

Original Article

Frequency of Measles Vaccination and Reasons of not vaccinating among Children Presenting with Measles

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Objective: To find out the frequency of measles vaccination, number of doses administered and main reasons of not vaccinating in children presenting with measles.

Setting and Duration: This study was conducted in pediatrics department SKBZ hospital Muzaffarabad from Jan 2012 to Dec 2012

Materials and Methods: In this study a total of 274 patients of measles admitted or visiting to the pediatrics department were enrolled. The diagnosis of Measles was on the basis of clinical findings. The children included in the study were from 4 months to 12 years of age of both genders. The parents of the children were asked about the immunization status of the patients, how many doses of measles vaccine were administered and no of doses 1st and 2nd dose. The presenting complaints of the children were noted and other required investigations were done.

Results: The mean age was 4.033 ± 2.821 years. The majority 85 (31.5%) of the children were from age group of 3 – 6 years, followed by 68 (25.2%) patients in the age interval of 1 – 3 years. There were 140 (55.0%) male patients and 113 (45%) female patients in our sample. The commonest features with which the children presented were typical rash pattern 32 (11.7%), fever 30 (10.9%), cough 29 (10.6%) and flu 26 (9.6%) children. 83.6% patients were vaccinated against measles at least once, and 29.9% were vaccinated with a second dose as well. The main reason was found to be ignorance in majority 31% patients. The second commonest cause was fear of adverse reaction in 15% patients and difficulty in accessing to EPI center in 7.30% patients. Some parents had false religious belief about vaccination [5.10%] and they did not vaccinate their child.

Conclusion: The majority 31.5% of the children were from age group of 3 – 6 years. There was male predominance. The commonest features with which the children presented were typical rash pattern 11.7% and fever in 10.9%. The main reason of not vaccinating was ignorance in 31% patients, fear of adverse reaction in 15% patients.

Keywords: EPI, Vaccination, Measles, Presenting complaints, hurdles in vaccination

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Introduction

A leading cause of childhood mortality remains measles though out the world. Although a safe, effective and relatively inexpensive vaccine is available but this could not help considerably in developing countries. Measles is a very common in toddlers. It is usually transmitted through droplets in respiratory tract. Most dangerous period for it spread is prodromal period which is seven

days before rash appears and after seven days of rash appearance.¹

A lot of childhood deaths which are preventable are mainly caused due to measles especially in the areas where access to primary health care facilities is limited. Even though very effective vaccine is available and there is only one causative serotype, measles is causing about one million infant and children deaths are being caused by measles globally.² The health situation in

Pakistan is not different from other developing countries. The under 5 child mortality is still around 87/1000 live births, obviously an alarming situation to be addressed.³ After introduction of measles vaccine in the immunization program of WHO, its epidemics have become relatively uncommon. According to the statistics by WHO 84% children in the world receive at least one dose of measles vaccine.⁴ In Pakistan two doses of vaccine are in practice first dose is given at 9 months and second dose is given at 15 months of age.⁵ In our country, Expanded Programme on Immunization (EPI) is managing the immunization with support from the GAVI Alliance, WHO and UNICEF. The public sector is only conducting 3% of immunization.⁶

The main objective of launching Expanded Programme on Immunization (EPI) in Pakistan was to minimize six targeted diseases like Diphtheria, Whooping Cough, Tetanus, Measles, Tuberculosis and Polio. The main focus of EPI is immunization of children having age less than one year. Many steps have been taken to boost up immunization coverage in target groups including public awareness and health education.⁷ With all these efforts the vaccination coverage is still very low from the required minimum level making measles a major public health problem in our country.⁸

EPI program in Pakistan is not working up to the required level, constitutently many vaccine preventable diseases like measles and polio are still endemic in our country.^{9, 10}

According to the recommendations of WHO, measles vaccine should be given in two doses and its coverage should be more than 95% for a well control of these diseases.¹¹ According to surveys conducted in Pakistan the situation is very poor, the official estimates for 1st and 2nd dose reported 75% and 53% coverage in the year 2011 and 80% and 53% in the year 2012.¹²

There are many reasons of this bad situation of immunization like the proper surveillance infrastructure is lacking in our country. Similarly the demographic statistics regarding ages of the patients presented with measles in the current epidemic in Pakistan are not well documented. Which is a major limitation for accurate estimation of current epidemic and its possible solutions.¹³

In light of this situation the present study has been planned to determine the frequency of measles vaccine, its doses 1st and 2nd and main hurdles in vaccination programs in the children presenting with measles in our setup.

