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Original Research Article

Impact of COVID-19 on routine immunization at immunoprophylaxis clinic of tertiary care center of central India: a cross-sectional study

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ABSTRACT

Background: The global COVID-19 pandemic is overstretching existing health systems. The COVID-19 pandemic has prompted the world to implement drastic prevention methods based on limiting population movements that have an impact on public health policies such as vaccination. This study aimed to assess the impact of COVID-19 on routine immunization at an immunoprophylaxis clinic of the tertiary care centre.
Methods: a record-based cross-sectional study was carried out during the 4 months, (February to May) 2020 in the Immunization Clinic of Tertiary Care Center of central India. Vaccines included in the study were OPV, IPV, ROTA, PENTA, MR, and DPT. Data analysis was done by using software open EPI, $p<0.05$ was considered to be statistically significant.
Results: The study showed a prominent decline in the percentage of children who came for immunization during the period of lockdown due to the COVID-19 Pandemic. This downward trend continued from the month of February, as the months progressed and till May arrived, the fraction of children vaccinated in 2020 as compared to 2019 saw a very significant reduction, ($p<0.000$). individual vaccine-wise immunization status of under 5 children also shows a downward trend in the year 2020 as compared to the year 2019.
Conclusions: There was a sharp decline in the utilization of immunization services in a tertiary care center in central India.

Keywords: COVID-19, Routine immunization, Immunoprophylaxis, Pandemic, Lockdown

INTRODUCTION

The world recently was under a stressful attack from the novel Coronavirus. The global COVID-19 pandemic is overstretching existing health systems. The COVID-19 pandemic has prompted the world to implement drastic prevention methods based on limiting population movements that have an impact on public health policies such as vaccination.[1] People were afraid to attend healthcare services due to fear of infection due to the virus. One of the most important components of childhood in terms of health care is vaccination from birth. Proper vaccination, on time, prevents the occurrence of several vaccine-preventable diseases.[2,3] Experience from prior outbreaks occurring following considerable deteriorations in immunization rates has highlighted the urgency of maintaining routine immunization (RI) services. For instance, 83 deaths within 3 months in Samoa were attributed to a measles outbreak following a 50% drop in vaccination coverage.[4] Likewise, Ukraine has been witnessing a series of

outbreaks of VPDs ever since its vaccination rates started decreasing tremendously over the years.[5,6] Multiple measles outbreaks with more than 12,000 cases have occurred and polio resurged for the first time in two decades, making Ukraine the sole country not declared polio-free in Europe.[7] Any delay or break in the provision of this routine vaccination would result in disastrous outcomes for the children. Understanding the current situation of the COVID-19 Pandemic the present study was carried out to study the impact of COVID-19 on routine immunization at an immunoprophylaxis clinic of the tertiary care centre.

METHODS

This is a record-based cross-sectional study carried out during the 4 months, (February to May) 2020 in the immunization clinic of tertiary care center of central India. The necessary permission for carrying out the study was obtained from the ethics committee & immunization clinic in charge after apprising him about the nature and purpose of the study. All newborns born in the facility are directly referred to the immunization clinic and followed according to the vaccination calendar until 15 months. The unit also receives children born outside the facility. We compared the data from the immunization clinic for the period February to May for the two years (2019 and 2020). Immunization of all under 5 years of children recorded during the given four-month period was consecutively included in this study. Children who have a fever, cold or any infection on the due date of vaccination were not recorded in the data so they were excluded from the study. Vaccines included in the study were OPV, IPV, ROTA, PENTA, MR, and DPT. Data was collected in a pre-designed format of age, sex, vaccine received, and month.

Statistical analysis

The collected data were entered in a Microsoft excel sheet and appropriate statistical methods were applied and analyzed using the statistical software open EPI.

