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ORIGINAL ARTICLE

Evaluationof the Remdesivir Treatment of Non Hospitalized Patients with Covid-19

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ABSTRACT

Objective: The purpose of this study is to determine the effectiveness of remdesivir treatment among patients of COVID-19 who were non-hospitalized.

Study Design: Randomized/Double blind study

Place and Duration: Conducted at Muhammed Medical College & Hospital, Mirpurkhas. Duration was six months from 1st July 2020 to 31st Dec 2020.

Methods: There were 170 patients f both genders had confirmed infectious respiratory disease were included in this study. Detailed demographics of enrolled cases included age, sex, body mass and comorbidities were recorded after taking informed written consent. Patients were divided equally into two groups, I and II. 85 patients in group I received placebo for 14 days and group II received remdesivir 200mg first day and 100mg daily for 14 days. Post treatment outcomes among both groups were compared in terms of efficacy, mortality and adverse events. SPSS 23.0 was used to analyze complete data.

Results: Among 170 cases, 95 (55.9%) patients were males and 75 (44.1%) were females. In patients of group I mean age was 54.13±7.3 years and in group II mean age was 55.9±8.51 years. In group I diabetes mellitus was found in 45 (52.9%) cases, hypertension in 20 (23.5%) patients, obesity in 15 (17.6%) patients and 5 (5.9%) patents had chronic kidney disease while in group II 50 (58.5%) patients had DM, 22 (25.9%) had HTN, obesity in 10 (11.8%) patients and CKD in 3 (3.5%) cases. At 14th day we found that in group I 42 (49.4%) cases were cured, 14 (16.5%) patients were died while in remdesivir group 73 (85.9%) patients were cured and 5 (5.9%) cases were died. Frequency of adverse events in placebo group was significantly higher and was found in 35 (41.2%) cases as compared to remdesivir group I 27 (31.8%) cases with p value <0.005.

Conclusion: We concluded in this study that use of remdesivir was effective among patients of non-hospitalized covid-19 in terms of low mortality rate, minimum adverse events and higher number of efficacy as compared to placebo group.

Keywords: Remdesivir, Placebo. Covid-19, Mortality, Efficacy, Adverse Events

INTRODUCTION

Coronavirus-2-caused COVID-19 causes severe acute respiratory syndrome (SARS) (SARS-CoV-2). In March 2020, the WHO declared the COVID-19 outbreak a global pandemic [1]. As of 28 December 2020, there have been a total of 80,838 931 confirmed cases globally, with 10,207 871 of them occurring in India [2]. After further research into the genesis of COVID-19, new antivirals and treatment options were soon considered. WHO still supports repositioning of existing drugs, in spite of the evidence they've collected. [3]

In the beginning, it was intended to treat Ebola patients [4]. In vitro, pre-clinical, and human cell line studies [5-7] investigated whether remdesivir may treat SARS-CoV-2 in patients with COVID-19. As of May 1, 2020, remdesivir was given an Emergency Use Authorization (EUA) by the US Food and Drug Administration (US FDA) based on early findings from an ongoing double-blind randomised controlled study.[8] Direct-acting nucleotide prodrug Remdesivir inhibits the RNA-dependent RNA polymerase of SARS-CoV-2 in primary human airway epithelial cells at nanomolar concentrations. [9]

In the Phase 3 research conducted by Resivir, it was discovered that both the 10-day and the 5-week regimens of the medicine reduced the amount of time patients needed to spend in the hospital while being treated with Covid-19relapse. [10,11] When it comes to treating other acute viral infections, starting medication as soon as feasible has been demonstrated to improve clinical outcomes and reduce death rates in half. This is especially true if treatment is started early on. [12,13]

According to our hypothesis, Remdesivir therapy in outpatient settings may minimise hospitalizations and death if it is started sooner, according to our hypothesis. A 14-day remdesivir treatment was investigated for effectiveness and safety in patients with Covid-19 who were high-risk but not hospitalised in a double-blind, randomised, placebo-controlled experiment..

MATERIAL AND METHODS

Current research was carried out at Conducted at Muhammed Medical College & Hospital, Mirpurkhas. Duration was six months from 1st July 2020 to 31st Dec 2020 and comprised of 170 patients. Patients who were receiving or expected to receive hospital care or supplemental oxygen at the time of screening were ineligible to participate. Those individuals who had previously been hospitalized for Covid-19, had received therapy for Covid-19 (including experimental drugs), or had had a SARS-CoV-2 vaccine were equally disqualified from participation in this trial.

