Evaluation of Rationale Prescription Pattern among RTPCR Positive COVID 19 Patients in a Tertiary Care Hospital, Chengalpet district, Tamil Nadu – A Cross-Sectional Study

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Abstract

Introduction. Prescription pattern monitoring studies (PPMS) are drug utilization studies with the main focus on prescribing, dispensing, and administering drugs. They promote appropriate use of monitored drugs and reduction of abuse or misuse of monitored drugs. From 2019 till 2022 COVID 19 brings frightening situation among all individuals in worldwide and unexpected clinical presentations each day by day because of the mutation of SARS-Cov virus and the number of people getting affected with the disease is still not completely reduced. The management of the COVID 19 still challenging due to less awareness about the treatment and poor follow up of guidelines and physician choice of management. Thus by, we conducted this study to evaluate the prescription pattern and the adherence of ICMR guidelines 2021 and rational use of antibiotics and remdicsivir, tocilizumab, steroids and their outcome and severity of COVID 19.

Methods. Prescription data were analyzed retrospectively by bringing the case sheets of 100 in-patients who got admitted to the karpaga Vinayaga medical college from 15th Oct 2021- 15th march 2022 and enrolled in a specially designed case report form after getting the higher officials’ permission from the MRD office.

Results. Out of 100 patients’ case sheets, a mild type of patients are affected more in the study duration and the treatment plan has adhered to the management protocol which is given by our Indian Government on 2021. The total number of patients who received antibiotics for prophylactic purposes is higher in value than for definitive purposes. Usage of remdicsivir, tocilizumab, and steroids are genuine according to the ICMR guidelines 2021 and the outcome of the disease gives a clue about less mortality than morbidity during the 6 months of the evaluation period.

Conclusion. The prescription was written and adhered to the ICMR guidelines 2021 and there was a judicious use of steroids, remdicsivir, tocilizumab, and antibiotic usage more for prophylactic purposes to prevent secondary infection than definitive purposes who are under secondary bacterial infection that indirectly gives use clue that secondary infection affected patients are less due to successful management.

Keywords
Prescription writing, COVID-19, Remdicsivir

INTRODUCTION

The widespread coronavirus disease 2019 began with severe acute respiratory disease in December 2019 and started in China worldwide. As of April 5, 2020, over 1.2 million stated cases and 69 000 deaths in above 200 countries. India logged 44161899 affected individuals with COVID 19 since the prevalent happening according to the World Health Organization (WHO). In count, India stated 526730 in the month of June 2022.

More than 300 lively COVID 19 management are under experimental. It gives an idea about present proof regarding the main projected management, repurposed or trial, for COVID-19 and delivers a swift of recent clinical knowledge and treatment strategies for this wide-ranging coronavirus. The affected role of COVID-19 is problematic with respiratory conditions have capricious clinical presentations.

Among all COVID 19 patients > 80% are affected with mild illness and the mortality was ranged from 5-27%.¹ For mild group of patients suggested supportive management, while anti-viral drugs have been advised with moderate to severe infections.² ³ Observation will be focused on the prescription of antimicrobial
agents in patients with COVID-19 despite viral origin. Various previous referral studies also evidenced, that almost 70% of patients received antimicrobials and most irrational drugs are prescribed based on the prescriber’s choice.

Hence, We have undertaken this research to evaluate the prescription pattern and adherence of prescription regimen as per standard guidelines by ICMR on 100 covid 19 positive patients.

