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Study of biochemical and other parameters in patients treated with remdesivir vs. without the remdesivir in mild-moderate covid 19 patients

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Abstract

Background: The ACTT-1 trial showed that the median time to recovery was 10 days in the remdesivir group compared to 15 days in the placebo group. However, remdesivir failed to provide a survival benefit. This study puts in an effort to find the difference in biochemical and other parameters in patients treated with remdesivir vs. without the remdesivir in mild-moderate covid 19 patients.
Aims and Objectives: To study the biochemical and other parameters in patients treated with remdesivir vs. without the remdesivir in mild-moderate covid 19 patients.
Materials and Methods: This study was done in the Department of Pharmacology, Kanachur Institute of Medical Sciences, Mangalore. This study was done from May 2020 to June 2021. The study was done in 30 patients who were treated with remdesivir and thirty without.
Results: There is significant difference between the remdesivir used group when compared to the unused group.
Conclusion: It may be useful in mild to moderate cases.

Keywords: Remdesivir, covid-19, biochemical, parameters

Introduction

Several things have been taken into account and have been speculated upon to find the origin of covid-19 virus. The origin of the virus was traced back to the game meat market in Wuhan, China. Some even have speculated that it was a lab leak in the famous virology lab located in

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the same province [1]. First the world did not anticipate the depth of the disease but as days passes on, it was realised that it was highly contagious and the mortality was also reported [2]. The patients presented with a plethora of signs and symptoms including raised body temperature, cough, headache, nausea, vomiting, anorexia, diarrhea, dyspnea, multiple organ dysfunctions [3]. Majority of the patients reported only mild infections and were all right after a week or two [4]. But in a minor number of cases patients progressively develop serious complications, including sepsis, acute respiratory failure, metabolic acidosis, heart failure, kidney injury, hypoxic encephalopathy, and eventually die of the illness [5]. Initially no anti-virals was used in the treatment. Instead the treatment included a cocktail of antibiotics, steroids and anti-inflammatory drugs. Then the use of remdesivir was brought into action. The ACTT-1 trial showed that the median time to recovery was 10 days in the remdesivir group compared to 15 days in the placebo group [11]. However, remdesivir failed to provide a survival benefit. This study puts in an effort to find the difference in biochemical and other parameters in patients treated with remdesivir vs. without the remdesivir in mild-moderate covid 19 patients.

Aims and Objectives

To study the biochemical and other parameters in patients treated with remdesivir vs without the remdesivir in mild-moderate covid 19 patients.

Materials and Methods

This study was done in the Department of Pharmacology, Kanachur Institute of Medical Sciences, Mangalore.
This study was done from May 2020 to June 2021.
The study was done in 30 patients who were treated with remdesivir and thirty without.

Procedure

The study is retrospective analysis. All the documents were procured from the MRD section and the analysis was done choosing 30 people in whome the drug was given and 30 people who were not. The biochemical analysis taken just before the discharge of the patient was taken and compared.

Inclusion criteria

- Mild-Moderate cases.
- All patients belonged to the age group of 20-50 years.

Exclusion criteria

- Patients who had severe infections.
- Patients who had co-morbidities.

Results

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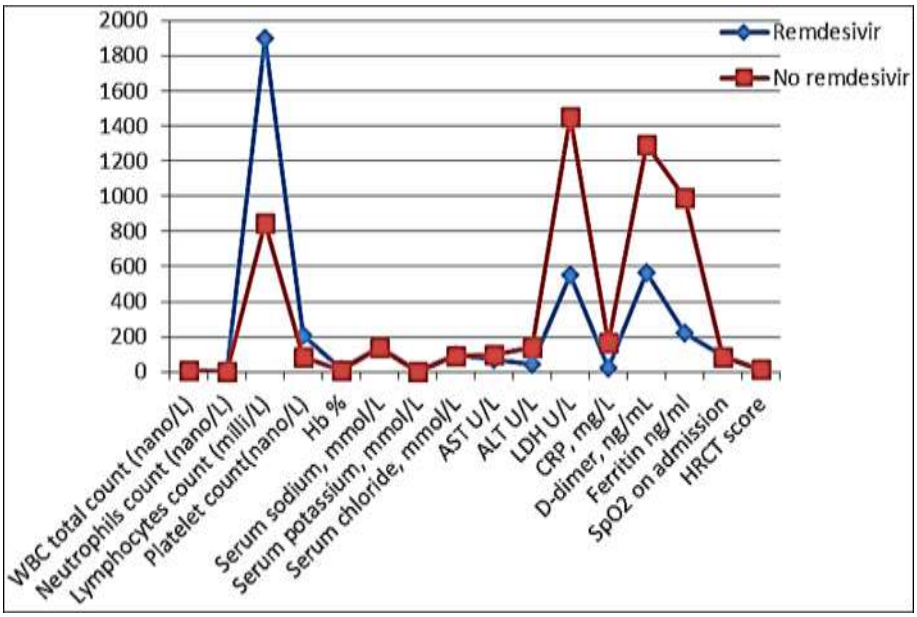
Table 1: Mean Values (rounded off to nearest one decimal point)

Markers	With remdesivir	Without remdesivir
WBC total count (nano/L)	4.2	7.1
Neutrophils count (nano/L)	3.1	4.5
Lymphocytes count (milli/L)	1900	850
Platelet count (nano/L)	205	86
Hb %	13.1	9.8
Serum sodium, mmol/L	137	142
Serum potassium, mmol/L	4	3.8
Serum chloride, mmol/L	98	94
AST U/L	68	95
ALT U/L	45	136
LDH U/L	550	1448
CRP, mg/L	21	164
D-dimer, ng/mL	567	1293
Ferritin ng/ml	220	990
SpO2 on admission	94	83
HRCT score	7.4	15.7



Graph 1

Discussion

Remdesivir is a broad-spectrum anti-viral drug and inhibits viral RNA-dependent RNA polymerase. Intracellularly, remdesivir prodrug is rapidly converted into its metabolite GS-704277 and subsequently into GS-441524, which becomes the main circulating metabolite. The metabolites compete with adenosine triphosphate for incorporation into viral RNA, causing premature chain termination and inhibition of viral replication [7, 8]. The other component of remdesivir includes SBECD, which helps in increasing the solubility of remdesivir. Concerns about safety data for SBECD carrier's accumulation should be allayed by the available data on voriconazole [9]. Remdesivir is renally excreted approximately 10% as unchanged drug and 49% as GS-441524. GS-441524 is removed by hemodialysis, with post-dialysis concentrations 45%-49% lower than pre-dialysis levels [10]. The ACTT-1 trial showed that the median time to recovery was 10 days in the remdesivir group compared to 15 days in the placebo group [11]. However, remdesivir failed to provide a survival benefit. Despite having a limited sample size, our results in this population subgroup were consistent

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with another study results [11]. In addition, there was no difference in length of stay or inflammatory marker levels. Large scale studies are needed to further elucidate the benefit of remdesivir in this population.

Conclusion

Remdesivir failed to provide a survival benefit. Despite having a limited sample size, our results in this population subgroup were consistent with other studies.

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