ORIGINAL RESEARCH

To evaluate the efficacy of Remdesivir in patients with covid 19

Dr. Neerav Tyagi

Associate Professor, Department of Respiratory Medicine, Santosh Medical College & Hospital, Ghaziabad, Uttar Pradesh, India

Corresponding author
Dr. Neerav Tyagi
Associate Professor, Department of Respiratory Medicine, Santosh Medical College & Hospital, Ghaziabad, Uttar Pradesh, India

Received: 10 January, 2023 Accepted: 13 February, 2023

ABSTRACT

Aim: The purpose of this study is to evaluate the efficacy of Remdesivir in patients with covid 19. **Materials and methods:** The division of respiratory medicine was responsible for carrying out this investigation. This research included both male and female participants with COVID-19 who were at least 18 years old, had an RT-PCR test that was positive for SARS-CoV-2, and either had pneumonia that was verified by chest imaging or had an oxygen saturation of 94%. The cases were separated into two groups: Group A consisted of cases of Covid 19 respiratory infection that were treated with Remdesivir therapy in addition to the standard care (n=50), and Group B consisted of cases of Covid 19 respiratory infection that were treated with the standard care but did not receive Remdesivir (n=50). **Results:** The majority of patients (36 out of 50) in Group A who were recruited in the trial were eventually released. This is a 72% success rate. 14 (or 28%) of the patients ultimately passed away as a result of their condition. In Group A, there was a death rate of 28 percent. The majority of the patients who passed away were those with severe illness (78.57%), whereas just 21.43% of the patients had intermediate disease. There were a total of 50 patients who were not given remdesivir, and of them, 9 passed away. The individuals who did not get remdesivir had an 18% higher risk of passing away. **Conclusion:** It is very unlikely that therapy with an antiviral medicine alone, such as Remdesivir, would be adequate for COVID-19 patients given the significant death rate that was seen in the current trial despite the use of Remdesivir.

Keywords: Remdesivir ,covid 19, Mortality

INTRODUCTION

Large portions of the globe have been thrown into a prolonged period of medical, social, and economic disaster as a result of the worldwide pandemic of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Almost a quarter of a million fatalities have been attributed to the respiratory ailment known as coronavirus disease 2019 (Covid-19), which was caused by an infection with SARS-CoV-2. Of those deaths, roughly 100,000 have occurred in the United States. Patients who are already suffering from other illnesses, such as hypertension, diabetes, or cardiovascular disease, as well as those who have deteriorated to the point where they need invasive mechanical ventilation, are at an increased risk of passing away as a result of the Covid-19 infection. We need therapeutic alternatives that are both safe and effective in order to lessen the impact of the Covid-19 sickness.[1-3] In addition to the currently available supportive care and oxygen supplementation, an effective pharmacological therapy is required due to the high case fatality rate that is projected to be caused by COVID-19 as well as the severity of the pneumonia that it causes.[2] The nucleoside pro-drug remdesivir works by blocking the transcription of viral RNA. Here is how it works. It has been shown to be effective against coronaviruses and SARS-CoV-2 via in-vitro testing as well as a few modest human studies, and it may also be safely used as a compassionate basis in controlling COVID-19 infections.[3,4] While newly available randomized clinical studies have showed some encouraging outcomes, there is currently insufficient evidence to determine whether or not Remdesivirin is useful in the treatment of COVID-19. As a result, we attempted, via the use of this observational research, to investigate the impact of Remdesivir treatment on mortality in patients who were suffering with respiratory COVID infection.

MATERIALS AND METHODS

The division of respiratory medicine was responsible for carrying out this investigation. This research included both male and female participants with

COVID-19 who were at least 18 years old, had an RT-PCR test that was positive for SARS-CoV-2, and either had pneumonia that was verified by chest imaging or had an oxygen saturation of 94%. Known severe renal impairment (estimated glomerular filtration rate of less than 30 ml/min per 1•73 m2) or receipt of continuous renal replacement therapy, hemodialysis, or peritoneal dialysis; the possibility of transfer to a non-study hospital within 72 hours; and enrollment in an investigational treatment st were all exclusion criteria. The cases were separated into two groups: Group A consisted of cases of Covid 19 respiratory infection that were treated with Remdesivir therapy in addition to the standard care (n=50), and Group B consisted of cases of Covid 19 respiratory infection that were treated with the standard care but did not receive Remdesivir (n=50). The amount of deaths was the metric that was used to evaluate the result.

DATA ANALYSIS

Using the IBM SPSS version 25.0 software, each and every piece of data was evaluated. In order to produce the tables, we employed a combination of cross-tabulation and frequency distribution. When expressing quantitative data, the mean and standard deviation are used, however when expressing categorical data, a percentage is used instead. While comparing the means, the analysis of variance (ANOVA) was applied, whereas the chi-square test was used when comparing the percentages. It was determined that a threshold of significance of 5% was appropriate.

RESULTS

COVID-19 was shown to be more widespread in men (70%), particularly those between the ages of 55 and 65 (37%), followed by those between 45 and 55 (20%), with a mean age of 58.01±7.58 years. COVID-19 was also found to be more prevalent in older adults.

Table 1: Gender and age distribution of the patients

Gender	Number	%
Male	70	70
Female	30	30
Age group		
Below 35	15	15
35-45	13	13
45-55	20	20
55-65	37	37
Above 65	15	15

Table 2: Comparing the mean duration of hospital stay with case severity

Case severity	Mean duration (days)	P-value
Moderate	15.01±2.36	0.01
Severe	13.14±2.14	
Total	14.07±2.24	

The average length of stay in the hospital was substantially longer for moderate patients (15.01±2.36 days) than it was for severe patients (13.14±2.14 days), as shown by a p-value of 0.01.