A brief review of the literature

<table>
<thead>
<tr>
<th>Authors (Year)</th>
<th>Place</th>
<th>Population</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR. MADHAV, MR. SANKARA BABU GORLE 2021 Ref no.10</td>
<td>Tertiary care center; Anil Neerukonda Hospital, Vishakapatnam</td>
<td>188 patients</td>
<td>This study indicated that the usage of various drugs in the community for COVID-19 was based on different guidelines and personal experiences of the physician choice.</td>
</tr>
<tr>
<td>MR. MD. MARUF AHMED MOLLA ET AL, 2021 Ref no.9</td>
<td>Dhaka Medical College and Hospital (DMCH), Bangladesh</td>
<td>193 patients</td>
<td>Prevalence of multiple antibiotic prescriptions was high among severely ill COVID-19 patients and those with abnormal CRP and d-dimer levels. Data regarding the quality of antibiotic prescribing were lacking.</td>
</tr>
<tr>
<td>MR. JAMES M. SANDERS ET AL, 2020 Ref no.2</td>
<td>Division of Infectious Diseases &amp; Geographic Medicine, Department of Medicine, University of Texas Southwestern Medical Center</td>
<td>291 patients</td>
<td>The study showed the use of steroids, remdesivir, and tocilizumab in COVID-19 patients. No therapies have been shown effective to date in COVID 19 pandemic.</td>
</tr>
<tr>
<td>MR. KUEIYU JOSHUA LIN, MR. S. SCHNEEWEISS ET AL, 2020 Ref no.11</td>
<td>Brigham and Women’s Hospital, United States</td>
<td>158 patients</td>
<td>No scales/guidelines are followed during prescription. Careful consideration of disease severity and other determinants of COVID-19 drug use is necessary for appropriate conduct and interpretation of non-randomized studies evaluating outcomes of COVID-19 treatments.</td>
</tr>
</tbody>
</table>

**OBJECTIVES**

- To study the drug prescription pattern in covid 19 patients
- to evaluate the adherence to ICMR guidelines 2021 during prescription writing.

**METHODOLOGY**

A Cross-sectional study was done in the Department of Pharmacology, Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Maduranthagam for 6 months from 15th Oct 2021- 15th march 2022 after obtaining ethical clearance from the institution, and the study was conducted on patients admitted in the casualty who was diagnosed as covid positive with RTPCR. 100 patients’ case sheets who were under inclusion and exclusion criteria were used for the study after receiving special permission from the higher officials. Inclusion criteria are In-patients with RTPCR positive for COVID 19 in KIMS&RC, Maduranthagam. Exclusion criteria are RTPCR positive with comorbidities and OP patients with RTPCR positive report

We assessed the demographic parameters of admitted COVID 19 patients like age, sex, place of living, and occupation, Drug prescription was evaluated using ICMR guidelines 2021. All participant’s data were collected in a specially designed case report form (CRF) from MRD of KIMS&RC and data was analyzed in terms of numbers and percentage for inferential statistics for which chi-square test ANOVA are used.

Enlisted the parameters in the following manner. i.e total number of drugs prescribed and rationale usage in mild, moderate, and severe categories according to ICMR guidelines 2021, route of administration of each specified drug, and more Frequent route of adminis-
tration and rational use of corticosteroids/remdesivir/tocilizumab/oxygen supplements, the total number of patients who received antibiotics for prophylactic purposes and definitive purposes and to rule out morbidity and mortality, the total number of hospital stays, HRCT score before and after admission, the outcome of the patient was evaluated by using a percentage of improvement after initiation of therapy, transfer to other higher centers, number of death during treatment. convenient randomized sampling was used.

The sample size was calculated by the proportion of COVID-19 which was reported to be 2.83% by The Indian Express (2020) in the Chengalpet district. With this reference and assuming a 95% confidence interval, a 5% absolute precision value, and available population size of 5,400 in Madhuranthagam, Tamilnadu, India, the minimum required sample size will be be 42 ~ 50 Under the Source Details: https://indianexpress.com/article/cities/chennai/tamil-nadu-coronavirus-news-live-updates-Chennai-covid-19-lockdown-DMK-MLA-live-6514314.

Outcome: Primary outcome: By evaluating the Prescription pattern, it helps to understand the ratio nale of prescription writing

Secondary outcome: Adherence to the prescription with ICMR guidelines 2021

Inter-departmental collaboration: Not used

Implications of the study: To evaluate the rational prescription pattern, to train all health care providers and students, CRRI about rational guidelines, prescription auditing, and quality assessment during the accreditation process such as NABH

OBSERVATION & RESULTS

RESULT

Table 1 - statistical analysis

Table 2- Out of 100 patients 7 were in the < 20 year age group, 30 were in between 20-40 year age group, 51 were in between 40-60 age group, 12 were > 60 age group and The commonest age group who affected in COVID are 40-60 age group patients.

Figure 1- Out of 100 patients 50 patients had mild, 34 patients had moderate, and 16 patients had severe cases as per ICMR classification.

