Efficacy and safety of Remdesivir treatment for acute respiratory syndrome caused by SARS-COV-2 in patients admitted to a general hospital.

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Abstract

Background An efficient approach to drug discovery is to test whether existing antiviral drugs are effective in treating viral infections related. SARS-CoV2 is known to belong to the SARS-CoV family and the Middle East CoV Respiratory Syndrome (MERS-CoV). In animal models, administration of GS-5734 significantly reduced the viral load of pulmonary SARS-CoV and improved clinical signs of disease, as well as respiratory function. The objective of our review and metanalisis is to evaluate the efficacy and safety of remdesivir, treatment of acute respiratory syndrome caused by COVID-19 in patients who are admitted to a general hospital

Methods PubMed / Medline, Embase, the Cochrane Central Register of Controlled Trials (CENTRAL) and grey literature were searched. We included studies of patients adults over 18 years of age with acute respiratory syndrome withSARS-CoV2. The primary objective was to assess the rate mortality with remdesivir vs placebo. The secondary objective was to assess the rate general and severe side effects.

Results Overall mortality was lower in the group receiving remdesivir in comparison to the placebo group (OR 0.65; 95% CI, 0.44-0.96; I2 55%). The risk of adverse events was (OR 1.01; 95% CI, 0.79-1.28; I2 0%) and that of severe adverse events was (OR 0.71; 95% CI, 0.55-0.92; I2 0%) remdesivir compared to placebo.

Conclusions The use of remdesivir for the treatment of SARS-COV2 acute respiratory syndrome in patients admitted to a general hospital is based on a weak recommendation, because the quality of the evidence is low.

Keywords Remdesivir. SARS-COV-2. Meta-analysis

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Introduccion

In December 2019, new pneumonia caused by a pathogen previously unknown emerged in Wuhan, a city of 11 million people in the center of China. The initial cases were related to exposures in a market in Wuhan. As of January 27, 2020, the GOC reported 2835 confirmed cases in China with 81 deaths. In addition, cases were quickly identified in the rest of Asia and Europe. The pathogen was soon identified as a new coronavirus (2019-nCoV), which was closely related to severe acute respiratory syndrome CoV (SARS-CoV). Currently, there is no specific treatment for the new virus. So therefore, it is urgently needed to identify effective antiviral agents to combat Disease. An efficient approach to drug discovery is to test whether existing antiviral drugs are effective in treating viral infections related. SARS-CoV2 is known to belong to the SARS-CoV family and the Middle East CoV Respiratory Syndrome (MERS-CoV). They are currently being tested for SARS-CoV2 several of the drugs that were used in such infections, such as ribavirin, interferon, lopinavir-ritonavir, corticosteroids, although effectively controversial. In animal models, administration of remdesivir significantly reduced the viral load of pulmonary SARS-CoV and improved clinical signs of disease, as well as respiratory function. However, due to the lack of convincing data on the efficacy and safety of remdesivir in humans we decided to conduct this study.

Objectives

The objective of our review and metanalisis is to evaluate the efficacy and safety of remdesivir, treatment of acute respiratory syndrome caused by COVID-19 in patients who are admitted to a general hospital. The primary objective was to assess the rate mortality with remdesivir vs placebo. The secondary objective was to assess the rate general and severe side effects.

