Poster C-14

The Use of Remdesivir for the Treatment of COVID-19: A Scoping Review

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NMRR-20-1369-55660

INTRODUCTION

- The coronavirus disease 2019 (COVID-19) first emerged in December 2019 in Wuhan City, Hubei, China, following reports of several pneumonia cases with unknown aetiology agent.
- Roughly 19.5 million infections and more than 700,000 deaths have been reported worldwide by the early of August 2020.
- Remdesivir is a nucleotide analogue which inhibits viral RNA polymerase and consequently disrupts viral replication.
- This drug also has broad antiviral activities.
- Remdesivir has been demonstrated to possess prophylactic and therapeutic activity against MERS-CoV in a rhesus-macaque model with lower viral replication and lung damage and the eventual improved clinical symptoms.

OBJECTIVE

- This review aims to summarise and synthesise published data evaluating remdesivir and COVID-19. Our primary aim is the effect and safety of remdesivir among COVID-19 patients.

METHOD

01 Identifying research questions

02 Identifying relevant studies

03 Study selection

04 Charting the data

05 Collating, summarizing and reporting the results

RESULTS

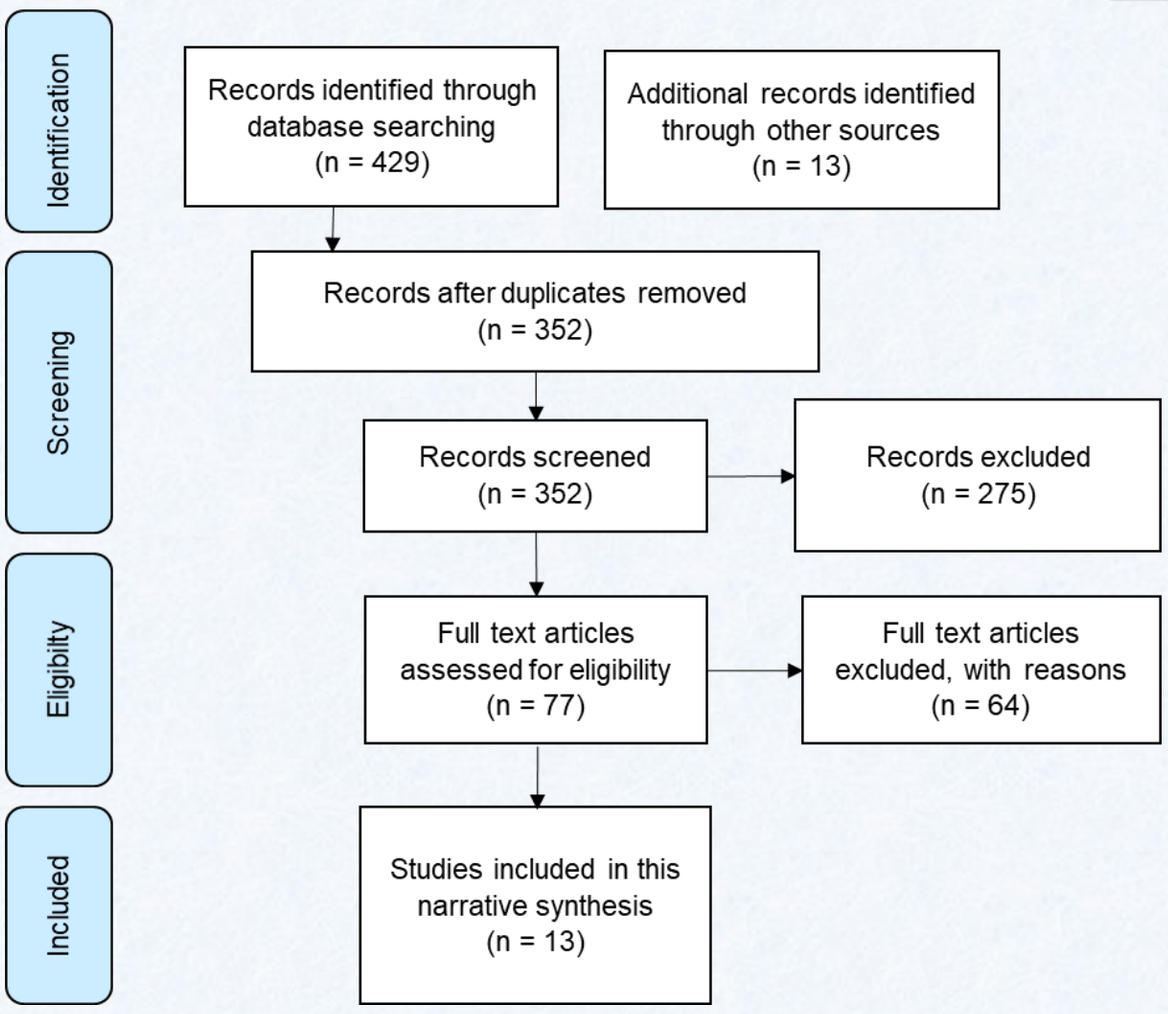

Fig.1: The PRISMA flowchart for the included studies of remdesivir for the treatment of COVID-19.