Table 2-shows, the use of various drugs such as Remdesivir, Steroids & Tocilizumab

The total number of patients who received antibiotics for definitive purposes is 34 while 66 individuals received them for prophylactic purposes.

Table 1

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of variable</th>
<th>Scales of measurement (Quantitative or Categorical)</th>
<th>Descriptive statistics to be used</th>
<th>Inferential statistics to be used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Demographic</td>
<td>Categorical</td>
<td>Frequency (%)</td>
<td>Chi-square</td>
</tr>
<tr>
<td>2</td>
<td>Severity of disease</td>
<td>Categorical</td>
<td>Frequency (%)</td>
<td>Chi-square</td>
</tr>
<tr>
<td>3</td>
<td>Drugs adherence to ICMR guidelines</td>
<td>Quantitative</td>
<td>Mean ± SD</td>
<td>t-Test correlation, ANOVA</td>
</tr>
<tr>
<td>4</td>
<td>Outcome of the disease</td>
<td>Categorical</td>
<td>Frequency (%)</td>
<td>Chi-square</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>AGE GROUP IN YEARS</th>
<th>MALE</th>
<th>FEMALE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 20</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>20-40</td>
<td>21</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>40-60</td>
<td>35</td>
<td>16</td>
<td>51</td>
</tr>
<tr>
<td>&gt; 60</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 3

<table>
<thead>
<tr>
<th>NAME OF THE DRUG USED</th>
<th>PERCENTAGE OF THE PATIENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMDESEVIR</td>
<td>28</td>
</tr>
<tr>
<td>STEROIDS</td>
<td>48</td>
</tr>
<tr>
<td>TOCILIZUMAB</td>
<td>02</td>
</tr>
</tbody>
</table>

Figure 1. Severity of the Covid 19 disease

Figure 2- shows 84 patients recovered, 4 were referred to a higher center, and 12 died due to complications of covid 19.
The most commonly used drug in this study was Corticosteroids (48%) followed by Remdesivir & Tocilizumab. Luis Fernando et al descriptive study showed commonly used drug was corticosteroids (66.3%) ⁶. The probable reason for use of corticosteroids was to reduce inflammatory events & to prevent cytokines storm. Another indication for use of corticosteroids was to reduce the requirement for oxygen. The commonest route for all 3 drugs was – Intravenous route (steroids, Remdesivir & Tocilizumab) In the given patient case sheet, 20 patients received more than 10 drugs while 80 received less than 10 drugs. As per the ICMR guideline, Mild covid patient receives on average 3-7 no of drugs, Moderate covid patient receives an average of 7-9 no of drugs, Severe covid patient receives on average 10-13 no of drugs. In our study, 20 patients received more than 10 drugs while the total number of patients in the severe category were 16. This shows a minor deviation from the ICMR prescription guidelines⁷. In a given study, 34 patients received antibiotics as they were having high leucocyte count while 66 patients received antibiotics despite no evidence of infection. The most common antibiotic prescribed was Azithromycin and Piperacillin. A study conducted by Maria F Fuentes-Gonzalez⁸ et al showed that the most common antibiotics were hydroxychloroquine and azithromycin (19%) while another study conducted by Md. Maruf Ahmed Molla et al stated that common antibiotics used were cephalosporins⁹ (i.e. ceftriaxone (53.8%), meropenem (40.9%), moxifloxacin (29.5%), and doxycycline (25.4%). In 70% patient of the cases, drugs were prescribed in a generic name while the remaining 30% of prescriptions were written with the brand name.

CONCLUSION

The current study concludes that most of the prescriptions were adherence to the ICMR guidelines and there was judicious use of steroids. From the given study it was observed that more than 70% of healthcare providers were using standard prescription guidelines. There is a need to make aware and train health care workers about standard prescription guidelines and the use of standard guidelines in covid 19 patients to enhance the quality of drug prescription standards and to prevent prescription-related medication errors to deliver safe health care to the patients.

REFERENCES


OUTCOME OF THE ADMITTED PATIENTS

Figure 2. Outcome of the patient

IMPROVED/RECOVERED  NOT IMPROVED/TRASFERRED TO HIGHER CENTRE  DEATH


