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ORIGINAL ARTICLE

Remdesivir for Treating Non-Hospitalized Patients with COVID-19

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ABSTRACT

Aim: To examine the effect of remdesivir for treating non-hospitalized patients with COVID-19.
Study design: Retrospective study
Place and duration of study: Department of Medicine, Bolan Medical College, Quetta from 1st April 2021 to 30th September 2021.
Methodology: One hundred patients were enrolled and divided into group A and group B within the age of 24-70 years. Group A was receiving remdesivir while group B is not receiving remdesivir. The clinical variables, BMI, comorbidities, duration of disease severity and viral load were determined. RT-PCR was conducted to determine viral load.
Results: The mean age of study participants was 50±15 years with greater number of males. Diabetes was the major comorbidity. The time duration was decreased in group A upto 5 days and 8 days in group B. The viral load was decreased by mean value 6.32±1.76 to 6.2±1.78 in group B then group A respectively.
Conclusion: Remdesivir is effective in COVID-19 treatment.
Keywords: Remdesivir, COVID-19, Viral load

INTRODUCTION

Novel coronavirus 2019 has resulted in a pandemic which killed over five million people worldwide. It causes acute respiratory syndrome and is reported to affect multi-organ system. Various variant of coronavirus (COVID-19) has been emerged in various regions of the world as a result of mutation in original strains.[1] The best-known treatment by now is vaccination which saves from hospitalization and critical condition in majority of the cases[2,3]. Older people and those with comorbidities have higher risk of mortality or critical condition due to this disease. The main comorbidities include diabetes, cardiovascular disease or any disease which caused an immunocompromised state in them[4,5].

Remdesivir is an anti-viral prodrug inhibitor, which direct acts on viral nucleotide such as of SARS-CoV2. It inhibits the RNA dependent RNA polymerase activity.[2,3] Studies regarding the effect of remdesivir has been researched extensively and have documented the fact that the patients with the course of ten days and a course of five days presented length shortening of the disease, in most of hospitalized and non-hospitalized cases[6,7].

Early initiation of treatment including anti viral drugs has been known to improve the health outcomes. Similar plan has been planned for COVID-19 to reduced clinical conditions and mortality[8-11]. The current study was planned for examining the effect of remdesivir on efficacy of treatment of non- hospitalized patients. The findings of this study will assist in finalizing the treatment plan for COVID-19 patients who are not hospitalized but are suffering from mild to moderate disease condition.

MATERIALS AND METHODS

It was a retrospective survey-based study which was conducted at Department of Medicine, Bolan Medical College, Quetta from 1st April 2021 to 30th September 2021. There were 100 study participants were analyzed for their treatment and recovery. Fifty patients were put in Group A while other 50 patients were placed in Group B. The group A had those patients who were treated with remdesivir between 5-10 days depending on their level of severity while in Group B patients never took the remdesivir as for treatment of their COVID-19 infection. The data was collected from the community through the help of government COVID-19 testing program as after collecting address records from them each patient was approached in their house holds for gaining the information regard his/her treatment plan, time of recovery, severity of disease, obesity, hypertension, diabetes, immunocompromised status, cardiovascular disease: post their disease clearance. The research was strictly conducted after the approval of governmental officials, community heads and institutional board. Each participant of the study or their guardians was explained about the importance of this research and their written informed consent was obtained pre-enrolment. Real time PCR was conducted to assess the viral load in both groups after day 5 of disease. Data was recorded and analyzed by using SPSS version 25.0 where Chi square test was used as well as mean and standard deviation. P value less than 0.05 was considered significant.

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RESULTS

The present study had 50±15 mean age of the patients with no significant difference between the groups. However, there were more patients in group A and B such as 84% and 80% in age group <50-70years respectively. As it was a research which took data from government testing department therefore, the frequency of confirmed cases of COVID-19 within young age were comparatively low. There were 66% males and 34% females confirmed with COVID-19 (Table 1).

The BMI level of group A showed obesity status in those who were given remdesivir in their COVID treatment in comparison to significantly low (P<0.05) in non-remdesivir group B. The comorbidity diabetes was reported highest in group A followed by obesity and hypertension, whereas, in group B similar findings were observed in context to their comorbidities status. There were 4%, 2% and 2%, 0% immune-comprised or cancer patients in group A and B respectively (Table 2).