Materials and Methods

The cross sectional study was conducted in Paediatrics department, Combined Military Hospital Rawalpindi. The study period was from Jan 2012 to Dec 2012 In this study a total of 274 patients of measles admitted or visited to the pediatrics department were enrolled. The diagnosis of Measles was on the basis of clinical findings which included high grade fever, typical rash pattern (maculo-papular rash), coryza, cough and conjunctivitis with its complications. The children included in the study were from 4 months to 12 years of age of both genders. Patients having age less than 4 months were excluded from the study.

The approval of the study was taken from hospital ethical committee. Informed consent was taken from the parents by briefly describing the objective the study. The parents of the children were inquired about the immunization status of the patients, how many times vaccination was given to this child for measles and no of doses 1st and 2nd dose.

The presenting complaints of the children were noted and other required investigations were done. Those patients who were critically ill and were not maintaining oxygen saturation were managed with mechanical ventilation.

Demographic information of the patients like age, gender were recorded on a predesigned performa. The parents of the child were interviewed regarding vaccination status of the child, especially for measles vaccine, dose given to the child. If the child was not vaccinated then reason for not vaccinating was also investigated.

The children who got all vaccines and doses were labeled as completely vaccinated, but the children whose any vaccine or dose was missed once or more than one time were labelled as incompletely vaccinated. All the collected data was entered in SPSS-21 for analysis. Mean and standard deviation was calculated for numerical variable and frequency and percentage was presented for qualitative variables. The results were presented in the form of tables and graphs.

Results

In this cross sectional survey a total 274 children having a diagnosis of measles by clinical method were enrolled in the study. The children were from age of 4 months to 12 years. The mean age was 4.033 ± 2.821 years. The majority 85 (31.5%) of the children were from age group

of 3 – 6 years, followed by 68 (25.2%) patients in the age interval of 1 – 3 years. There were 60 (22.2%) patients in age interval of < 1 year. There were 140 (55.0%) male patients and 113 (45%) female patients in our sample. The distribution of clinical features shows that the commonest features with which the children presented were typical rash pattern 32 (11.7%), fever 30 (10.9%), cough 29 (10.6%) and flu 26 (9.6%) children. Some children 19 (6.9%) also presented with redness of eyes and koplik spot in 16 (5.8%) patients as elaborated in table I.

| Parameters | Frequency | Percentage |
|------------------------|-------------------|------------|
| Age of the children | | |
| < 1 year | 60 | 22.2 |
| 1 - 3 years | 68 | 25.2 |
| 3 - 6 years | 85 | 31.5 |
| > 6 years | 57 | 21.1 |
| Mean \pm SD | 4.033 \pm 2.821 | |
| Gender of the children | | |
| Male | 140 | 55.0 |
| Female | 113 | 45.0 |
| Clinical Features | | |
| Fever | 30 | 10.9 |
| Cough | 29 | 10.6 |
| Flu | 26 | 9.6 |
| Eyes | 19 | 6.9 |
| Breathing difficulty | 1 | 0.4 |
| Rash typical pattern | 32 | 11.7 |
| Koplik spot | 16 | 5.8 |

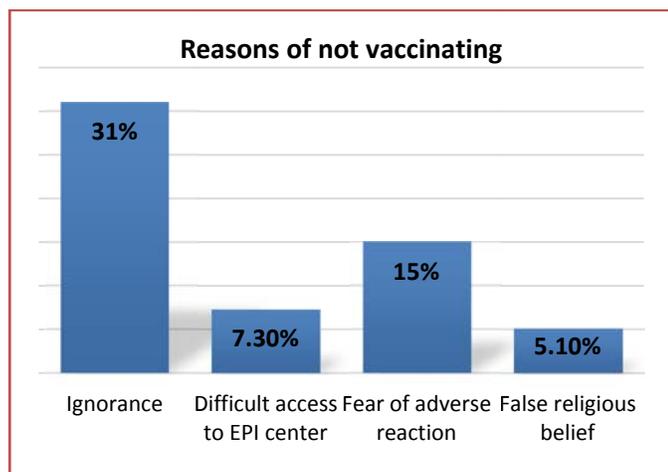


Figure 1. Distribution of reasons of not vaccinating the child

In this sample of 274 measles patients 83.6% said that they have vaccinated against measles at least once, and 29.9% were vaccinated with a second dose as well. According to the results of the study 54% children were BEG vaccinated. The parents of the children having

