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REMDESIVIR: AN ENDURING HOPE FOR THE DREADED DISEASE OF COVID-19

Medicine

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ABSTRACT

BACKGROUND- Scattered over the multiple waves of COVID 19, SARS COV2 has stretched world wide and has infected million of people. Remdesivir is a nucleotide prodrug whose active metabolite inhibits, viral RNA dependent RNA polymerase a structurally conserved enzyme that plays a key role in the reproduction of a broad range of viruses. The antiviral remdesivir shortened recovery times of patients hospitalized with covid 19.

METHOD – A Hospital based retrospective cross-sectional study of Intravenous Remdesivir was done, in which two groups were made of 25 patients each, the 1st group was administered IV remdesivir 200mg on day1 (loading dose) followed by 100mg Day2-6 (maintenance dose) with other supportive treatment according to most recent evidence based guidelines and other group received supportive treatment according to guided by the latest protocols. The primary outcome was considered as time to recovery defined by either discharge from hospital or improvement in oxygen saturation and other symptoms.

RESULT- A total of 50 patients were selected in this study out of which 25 patients received remdesivir along with other treatment according to the most recent covid-19 guidelines and the remaining 25 patients received treatment according to guidelines, barring the antiviral Remdesivir. It was observed that, those who received remdesivir had a median recovery time of 7 to 12 days as compared to15 days time of non remdesivir group. Two patients showed allergic reaction to remdesivir and total 22 patients improved out of 25 in remdesivir group. In the non remdesivir group total 20 patients were found to have recovered and the remaining 5 succumed. Requirement of non invasive/invasive ventilation was relatively less in remdesivir group as compared to non-remdesivir group.

CONCLUSION- Those patients in whom remdesivir was administered, they had less duration of hospital stay and their median recovery time was less (1,2,3,5)and probability of use of non- invasive ventilation was also found to be less. Remdesivir could be considered as a viable option for treatment of patients with covid-19.

KEYWORDS

INTRODUCTION-

A novel coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was first identified in December 2019 as the cause of a respiratory illness designated coronavirus disease 2019, or Covid-19. Coronavirus are a family of enveloped viruses with a positive sense single stranded RNA genome that infects animal species and human. Several therapeutic agents have been evaluated for the treatment of covid 19. We review clinical development of remdesivir, a prodrug with a demonstrated ability to inhibit SARS CoV2 replication which supports its clinical evaluation for covid 19 treatment. Remdesivir was the only FDA approved drug for the treatment of covid 19 patients during the first wave. It acts as a nucleoside analog and inhibits the RNA Dependent RNA polymerase of coronavirus including SARS-CoV-2.

METHOD-

DESIGN-

Ours is a hospital based retrospective cross-sectional study. Study population was taken as, COVID 19 patients admitted in COVID-19 dedicated JLNMCH Bhagalpur ICU. Study duration is from august 2020 to January 2021. Patient were considered to have moderate to severe covid infection if they required mechanical ventilation, if they required supplemental oxygen, oxygen saturation below 94% measured by pulse oximeter, tachypnoea (respiratory rate > 24) and normal renal function test. Two groups are created one who were administered remdesivir with other supportive therapy called remdesivir group (In this group some patient has Spo2 around 60%) other group called non remdesivir group in which only supportive therapy was given according to standard guideline (like steroids, oxygen, antibiotics etc) Remdesivir was administered INTRAVEN OUSLY 200mg on DAY 1 (loading dose) followed by 100mg DAY 2 to 6 (maintenance dose) in REMDESIVIR GROUP with other supportive therapy. Written informed consent was taken by each patient in remdesivir group.

PROCEDURE-

patients were assessed daily from DAY1 of hospitalization till discharge. BP, SpO2, RBS, Respiratory rate, Heart rate was measured each day. All routine blood investigations like (LFT, KFT, CBC, CRP) were done on alternative days. Drug related hypersensitivity reactions were recorded.

OUTCOME-

Total 25 patients were assigned in both groups, in remdesivir group out of 25 patients 2 patients show allergic reactions on first day after loading dose (hypotension, increase respiratory rate, deranged renal function) maintenance dose was not given to both. After initiation of remdesivir therapy in 25 patients 10 patients show good clinical improvement in day 3, in terms of increase SPo2 and 4 patients show mild and slow improvement and 8 patients required Non-invasive ventilation. In non-remdesivir group improvement in patient's clinical status was relatively slow they took a greater number of days to improve, 12 of them required non invasive ventilation in their course of treatment. 3 deaths occurred in remdesivir group one patient had DM2 as a comorbidity and two of them had DM2 and HTN both. In non-remdesivir group total 5 patients died out of which 3 had DM2 and 2 had DM2 and HTN both.