The duration of disease severity was decreased with the mean value of 5 days in group A which was given remdesivir, then the mean value of 8 in group B which were not given remdesivir treatment (Table 3). RT-PCR values showed mean decrease in viral load of group A patient' by 6.32±1.76 in comparison with group B by 6.2±1.78 value (Fig. 1).

Table 1: Distribution of age and gender (n=100)

Variables	Remdesivir	No Remdesivir	Total
Age (years)			
≥25-49	8 (16%)	10 (20%)	18 (18%)
<50-70	42 (84%)	40 (80%)	82 (82%)
Gender			
Male	30 (60%)	36 (72%)	66 (66%)
Female	20 (40%)	14 (28%)	34 (34%)

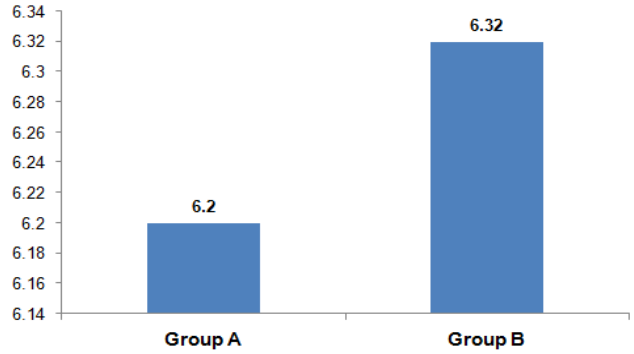
Table 2: Distribution of comorbidities in enrolled patients

Variables	Remdesivir	No Remdesivir	Total
Body-mass index (kg/m^2)	31.3±6.7	24.9±5.8	28.1±6.25
Coexisting morbidities			
Diabetes mellitus	31 (62%)	30 (60%)	60 (61.5%)
Obesity	27 (54%)	28 (56%)	55 (55%)
Hypertension	25 (50%)	24 (48%)	49 (49%)
Current cancer	1 (2%)	---	1 (1%)
Cardiovascular disease	9(18%)	4 (8%)	13 (13%)
Immune compromise	2 (4%)	1 (2%)	3 (3%)
Chronic kidney disease, mild or moderate	1 (2%)	2 (4%)	3 (3%)

Table 3: Comparison of duration of time between the groups

Variables	Remdesivir	No Remdesivir	Total
Median duration of symptoms before first infusion (IQR) – days	5 (3–7)	8 (3-11)	6.5 (3–9)
Median time since RT-PCR confirmation of SARS-CoV-2 (IQR) - days	2 (1–3)	3 (1–3)	2 (1–3)

Fig. 1: Comparison of Mean SARS-CoV-2 RNA nasopharyngeal viral load



DISCUSSION

Corona virus is an emerged pandemic, causing millions of casualties in 2 years. Its symptoms ranging from mild cough and flue to multi organ and life threatening complications and disorders.[1] Several anti-viral drugs and vaccinations have made to combat its deadly consequences. Remdesivir is considered an effective anti-viral drug against COVID-19 treatment. Studies have highlighted that remdesivir is proved beneficial in reducing and in the treatment of severe COVID patient[12-14].

Trials proved that, 87% of the risks associated or death with COVID was reduced after taking remdesivir for three days in severe COVID-19 patients in contrast to placebo in which reduction of complications is seen in 81% of the patients[13,14]. Results related to comorbidities related to COVID was also showed beneficial results in remdesivir group and risk of COVID related hospitalization was also decreased in this group as compared to placebo. An acceptable safety result profile was obtained in remdesivir given patients and similar adverse events were observed that to placebo group[15].

Result of this study is also in accordance with the present literature[6]. Remdesivir showed shorter time to recovery and lower chances of other comorbidities in previous studies than to the placebo. Similar has been observed in the present study[16]. Few studies also showed some conflicting results[17,18,19]. On the other hand, several findings suggest that, safety profile of remdesivir was also comparable or to somewhat similar to placebo[6,7,16]. Furthermore, remdesivir also showed greater efficacy if start earlier in COVID-19 treatment[20].

CONCLUSION

Remdesivir is an efficient anti-viral drug in COVID-19 patients which reduces the duration of disease in addition to the mean viral load.

Conflict of interest: Nil

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