measles were interviewed for reasons of not vaccinating. The main reason was found as ignorance in majority 31% patients. The 2nd commonest cause was fear of adverse reaction in 15% patients and difficulty in accessing to EPI center in 7.30% patients. Some parents had false religious belief about vaccination in 5.10% patients and they did not vaccinate their child as shown in figure 1.

Discussion

Measles is a communicable disease and considered as one of the foremost transmissible diseases of humans. Before the invention of the measles vaccine it had claimed millions of the deaths globally. Although now a very effective and successful vaccine is available for measles and it has controlled measles in developed countries, but many developing countries including Pakistan could not get success in eliminating the measles up till now.

In this present study children presenting with measles were assessed for their vaccination coverage, one or two doses of vaccination and main presenting complain. The reason for not vaccinating the child was also inquired. In our study sample, mean age was noted to be 4.033 \pm 2.821 years. The majority 85 (31.5%) of the children were from age group of 3 – 6 years. Comparable results were seen by other local and international studies.^{14, 15}

In our study we observed male dominance in patients of measles and it was found that there were 55.0% male patients and 45% female patients in our sample. This coincides with a number of other reports, in which male dominance was recorded.^{14, 16}

In Pakistan measles has taken more lives than expected in last two three years due to severe out breaks in 2013 in comparison to earlier years, in which 350 lives were lost. It became alarming for health related authorities and common persons. This unusual outbreak in different parts of the country in rural areas and cities as well, can be linked to many causes. For instance the health infrastructure is not so good, the routine immunization is undermined, the vaccinator staff is insufficient and above all these causes parents negligence is playing a vital role in not vaccinating the child. This ignorance can be due to lack of knowledge and awareness regarding the importance of immunization. Some natural disasters like floods also add up in this situation. On the basis of all these factors immunization coverage can be unexpectedly poor and such outbreaks in such number are expected to happen.¹⁷

Many reports have publicized this poor immunization situation in Pakistan, the reports highlighted poor immunization coverage and corruption in health system as a major factor for measles outbreak in the country.¹⁸ Results supporting to all these factors have been found in our study. It was seen that the main reason for not vaccinating the child was ignorance in majority 31% patients. The 2nd commonest cause was fear of adverse reaction in 15% patients and difficulty in accessing to EPI center in 7.30% patients. Some parents had false religious belief about vaccination in 5.10% patients and they did not vaccinate their children. To overcome all these factors a proper awareness is required to educate the parents regarding the importance of measles vaccination.

There are two doses of measles vaccination which are recommended by world health organization for Pakistan and it is in practice the 1st dose is given at the age of 9 months and 2nd dose is given at the age of 12 to 15 months of age.¹⁹ But the coverage of vaccination is very poor than recommended coverage of >90%. The current reports found a coverage of around 60%.²⁰

In this sample of 274 measles patients 83.6% said that they have vaccinated against measles at least once, and 29.9% were vaccinated with a second dose as well. These results for one dose are very amiable and are very high from the results of different other reports, who reported the around 39% measles patients already have vaccination.²¹

There was a quite high variation among the results found by different studies like 51%²² and 66.6%,²³ of vaccinated cases in the sample of measles patients. Similarly very high proportion of vaccinated children has been found in which it was seen that 71.6%²⁴ of measles cases in were previously vaccinated, like in our present study.

Conclusion

In this study it was found that the majority 85 31.5% of the children were from age group of 3 – 6 years. There was male predominance in measles patients in which 55.0% were male patients and 45% female patients. The distribution of clinical features shows that the commonest features with which the children presented were typical rash pattern 11.7%, fever 10.9% and cough 29 10.6% respectively. The proportion of measles vaccination was 83% with one dose and 29.9% with two doses. The main reason of not vaccinating was found as ignorance in 31% patients, fear of adverse reaction in 15% patients and difficulty in accessing to EPI center in

7.30% patients. Some parents had false religious belief about vaccination in 5.10% patients and they did not vaccinate their children.

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