DISCUSSION-

This retrospective cross-sectional study has identified an antiviral therapy remdesivir as beneficial in the treatment of moderate to severe covid 19. Overall finding were consistent with the finding of preliminary reports. A 6 day course of remdesivir with other therapy was superior to single use of antibiotics, steroid, anticoagulant, oxygen therapy in the treatment of moderate to severe covid 19. Third and seventh day improvement in remdesivir group(p value of 0.008 on 3rd day and 0.002 on 7th day) was statistically noteworthy and it showed that remdesivir shortened treatment duration for covid-19. (1,2,3,4,5) Requirement of noninvasive ventilation was significantly less in remdesivir group with p value of .018 (1,2,5). All course of mortality was infinitesimally less in this group(p=0.12). Our data also suggests that treatment with remdesivir may have prevented the progression to

more severe respiratory distress as shown by the less recovery time and less mortality in remdesivir group. Cumulatively these finding suggest that treatment with remdesivir may not only reduce disease burden but also decrease the use of meagre health care resources during pandemic.

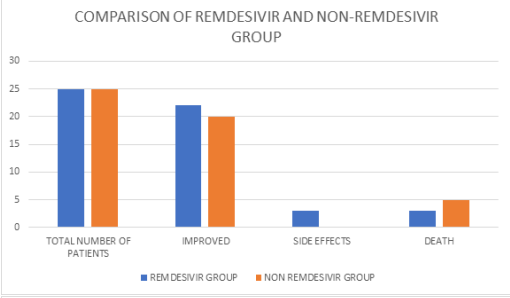
CONCLUSION

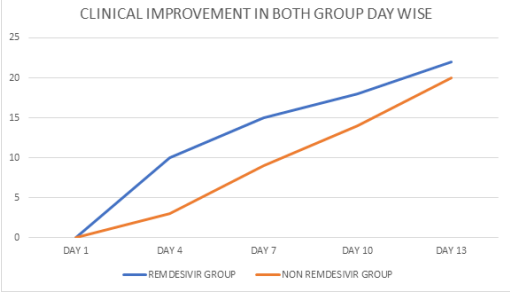
In the midst of this pandemic, many drugs surfaced and resurfaced in the name of being a miracle drug for covid-19, but none sustained the crown of being the end of the tunnel. Ramdesivir works on a simple principle of inhibiting the Viral RNA (4), the tool for viral replication. There are many studies which have affirmative and negative votes for this drug, but there are no studies done in the habitus of Gangatic planes of eastern Bihar to study the effect of this drug. Our study reiterates that, remdesivir, when used at the appropriate time of the disease course (Replication phase) can positively impact the course of illness (2)and at times be helpful in reducing the mortality (1,4,5) caused by the severe covid-19 illness!

STATISTICAL ANALYSIS-

	REMDESIVIR GROUP	NON REMDESIVIR GROUP	*p* value
Total patients	25	25	
Moderate covid 19	10	14	0.258
Severe covid19	15	11	0.259
ASSOCIATED COMORBIDITY			
DM 2	20	21	0.711
HTN	12	15	0.395
DM2+HTN	8	9	0.764
CVA	0	2	0.149
SIDE EFFECTS			
Allergic reaction	2	0	0.149
Reversible KFT profile derangement	16	0	<0.0001**
Patient developed steroid induced DM2	2	3	0.638
Post covid complication	10	14	0.258
PRESENTING SYMPTOMS			
Fever	25	25	-
Shortness of breath.	25	25	-
Loss of smell	9	10	0.771
Loss of taste	20	18	0.509
Cough.	24	24	-
PROGNOSIS			
Patient requires non-invasive ventilation	12	20	0.018*
Patient improved after day 3 of treatment.	14	5	0.008*
Patient improved after day 7 of treatment.	22	12	0.002*
Improved	22	20	0.441
Death	3	5	0.442
PATIENT READMITTED			
Due to respiratory problem after 1 month of discharged	4	7	0.307
Due to secondary infections.	2	4	0.384

*Significant





REFERENCES-

1- Remdesivir for the treatment of COVID-19- Final report NEJM.org 22may 2020.https:// www.nejm.org/doi/full/10.1056/nejmoa2007764
2- Remdesivir in adults with severe COVID-19 THE LANCET 16 may 2020.https:// www. thelancet.com/journals/lancet/article/PIIS0140-6736(20)31022-9/ fulltext
3- Efficacy of remdesivir in COVID-19 JAMA 21 August 2020.https://jamanetwork.com/ journals/jama/fullarticle/2769870
4- Remdesivir in the treatment of coronavirus disease (journal of biomolecular structure and dynamics volume 39 2021.https://www.tandfonline.com/doi/full/10. 1080/ 07391 102.2020.1767691.
5- Remdesivir: A closer look at its effect in COVID-19 pandemic https://www.karger. com/ Article/FullText/518440