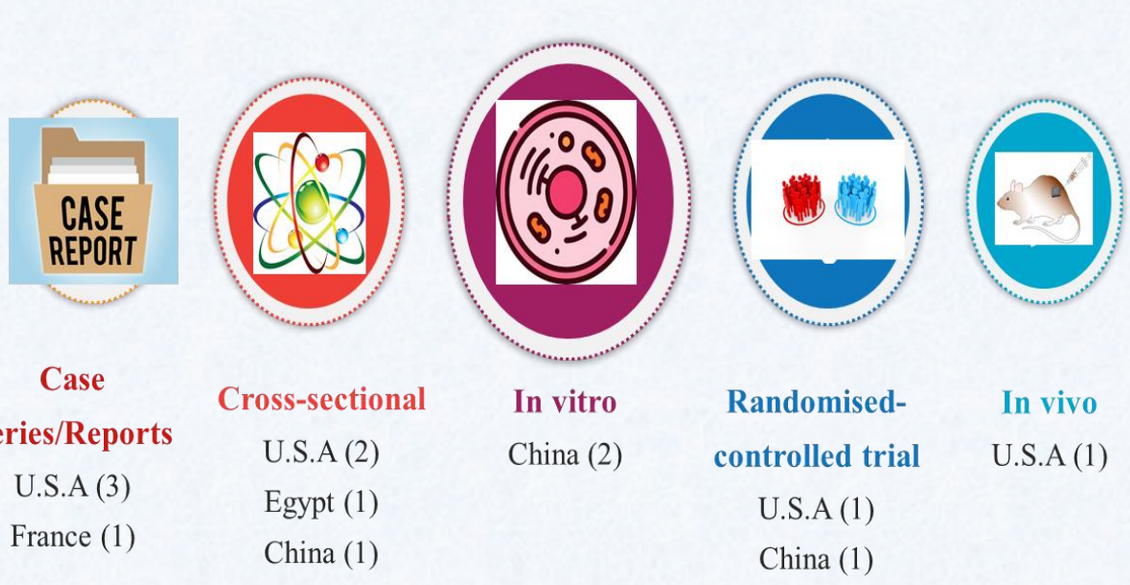

Fig.2: Type of studies and country of origin of 13 included studies.

Table 1: Summary of findings of the 13 included studies.

Type of Study, Author(s), Year	Key Findings
Case reports/series	
Holshue et al. (2020) Hillaker et al. (2020) Kujawski et al. (2020 Lescure et al. (2020)	Total number of patients: 10 All patients showed improvement in conditions after at least 24 hours of treatment with remdesivir.
Cross-sectional	
Elfiky (2020) Zhang & Zhou (2020 Yin et al. (2020) Gordon et al. (2020)	All studies reported the effectiveness of remdesivir in triphospohate form binding to the new coronavirus strain RNA-dependent RNA polymerase (RdRp).
In vitro	
Wang et al. (2020) Choy et al. (2020)	Remdesivir is one of the drugs that was found to inhibit SARS-CoV-2 replication in Vero E6 cells with EC50 under 100 μM.
Randomised-controlled trial	
Grein et al. (2020)	Total number of patients: 61 (8 excluded) 36 patients (68%) had an improvement in oxygen-support class (17 of them were extubated). 25 patients (47%) were discharged. 7 patients (13%) passed away.
Wang et al. (2020)	Total number of patients: 237 (158 received remdesivir; 79 received placebo) Time to clinical improvement not significant (Hazard Ratio (HR) 1.23 [95% CI 0.87–1.75]). Patients receiving remdesivir within 10 days of symptom onset has a statistically faster time to clinical improvement (HR 1.52 [0.95–2.43]). Adverse effects were reported in between 60% and 66% of patients in both studies.
In vivo	
Williamson et al. (2020)	Involved 2 groups of rhesus macaques (remdesivir and control groups). Reduction of pulmonary infiltration in the remdesivir-treated group showed in radiographs. Viral loads reduced in the remdesivir-treated group but not statistically significant. Virus titre in bronchoalveolar lavage (BAL) of the remdesivir-treated group reduced around 100-fold after 12 hours of treatment.

CONCLUSIONS

- We found a paucity of high-quality clinical trials in relation to in-vitro, in-vivo and non-randomised studies, and so the quality of evidence to inform clinical practice is still not strong.
- The current evidence-base needs to be consolidated with the publication of more clinical trials with bigger cumulative samples, to the point where optimal information size is reached.
- Due to insufficient data, we are unable to determine further the applicability of the findings to all COVID patients, that is, adults and children.
- The high percentage of adverse effects in RCTs among adults and children need to be investigated further.

ACKNOWLEDGEMENT

The authors would like to thank the Director-General of Health Malaysia for permission to present this poster and the Manager, National Institutes of Health Malaysia for her continuous support during the preparation of this poster. Last but not least, our appreciation goes to everyone who was involved directly or indirectly in the preparation of this article.

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