The ages of the patients ranged from 22 to 80 years. Following the receipt of informed written consent, we gathered thorough demographic information on all of the patients who joined in the study. This information included the patients' ages, genders, heights, weights, and any other medical issues they may have had. Patients were split evenly between two groups, referred as as I and II. Group I consisted of 85 patients who were given a placebo for the whole 14 days, whereas patients in group II were given remdesivir at doses of 200 mg on the first day and 100 mg everyday for the full 14 days.

SARS-CoV-2 virus load was monitored using RT-PCR assays on a regular basis, as were reports of adverse events and blood tests. Nasopharyngeal viral load was also assessed using swab samples. Evidera-PPD researchers used it to assess flu symptoms reported by patients, using an electronic version of the Flu Patient Reporting Outcome (FLU-PRO) Plus questionnaire. On the first day, patients completed a questionnaire, and they did so again on each subsequent day for the next 14 days. Both groups were compared in terms of effectiveness, mortality, and adverse effects after therapy. It was used to analyse all of the data in SPSS 23.0.

Categorical variables were represented by frequencies and percentages. Data was presented using the mean and standard deviation.

RESULTS

Among 170 cases, 95 (55.9%) patients were males and 75 (44.1%) were females.(fig 1)

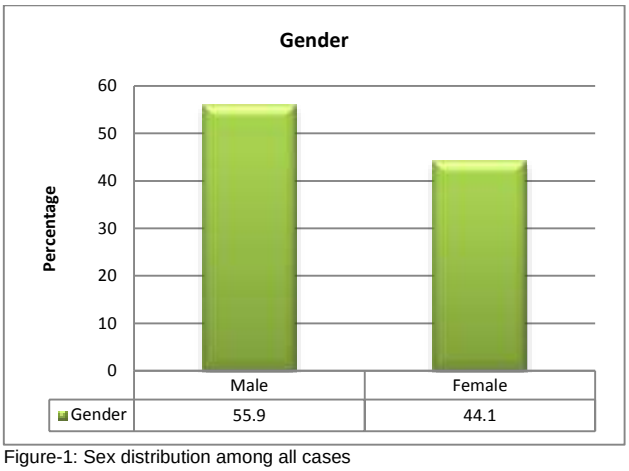

Figure-1: Sex distribution among all cases

In patients of group I mean age was 54.13±7.3 years and in group II mean age were 55.9±8.51 years. There 40 (47.1%) patients educated in group I and in group II 37 (43.5%) patients were educated. Majority of the cases were from 47 (55.3%) in group I and 44 (51.8%) were from urban areas. 57 (67.1%) patients were married in group I and in group II 60 (70.6%) patients were married.(table 1)

Table-1: Baseline characteristics of enrolled cases

Variables	Group I	Group II
Mean age (years)	54.13±7.3	55.9±8.51
Education status		
Educated	40 (47.1%)	37 (43.5%)
Non-educated	45 (52.9%)	48 (56.5%)
Place of Living		
Rural	38 (44.7%)	41 (48.2%)
Urban	47 (55.3%)	44 (51.8%)
Marital status		
Single	28 (32.9%)	25 (29.4%)
Married	57 (67.1%)	60 (70.6%)

In group I diabetes mellitus was found in 45 (52.9%) cases, hypertension in 20 (23.5%) patients, obesity in 15 (17.6%) patients and 5 (5.9%) patents had chronic kidney disease while in group II 50 (58.5%) patients had DM, 22 (25.9%) had HTN, obesity in 10 (11.8%) patients and CKD in 3 (3.5%) cases.(table 2)

Table-2: Association of comorbidities among both groups

Variables	Group I	Group II
Comorbidities		
DM	45 (52.9%)	50 (58.5%)
HTN	20 (23.5%)	22 (25.9%)
Obesity	15 (17.6%)	10 (11.8%)
CKD	5 (5.9%)	3 (3.5%)

At 14th day we found that in group I 42 (49.4%) cases were cured, 14 (16.5%) patients were died while in remdesivir group 73 (85.9%) patients were cured and 5 (5.9%) cases were died.(table 3)