RESULTS

The study showed a prominent decline in the percentage of children who came for immunization during the period of lockdown due to the COVID-19 Pandemic. As compared to February 2019, the month of February in the year 2020 saw a small decline in the number of children vaccinated. This downward trend continued as the months progressed and till May arrived, the fraction of children vaccinated in 2020 as compared to 2019 saw a very significant reduction ($p<0.000$) (Table 1). Whereas the monthly average of children vaccinated for the said duration in the year 2019 was 2200, it dipped sharply to 900 for 2020 with the numbers curving negatively towards the months of April and May. While a study of the individual vaccine-wise immunization status of under 5 children also shows a downward trend in the year 2020 as compared to the year 2019 (In our institute ROTA vaccination started at end of the year 2019 so there was no data from February to May of 2019) (Figure 1).

Table 1: Distribution of vaccinated children according to months in different years.

Months	Number of vaccinated children in year		P value
	2019	2020	
February	2073	1720	<0.000
March	2182	1079	
April	2378	508	
May	2343	434	

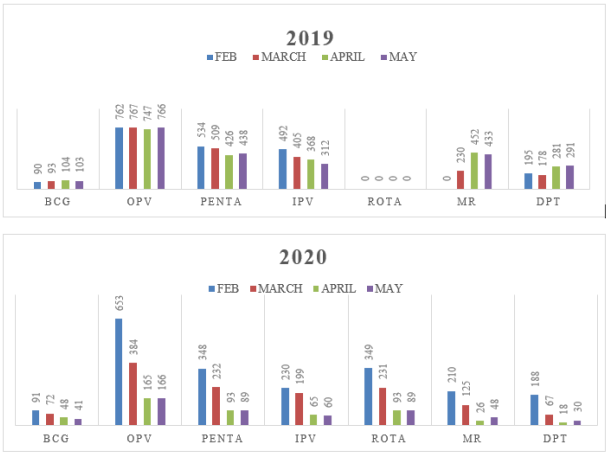

Figure 1: Distribution of individual vaccine status in two years.

DISCUSSION

In the present study, there is a sharp decline in the utilization of Immunization services. Similarly, study done by Jeanne et al showed that even when services are offered, people are either unable to access them because of reluctance to leave home, transport interruptions, economic hardships, restrictions on movement, or fear of being exposed to people with COVID-19.[8] Preliminary data for the first four months of 2020 points to a substantial drop in the number of children completing three doses of the vaccine against diphtheria, tetanus, and pertussis (DTP3). That was the first time in 28 years that the world could see a reduction in DTP3 coverage-the marker for immunization coverage within and across countries. Mansour et al also reported the utilization of vaccination services at the national level decreased by 31%.[9] In the private sector, immunization services provision diminished by 46.9% mainly between February and April 2020. The highest decrease rates were observed for oral poliovirus vaccine (OPV) and hepatitis A, followed by measles and pneumococcal conjugate vaccines. The number of vaccine doses administered in the public sector decreased by 20%. The most prominent reductions were detected for the OPV and measles vaccines and during October 2019 and March 2020.[8] Sow

et al found that for the vaccines administered in the sixth week in April, the number of doses was 36 in 2018, 29 in 2019, and 15 in 2020, i.e., a 50% drop compared to March.[10] In July the number of doses administered was 40 in 2018, 35 in 2019, and 15 in 2020, a reduction of 42% compared to 2019. Countries could experience outbreaks of measles and other vaccine-preventable diseases if the uptake of routine vaccinations falls, undoing decades of progress. One of the major limitations of the study is results cannot be generalized as it is carried out in a health facility and not in the community or school. Due to a hospital-based study and conducted in a single institute selection bias may have also played an important role in the information collected.

CONCLUSION

Immunization has been one of the most effective interventions in driving down infant mortality and under 5 mortalities. The trend for immunization in pandemic times dipped sharply. However, this effect is greatly affected if vaccine schedules are delayed or incomplete. So, it is of utmost importance that there is no delay in vaccination even during these pandemic times.

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