32)	0·942

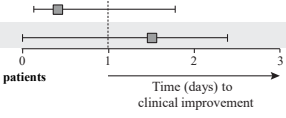


Figure 5. Metaregression of time (days) to clinial improvement in patients with COVID-19
I^2 statistic =81%. **Abbreviatures:** n1: Cases, n2: controls

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`Table 1_characteristics of included studies (1).pdf` available at https://authorea.com/users/

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