

A study of clinico-demographic profile and factors associated with the patients of measles at tertiary health care center

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Abstract

Background: After Eliminating Polio from country our next Aim toward Measles. Measles, also known as rubeola, Measles is a highly infectious but preventable disease with potential for eradication but is still responsible for high mortality among children particularly in developing nations like India. **Aims and Objectives:** To study clinico - Demographic profile and factors associated with the patients of measles at tertiary Health care centre. **Methodology:** This was hospital based cross sectional study carried out in the children admitted to Pediatrics ward during one year period i.e. June 2014 –June 2015 Suspected of Measles and included in the study with the help of WHO criteria. The data was analyzed using Epi-info version 7.0 for windows (Centres for Disease Control, Atlanta, USA) and descriptive statistics were presented using percentages. **Result:** It was found that out of a total admitted cases of 254 ; there were 87 cases Measles with a prevalence of 34.25%. It is also clear from the table that the attack rate (Table 1a) was highest (73.13%) in age group of 1 -5 year. A slight preponderance for Female Child (54.02%) was found compared to Male child (45.97%). A majority of the children Attack by Measles were aged between 1-5 years (56.32%) followed by 6-12 year (22.98%). Higher Attack seen among children living in Urban slum(80.45%)A majority of the Measles case belong to lower socioeconomic status (52.87%). It was found that as much as 65.51% of the mothers of children were illiterates while nearly half of cases (57.47%) were non-working mother (Table 2). It was found that out of 87 measles attack children only 25.28% infants were exclusively breast fed. Excluding 3 cases of measles all were malnourished with (56.32) of Grade III and IV Category. **Conclusion:** The majority of the cases had occurred in the unvaccinated children that point out to increase Vaccination coverage along with this there also cases from vaccinated children points toward the fact that there is a possibility of a vaccine failure in older children and requirement of Second dose inclusion promptly in Immunization program. Even though we conquered over Polio Eradication for measles from above study it's clear that along with strengthening of routine immunization activity More Effort on Female education necessary to achieve desire milestone.

Key Words: Measles, Risk -factors of Measles, Malnutrition, Poor SES (Socio Economic Status).

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INTRODUCTION

After Eliminating Polio from country our next Aim toward Measles. Measles, also known as rubeola, Measles is a highly infectious and preventable with immunization with potential for eradication but is still responsible for high mortality among children particularly in developing nations like India. one of the most contagious infectious diseases, with at least a 90% secondary infection rate in susceptible domestic contacts. Despite being considered primarily a childhood illness, measles can affect people of all ages. Measles even after vaccine preventable disease still number of case of measles rising day to day¹. It is a single stranded RNA virus has only one serotype

restricted to human infection. The virus is spread through airborne by droplet spread or by direct contact with the nasal and throat secretions of infected persons. The incubation period is usually 10 to 14 days after exposure. The clinical manifestations of measles include high grade fever, cough, runny nose, and red eyes. Koplik's spots seen inside the mouth opposite the second molar tooth are diagnostic of measles.³ A characteristic red, maculopapular rash which starts on the face and then spreads to the rest of the body begins three to five days after the start of symptoms. The severity and outcome of measles varies depending on a number of host and environmental factors.^{2, 3} The risk of developing severe or fatal measles increases for those aged <5 years, living in overcrowded condition, who are malnourished (especially with vitamin A deficiency), and those with immunological disorder, such as advanced HIV infection. As in India still most risk factor are prevalent such as young age, malnutrition, overcrowding, Immune deficiency and vit A deficiency. Most of the population living rural area are susceptible due low awareness of hygienic and sanitary practices and urban slum population more prone due overcrowding and unhygienic health condition⁴. As due to All these condition Measles cases still occurring in India in particular pocket such as slum dwelling and Migrant one⁵. By considering all these fact present study conducted to find out Clinico social profile of Measles cases in Tertiary care health centre.

MATERIAL AND METHODS

This was hospital based cross sectional study carried out in the children admitted to Pediatrics ward during one year period i.e. June 2014 –June 2015 Suspected of Measles and included in the study with the help of WHO criteria as follow:

1. Fever with rash lasting for 3 days or more, and
2. Either cough/ coryza (running nose) or conjunctivitis (red eyes).

The cases were further classified as complicated or uncomplicated measles. The definition of complicated measles being a child with measles and at least one of the signs or symptoms-pneumonia, diarrhoea, otitis media, laryngotracheitis, corneal ulceration, blindness and acute encephalitis. An uncomplicated case was defined as a child having measles without any complication. A total 257 children admitted during study period in ward were included in study After taking informed consent from Parent or one of the care giver present at the time of examination. Structured questionnaire was used to obtain information on age, gender, main symptoms, duration, and the vaccination status as regards the routine EPI of children presenting with measles from their parents or guardians. Out of the total 257 children admitted in ward