Table 3: Mortality rates with Remdesivir

Outcome	Number	%
Discharged	36	72
Expired	14	28

The majority of patients (36 out of 50) in Group A who were recruited in the trial were eventually released. This is a 72% success rate. 14 (or 28%) of the patients ultimately passed away as a result of their condition. In Group A, there was a death rate of 28 percent.

Table 4: Association of Outcome with case severity in Group A

Outcome	Case severity		Total	P-value
	Moderate	Severe		
Discharged	22(61.11%)	14(38.89%)	36	0.36
Expired	3(21.43%)	11(78.57%)	14	
Grand Total	25(50%)	25(50%)	50	

The majority of the patients who passed away were those with severe illness (78.57%), whereas just 21.43% of the patients had intermediate disease. There were a total of 50 patients who were not given remdesivir, and of them, 9 passed away. The individuals who did not get remdesivir had an 18% higher risk of passing away.

Table 5: Comparison of mortality between Group A and Group B

Remdesivir received	Outcome		Mortality rate (%)	P value
	Survived	Expired		
Yes (n=50)	36	14	28	0.21
No (n=50)	41	9	18	

DISCUSSION

Until it was repurposed, Remdesivir was the medication of choice for treating individuals who were infected with the Ebola virus.[5] After the outbreak in the year 2020, remdesivir was added to the list of potential candidates for participation in international clinical trials that the World Health Organization (WHO) was doing in order to find a viable therapy for COVID-19.[6]Remdesivir is an antiviral medication that has a wide range of activity and is now being used in the treatment of the Ebola virus. Numerous in vitro investigations have shown that this compound is active against the SARS-Cov-2 virus. Patients with mild-to-moderate and severe COVID-19 have been the focus of a number of randomized clinical studies during phases II and III that have shown that parenteral Remdesivir is effective in treating the condition.[7] Within the scope of the current research, we investigated the impact that treatment with Remdesivir had on the overall mortality rate of COVID patients suffering from respiratory illness. Our research revealed that the median length of hospitalization for moderate patients was noticeably longer compared to that of severe patients. We observed that out of the total of 50 patients who participated in the trial, the majority of them were able to be released. It was stated that 28% of patients had passed away as a result of the condition. Nonetheless, the bulk of individuals who passed away were suffering from serious conditions. Nevertheless, statistical tests showed that this difference was not significant. In their study on the effects of Remdesivir, Beigel et al. revealed that the death rates assessed by Kaplan–Meier were 6.7% with Remdesivir and 11.9% with placebo by day 15.[8]Remdesivir was shown to have a considerably lower death rate when compared to the standard of treatment, according to Olender et alinterim .'s results from the SIMPLE-severe trial and a concurrent retrospective cohort analysis.[9] Nevertheless, a recent clinical research conducted by the NIH did not find any substantial survival advantage associated with Remdesivir compared to the group serving as the control. The death rate in the group that received Remdesivir was 8.0%, whereas the mortality rate in the placebo group was 11.6% ($p = 0.059$).[10] A further randomized, double-blind, placebo-controlled, multicenter phase III study that was conducted in China found comparable death rates at day 28 (14% in the Remdesivir group and 13% in the placebo group).[11]

CONCLUSION

It is very unlikely that therapy with an antiviral medicine alone, such as Remdesivir, would be adequate for COVID-19 patients given the significant death rate that was seen in the current trial despite the use of Remdesivir.

REFERENCES

1. Fauci AS, Lane HC, Redfield RR. Covid-19 — navigating the uncharted. N Engl J Med 2020;382:1268-1269.
2. Abi-Habib M. Millions had risen out of poverty. Coronavirus is pulling them back. New York Times. April 30, 2020. (https://www.nytimes.com/2020/04/30/world/asia/coronavirus-poverty-unemployment.html).
3. Romm T. Mass layoffs begin in cities and states amid coronavirus fallout, threatening education, sanitation, health and safety. Washington Post. April 29, 2020. (https://www.washingtonpost.com/business/2020/04/29/cities-states-layoffs-furloughs-coronavirus/).
4. Lo MK, Jordan R, Arvey A. GS-5734 and its parent nucleoside analog inhibit filo-, pneumo-, and paramyxoviruses. Sci Rep. 2017;7:43395.
5. Mulangu S, Dodd LE, Davey Jr, RT. A randomized, controlled trial of Ebola virus disease therapeutics.NEngl J Med. 2019; 381:2293-303.
6. WHO.Solidarity Clinical Trial for COVID-19 Treatments2020
7. Gao J, Tian Z, Yang X. Breakthrough: chloroquine phosphate has shown apparent efficacy in treatment of COVID-19 associ- ated pneumonia in clinical studies. BioScience Trends. 2020; 14:72-73.
8. Beigel JH, Tomashek KM, Dodd LE, Mehta AK, Zingman BC, Kalil AC. Remdesivir for the Treatment of Covid-19 — Final Report. N Engl J Med,2020, 1-14.
9. Olender SA, Perez KK, Go AS. Remdesivir for severe COVID- 19 versus a cohort receiving standard of care [abstract no. 3960 and poster]. In: AIDS 2020: COVID-19 conference
10. NIH clinical trial shows Remdesivir accelerates recovery from advanced COVID-19. https://www.nih.gov/news-events/news-releases/nih-clinical-trial-shows-remdesivir-accelerates-recovery-advanced-covid-19 (Oct 29, 2020)
11. Zhang D, Du G. Remdesivir in adults with severe COVID-19: a randomised, double-blind, placebo-controlled, multicentre trial. Lancet. 2020; 395(10236):1569-78