Table-3: Indicator comparisons between the two groups

Variables	Group I	Group II
Efficacy		
Yes	42 (49.4%)	73 (85.9%)
No	43 (50.6%)	12 (14.1%)
Death		
Yes	14 (16.5%)	5 (5.9%)
No	71 (83.5%)	80 (94.1%)

Frequency of adverse events in placebo group was significantly higher found in 35 (41.2%) cases as compared to remdesivir group I 27 (31.8%) cases with p value <0.005.(table 4)

Table-4: Comparison of adverse events among both groups

Variables	Group I	Group II
Adverse Events		
Headache	14 (16.5%)	11 (12.9%)
Nausea/Vomiting	11 (12.9%)	9 (10.6%)
Cough	10 (11.8%)	7 (8.2%)
Total	35 (41.2%)	27 (31.8%)

DISCUSSION

Use of medications to treat illness is a worldwide phenomenon. An argument against Remdesivir is that ACTT-1 research supported by the National Institutes of Health showed that favourable clinical results might be achieved faster with the drug. There was no difference in fatality rates between the smaller Solidarity research financed by WHO and the larger one. The Solidarity study found that remdesivir had no effect on the death rate of COVID-19 patients who were very sick, but the results suggest that it may have a major influence on the intensity and length of illness. When it comes to COVID-19 patients, this is especially essential for low- and middle-income nations [14]. It may ease the pressure on the healthcare system. Remdesivir's mortality rate was lower than that of the non-remdesivir group, although the difference was not statistically significant in the present investigation. These results were in line with the ACCT-1 research [15] in terms of their size. It has been discovered that in the remdesivir group, duration of stay and in-hospital time was significantly reduced as compared to those who did not take remdesivir. Also in 2021, remdesivir treatment was reported to have a quicker time to clinical improvement in individuals with a history of HIV infection [16].

In our study 170 non-hospitalized cases of coronavirus disease were presented. Among 170 cases, 95 (55.9%) patients were males and 75 (44.1%) were females. We used placebo in 85 patients of group I and remdesivir among 85 patients of group II.In patients of group I mean age was 54.13±7.3 years and in group II mean age were 55.9±8.51 years. There 40 (47.1%) patients educated in group I and in group II 37 (43.5%) patients were educated. Majority of the cases were from 47 (55.3%) in group I and 44 (51.8%) were from urban areas. 57 (67.1%) patients were married in group I and in group II 60 (70.6%) patients were married. These findings were comparable to the previous studies.[17,18]Older persons and those with concomitant conditions such hypertension, diabetes, obesity, and heart disease were shown to be more susceptible to acquiring life-threatening COVID-19 illnesses during the pandemic. [19,20]In group I of our study diabetes mellitus was found in 45 (52.9%) cases, hypertension in 20 (23.5%) patients, obesity in 15 (17.6%) patients and 5 (5.9%) patents had chronic kidney disease while in group II 50 (58.5%) patients had DM, 22 (25.9%) had HTN, obesity in 10 (11.8%) patients and CKD in 3 (3.5%) cases.

At 14th day we found that in group I 42 (49.4%) cases were cured, 14 (16.5%) patients were died while in remdesivir group 73 (85.9%) patients were cured and 5 (5.9%) cases were died. Remdesivir's effectiveness in a five-day treatment course was examined in another trial, and it was shown to be substantially related with a reduction in illness severity [21]. As remdesivir is readily available in Pakistan and hospitals where it may be used to its fullest potential, our findings showing that a 12-day treatment cycle is related with clinical advantages are critical to our field's future success. Remdesivir treatment for up to 5 days improved the clinical state of patients with moderate Covid-19 in one of the SIMPLE studies (GS-US-540-5774). [22] Additionally, the ACTT-1 and SIMPLE trials found that remdesivir's safety profile was comparable to that of placebo, which is consistent with this study's findings. [11,12]

Frequency of adverse events in placebo group was significantly higher found in 35 (41.2%) cases as compared to

remdesivir group I 27 (31.8%) cases with p value <0.005. In addition to demonstrating the feasibility of studying novel prodrugs of remdesivir's active metabolite, this trial supports the development of remdesivir for non-hospitalized patients with Covid-19 who are at high risk of illness advancement.

CONCLUSION

We concluded in this study that use of remdesivir was effective among patients of non-hospitalized covid-19 in terms of low mortality rate, minimum adverse events and higher number of efficacy as compared to placebo group.

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