

IMPACT ON ADMISSIONS IN PEDIATRIC WARD DURING COVID - 19 - AN ANALYTICAL STUDY IN A RURAL SETTING OF CENTRAL INDIA

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ABSTRACT

COVID 19 was declared global Pandemic by WHO on MAR11, 2020. India had responded with implication of nationwide Lockdown from 24MAR 2020. This study has been undertaken to analyze and compare data of 5 months pediatric admissions from 25 MAR to 25AUG with same period of 2019. After analyzing we have found that there are significantly reduced pediatric admissions due to common causes during the lockdown period in 2020 except dengue and scrub typhus. The analytical framework contains.

Index terms - Pediatric admissions, COVID -19, central India, lockdown

INTRODUCTION

COVID 19 was declared global Pandemic by WHO on MAR11, 2020. As of AUG 27, 2020, 3310234 confirmed cases have been documented with 60472 deaths in India based on the World Health Organization situation report [1]. Overall impact of COVID 19 on pediatric age group is statistically minimal as compared to other age groups [2-6]. Since the first case of COVID 19 was reported on 30 JAN 2020 in India Government introduced various measures to contain the spread of the virus. Prime Minister Narendra Modi placed nationwide mandatory Lockdown from 24MAR, 2020 as aggressive but vital response with periodical substantial relaxations followed by extensions. The United Nations and WHO praised India response. Apart from lockdown and health strengthening necessary healthcare infrastructures Government also rigorously enforced travel and social-distancing restrictions, home quarantine and infection prevention and control in all over India. The impact of these pandemic control measures on physical and mental health of pediatric population is unknown [5,7]. At present India has introduced its unlock 3.0 from 1AUG, 2020 in a phase manner.

In our study, we analyzed and compared pediatric admission data during this pandemic period with data from last year in a rural setting of central India to identify whether restrictions affected children's health status.

OBJECTIVE

To study changes in pediatric admissions during lockdown period in a rural setting of central India

METHODOLOGY

For this analytical study we collected and compared data from inpatient healthcare registers of our pediatric ward between 25MAR 2020 & 25 AUG 2020, and between 25MAR 2019 & 25 AUG 2019. We calculated the rate of each disease in all admissions in pediatric ward during mentioned periods, and using the change rates ($CR = \text{rate of admission in individual disease in 2020} / \text{rate of admission in individual disease in 2019}$) and daily admitting number (DAN 2019 and DAN 2020) to show changes of children's health status during the pandemic under rigorous epidemic control measures by Government. We have excluded admissions in neonatal intensive care unit. $CR=1$ means that the diseases do not changed after the COVID-19 outbreak; $CR < 1$ means the diseases were suppressed or inhibited during the pandemic; $CR > 1$ means the diseases were stimulated or relative not inhibited during the pandemic.

RESULTS

As shown in Figure 1, the total number of admissions decreases in 2020 as compared to similar period in 2019. Figure 2 & 3 show change rate (CR) and total admission number plotted for individual diagnoses admitted in pediatric ward during mentioned period in 2019 and 2020. Data shows common causes for pediatric admissions in our setting like enteric fever (CR=.13, DAN 2019=.9, DAN 2020=0.11), Diarrhea (CR=0.15, DAN 2019=3.12, DAN 2020=0.48), malaria (CR=0.15, DAN 2019=0.69, DAN 2020=0.10), asthma (CR=0.14, DAN 2019=0.17, DAN 2020=0.02) pneumonia (CR=0.4, DAN 2019=1.46, DAN 2020=0.59) bronchitis (CR=0.54, DAN 2019=0.37, DAN 2020=0.2) and RHD (CR=0.18, DAN 2019=0.1, DAN 2020=0.01), decreasing during lockdown period. There also were conditions for which visits rate increased more during this period. The number of patient admissions increase due to dengue (CR=2, DAN 2019=, DAN 2020=), and scrub typhus (CR=3.6, DAN 2019=0.03, DAN 2020=0.14), which can be explained by increased rainfall this year. In terms of overall diagnoses, we have analyzed less common causes of pediatric admissions as other respiratory tract diseases include ARDS, bronchitis and upper respiratory infections or unconfirmed disorders. Other less common cardiovascular diseases include hypertension, arrhythmia and; whereas other less common central nervous system diseases include encephalitis, syncope, headache, acute flaccid paralysis and unconfirmed disorders.

DISCUSSION

During this pandemic there may have insignificant impact on children due to SARS-COV-2 infection itself compared with adults. We show a substantial impact of lockdown on children's health status. Measures implemented by government were resulting mainly in decrease in pediatric admissions in our hospital in contrast to last year. Most of common infectious diseases were also suppressed during the periods due to measures as expected. The lowest change rate of admissions with Diarrhea, Malaria, Enteric fever may be related to the increase health concerns and measures taken by families including immaculacy during this period. The inpatient daily admitting number in 2019 from 25MAR – 25 AUG 2019 was 17.03 and the corresponding number after lockdown in 2020 is 6.82 (CR=0.4) that means the relative rate after lockdown will about 2.49 times if the DAN do not change during this period. There are also some changed conditions such as Dengue (CR=2), Scrub typhus (CR = 3.67) can be partially explained by this reason that due to heavy rainfall this year.

CONCLUSION

We have found that there are significantly reduced pediatric admissions due to common causes during the lockdown period in 2020 except dengue and scrub typhus. Besides these health issues, there may be long-term and short term problems, especially mental health issues, family violence and financial troubles that may affect overall health status in pediatric age group that deserve concern and follow up. A limitation of this study could have been that we didn't consider area wise admission rate as our hospital covered referrals from vast rural areas nearby. It could have been affected due to transport restrictions and strict home quarantine measures during the lockdown. So these findings may be relative rather than actual. Another limitation could have been exclusion of neonatal cases.