Methodology

1-Criteria to include primary studies in our review: Studies: Randomized clinical trials were included. Participants: Adult patients over 18 years of age with acute respiratory syndrome with SARS-CoV2. Interventions: Treatment with Remdesivir Vs Placebo. Result measures: The primary result was the overall mortality assessed by reason risk of death (OR); the secondary result was the rate of effects general and severe adverse effects. 2-Search methods for identifying studies: Searches were performed on the PubMed/Medline, Embase, Registry Cochrane Central Controlled Essays (CENTRAL) and grey literature. The search terms were: (coronavir * O coronovirus * O "corona virus" OR "virus crown" OR "corono virus" OR "virus chorus" The hcov * The "covid-19" The covid19 * The "covid 19" The "2019-nCoV" The cv19 * The "cv-19" O "cv 19" O "n-cov" O ncov * O "sars-cov-2" O "sars-cov2" O (wuhan * Y (virus O virus O viruses)) O (covid * Y (virus or virus or virus)) OR "sars-cov" OR "sars cov" OR "sars coronavirus" OR "severe acute respiratory syndrome" OR "mers-cov" OR "mers cov" OR "half syndrome respiratory "O" Middle Eastern Respiratory Syndrome "O" related to covid-19 "O" related to SARS-CoV-2 "O" related to SARS-CoV2 "O" related to 2019-nCoV "O" cv- Related to 19 "O" related to n-cov") Y (Remdesivir * O Rem * The" Remde "O" Remdesiv "O" GS-5734 "The GS5734 .

Two authors independently reviewed all titles and summaries for the inclusion or exclusion of studies. Any disagreement over the inclusion of the study was resolved by consensus. 3-Data extraction and analysis: Step 1: Using the above-mentioned search strategy, documents that could potentially be relevant were identified by two authors. Step 2: The authors, after reading the full texts, independently evaluated the eligibility of all trials identified through ad hoc eligibility based on the above inclusion criteria. Disagreement was discussed between the authors and it came agreement by consensus or by a third investigator. Step 3: Two authors independently assessed the methodological quality of the selected tests using the criteria using the Cochrane Tool Risk of Bias described in the Cochrane Manual for Systematic Reviews of interventions (Higgins 2011). Factors evaluated included: 1. Sequence generation (i.e. the allocation sequence was appropriate ?); 2. Hiding the mapping sequence (i.e. the assignment was appropriate?); 3. Blinding (i.e. knowledge of the assigned intervention was adequately prevented during the study?); 4. Incomplete result data (i.e. incomplete result data properly addressed?); 5. Selective results report (i.e.

study reports are free from suggestion of selective results report?); 6. Other potential sources of bias (i.e., did the study apparently not have other problems that could put it at high risk of bias?). A "Yes" trial indicates a low risk of bias, "No" indicates a high risk of bias, and "Unclear" indicates an nuclear or unknown risk of bias. Data collection: A data extraction form was developed to extract information on relevant characteristics and the results of the studies included. Quality Assessment: The quality of the study will be assessed by detecting risk of bias using Cochrane bias risk tolos described in the Cochrane Manual for Reviews Systematic. For the assessment of evidence quality, the GRADE approach will be evaluated proposed by Mcmaster University's evidence based medicine team Canada. Statistical Analysis: Cochrane Collaboration Review Manager (RevMan) software will be used (version 5.1) data analysis. The data will be analyzed in accordance with the principle of intent to try. It will be assumed that patients with missing end results were failures of the Treatment. Relative risks (OR) and 95% confidence intervals (95% CI) it is calculate based on a fixed effects model. The heterogeneity between the results evaluated by using the I2 squared test (s2 or Chi2).

Results

A search and analysis conducted from 1/3/2020 to 1/7/2020 included two randomized clinical trials (12-13). A total of 1,295 patients were included in the meta-analysis. Overall mortality was lower in the group receiving remdesivir in comparison to the placebo group (OR 0.65; 95% CI, 0.44-0.96; I2 55%). The risk of adverse events was (OR 1.01; 95% CI, 0.79-1.28; I2 0%) and that of severe adverse events was (OR 0.71; 95% CI, 0.55-0.92; I2 x 0%) remdesivir compared to placebo. Risk of bias was detected in both primary studies due to masking errors, deficiencies in randomization analysis and intent to try. Using the GRADE methodology we note that the quality of evidence was low due to the risk of bias, inaccuracy and inconsistency in the results.

Conclusión

The use of remdesivir for the treatment of SARS-COV2 acute respiratory syndrome in patients admitted to a general hospital is based on a weak recommendation, because the quality of the evidence is low. More well-designed randomized trials are needed to change the strength of the recommendation.

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