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A Comparative Study of Remdesivir versus Standard Care in Covid 19 Early Pneumonia and Severe Pneumonia

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I. Introduction

Does remdesivir really works in Covid 19 Pneumonia? In our personal experience we have found that it really works if given at the appropriate time. One should really understand that SARS Cov2 virus behaves differently in different people, the virulence is more in elderly, diabetics, obesity, Post CABG patients, and immunosuppressed patients. Many other factors such as viral load and time ofhospital admission after the initial symptoms play a vital role in the prognosis of the deceases. All these must be accounted when considering the drugs efficacy. Merely administering this drug does not really mean one's life will be safe as it is not an antidote for coronavirus. Antivirals should be given in early phase of the diseases when the viral load is low and lung damage is minimal. Hence it is not wise to blame the drug for the same. As you know covid is not a death sentence and it is very mild in most of the patients and it is very difficult to choose who should get Remdesivir, thus confusing us further and causing unnecessary delay in our clinical decisions. In this study we are going to compare the retrospective data of standard care collected during the Covid 19 pandemic 2020 withremdesivir in early phase of the diseases and if given late in severe pneumonia. For the ease of better understanding this study is done in a simple manner and in a very professional method without any observer bias.

II. Objective

To understand the role of remdesivir in treating COVID 19 Pneumonia and evaluate the usefulness of the drug if given early before moderate or severe lung damage has happened.

III. Methodology

Data collected during the COVID 19 pandemic during 2019-2020 from The Guest Hospital, Kilpauk, Chennai, India was analysed in this study. Only primary outcome mortality was measured in this study using comparison data of early and severe COVID Pneumonia at the time of admission.

GROUP – I

1. Early covid, symptoms less than 5 days old
2. RT-PCR Positive cases without lung involvement
3. RT-PCR Positive cases with lung involvement less than 20% (CT severity score of 5/25)
4. Positive contact history with a covid patient with in the last 3 to 7 days.

GROUP- II

1. Late covid, symptoms more than 5 days old
2. RT-PCR Positive cases with lung involvement more than 20% (CT severity score of 5/25)

Inclusion criteria

1. Only RT-PCR positive cases were included
2. Only inpatients who were admitted were included

Exclusion criteria

1. Age more than 60years and less than 20 years.
2. Patients with chronic organ failure such as CKD, CAD, CLD.
3. Pregnant women or lactating mothers.

4. Patients who were vaccinated either with one dose or two doses of vaccination.

A total of 320 patients were included in the study, for the ease of comparison 160 patient were only use in each group. Proper consents were taken from the family members or the patient before administering the drug. Remdesivirwas administered only after doing basic blood test to rule out renal or hepatic dysfunction. Standard care treatment mostly was given with azithromycin 500mg or IV antibiotics (if secondary bacterial infection suspected) and multivitamins such as Vitamin C, D3, B-complex and zinc to all patients. Steroids were started depending on the oxygen requirement and lung involvement. 200mg of Remdesivir was administered in an intravenous infusion on the first day followed by 100mg once a day for four days as infusion over 1 hour. Renal parameters and Liver function tests were checked frequently onthe third and the fifth day.

REMDESIVIR

It is a broad-spectrum antiviral drug. It was originally developed to treat hepatitis C, but was found to be less effective and was subsequently investigated for Ebola virus disease and Marburgvirus infections. Has nephrotoxicity and hepatotoxicity potential at higher doses.

Standard dose: 200mg as intravenous infusion on the first day followed by 100mg once a day for four days.

IV. Results

In the current study according to the data presented in the table A mean age of subject in group I was 48.3 years with SD 6.2 year, whereas mean age of subject in group II was 50.1 years with SD 3.4 year. Mean weight and height of the group I was 68.3kg and 160.1cm. And Mean weight and height of the group II was 67.2kg and 158.2cm. These above values are statistically equal for comparison.

Table A: Characteristics of patients according to age, weight, height and		
Variable	**Group I**	**Group II**
Age (years)	48.3 ± 6.2	50.1 ± 3.4
Weight (KG)	68.3 ± 10.8	67.2 ± 11.4
Height (CM)	160.1 ± 7.9	158.2 ± 8.1

According to the Table -B it is seen that only 22 patients out of 160 (13.75%) developed breathlessness on exertion or had cough at rest or while eating food and speaking in Group – A whereas 54 out of 160 patients (33.75%) in Group-B had breathlessness on exertion or had cough at rest or while eating food and speaking. 12 patients in Group-A had breathlessness but 25 patients were breathless in Group- B. Desaturation was noted in 7 patients among group A (4.375%) and 18 patients (11.25%) in Group- B. Only one patient died in the Group A (0.625%) whereas 6 patients (3.75%) died in Group-B.

Number of patients who developed breathlessness and desaturation, spo2 of < 94% out of the 160 in each group. TABLE-B		
Symptoms	**Group- A**	**Group- B**
Breathlessness on exertion, Cough at rest or while eating or speaking	22 (13.75%)	54 (33.75%)
Breathlessness at rest	12(7.5%)	25(15.625%)
Desaturation	7 (4.375%)	18 (11.25%)
Death	1(0.625%)	6(3.75%)
Average Number of days in hospital	7 ± 2.2	12 ± 5.3

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V. Discussion

It is very clear from the above data that remdesivir clearly helps in decreasing mortality rate and symptoms if given early. If given early, it produces a significant reduction in hospital stay also. Hence facilitating early discharge and rapid recovery to normalcy. There is a considerable debate that could arise from the above results, most prominently the identification of early and late deceases with symptoms and RTPCR reports is difficult. Moreover, it is very difficult to identify if the decease is in early or a late recovery phase if symptoms are mild, hence creating further confusions. To solve this confusion, we had considered only the patients who had recent exposure to covid from a family member or a friend in the last one week before admission in Group-A. Furthermore, many patients who developed severe covid 19 symptoms who could not get the drug due to acute shortage and were given late after more than five days admission were included to Group-B. Thus, giving a clear picture and definition of late administration of remdesivir. Another debatable

issue is the age limitation of the study. This was intentionally done to remove chronic comorbid conditions and poor immune response from the study Groups. Adding to the confusion World Health Organization panel is now recommending against the use of the antiviral remdesivir in hospitalized Covid-19 patients, saying there is no evidence that the drug works but, U.S. regulators have approved the same drug for the treatment of the coronavirus and claim that it decreases mortality.Despite many arguments and debates regarding remdesivir's use in COVID 19 infections, it is evident from the above data that we collectedproves that the drug works very well if given early rather than late.

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