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Figure 1 Pediatric admissions on 2019 and 2020

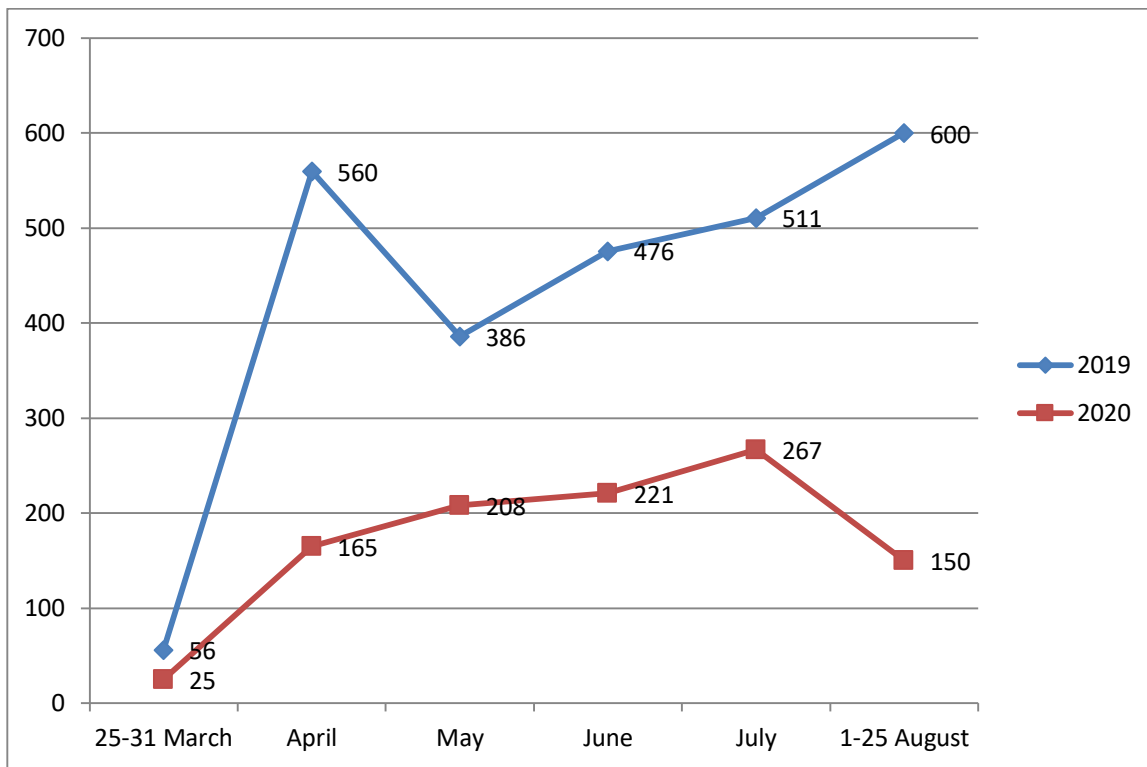


Figure 2 Change rate of individual diagnosis

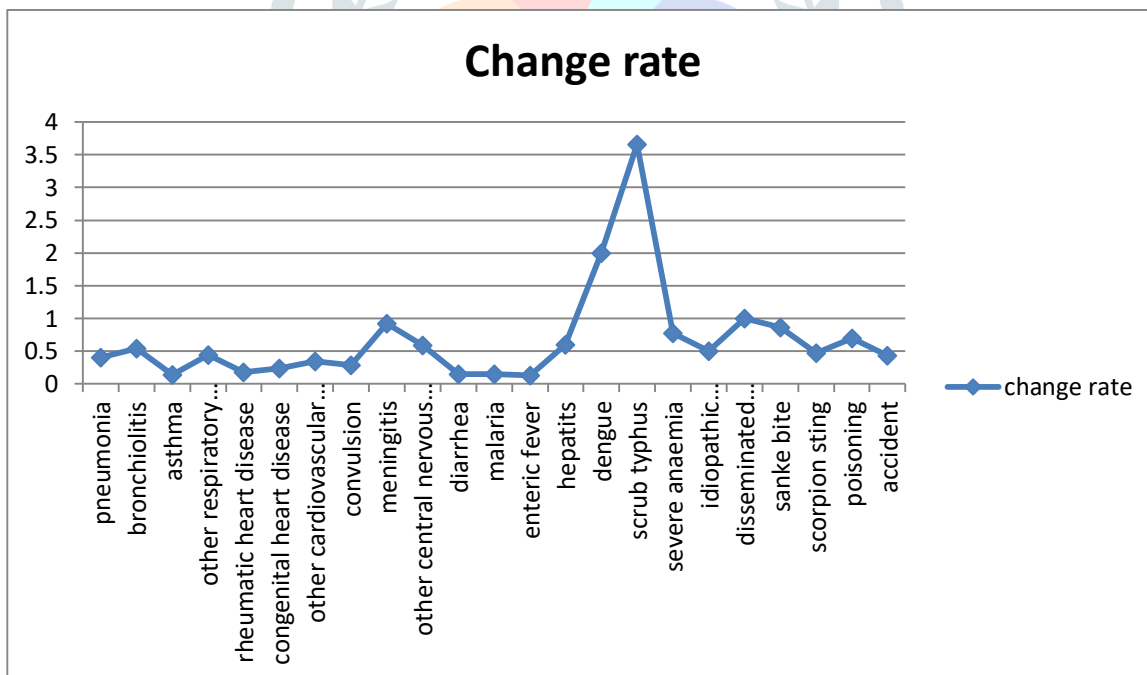


Figure 3 Diagnosis wise total admissions in 2019 and 2020