87 children were of measles. The socioeconomic status of the children was determined using updated BG Prasad classification based on per-capita monthly income of families using updated All India Consumer Price Index for July 2016 (1296). 'Exclusively breast fed' was defined as feeding of the infant with breast milk exclusively and nothing else while partially breast fed are those children who were fed with bottle milk or formula milk with or without breast milk. The immunization status of children was assessed using the immunization cards available with the children. In rare cases, where immunization card was not available, the immunization status was assessed by detailed questioning of the respondent. The nutritional status of the child was assessed using Indian Academy of Paediatrics (IAP) classification with grades of I, II, III and IV malnutrition with specific cut off points. The data was analyzed using Epiinfo version 7.0 for windows (Centres for Disease Control, Atlanta, USA) and descriptive statistics were presented using percentages.

RESULT

Table 1: Age group, gender and residence distribution of Measles cases (N=87)

Sr. No.	Parameter	No. of Cases (%)
1	Age Group	
A	Less than 1 (Infancy)	14(16.09)
B	1-5 (Under-five)	49(56.32)
C	6-12 (school age)	20(22.98)
D	Over 12 (Adolescent)	4(4.59)
2	Gender	
A	Male	40(45.97)
B	Female	47(54.02)
3	Type of Residence	
A	Urban	70(80.45)
B	Rural	17(19.54)

It was found that out of a total admitted cases of 254; there were 87 cases Measles with a prevalence of 34.25%. It is also clear from the table that the attack rate (Table 1a) was highest (73.13%) in age group of 1-5 year. A slight preponderance for Female Child (54.02%) was found compared to Male child (45.97%). A majority of the children Attack by Measles were aged between 1-5 years (56.32%) followed by 6-12 year (22.98%). Higher Attack seen among children living in Urban slum (80.45%).

Table 2: Socioeconomic status, literacy and working status of mother of Measles cases (N=87)

Sr. No.	Parameter	No. of cases (%)
1	Socioeconomic Status	
A	Upper	14(16.09)
B	Middle	27(31.03)
C	Lower	46(52.87)
2	Education Status Of Mother	
A	Illiterate	57(65.51)
B	Literate	30(34.48)
3	Occupation of Mother	
A	Non working	50(57.47)
B	working	37(42.52)

A majority of the Measles case belong to lower socioeconomic status (52.87%). It was found that as much as 65.51% of the mothers of children were illiterates while nearly half of cases (57.47%) were non-working mother (Table 2).

Table 3: Feeding, immunization and nutritional status of Measles cases (N=87)

Sr. No	Parameter	No. of cases (%)
1	Feeding Status	
A	Exclusively breast fed	22(25.28)
B	Partial Breast fed	65(74.71)
2	Immunization status	
A	Completely Immunized	30(34.48)
B	partially Immunized	15(17.24)
C	Not Immunized	42(48.27)
3	Nutritional Status	
A	Normal	3(3.44)
B	Grade I	16(18.39)
C	Grade II	19(21.83)
D	Grade III and IV	49(56.32)

It was found that out of 87 measles attack children only 25.28% infants were exclusively breast fed. The immunization status was 'complete' in 30 cases (34.48%) while there were 17.24% children partially immunized most of cases (48.27) not immunized. Excluding 3 cases of measles all were malnourished with (56.32) of Grade III and IV Category (Table 3).

DISCUSSION

Measles is an acute highly infectious disease that is spread by airborne transmission and has potentially severe complications⁸. The measles virus belongs to the genus Morbillivirus⁹ within the family Paramyxoviridae. Clinical features indicative of measles include rash lasting at least 3 days, fever for at least 1 day, with temperatures often above >40°C and at least one of the three Cs: cough, coryza or conjunctivitis¹⁰. Before the introduction of the measles vaccine, the measles virus caused millions of deaths worldwide¹¹. However, routine vaccination in many countries have caused measles to become relatively uncommon. In Singapore, with the successful

implementation of the National Childhood Immunization Programme using the monovalent measles vaccine, measles incidence declined from 88.5 cases per 100,000 in 1984 to 6.9 per 100,000 in 1991¹². Resurgences of measles were observed in 1992, 1993 and 1997. A 'catch-up' vaccination program using the trivalent measles, mumps and rubella (MMR) vaccine was conducted in 1997, followed by introduction of the two-dose vaccination schedule in January 1998, resulting in the incidence of measles declining sharply to 2.9 per 100,000 in 1998. Vaccination coverage was maintained at 95% for the first dose and 92-94% for the second dose. To further eliminate sporadic cases of measles, the national immunization schedule was amended in December 2011 to bring forward the first MMR vaccine dose from 15 to 18 months to 12 months of age, and the second dose from 6 years to 15 months. Presently, the majority of the cases in Singapore occur as single cases or in the form of small clusters of endemic or import-related cases¹². Measles is the fifth killer disease among children under five years of age in the world.^{13,14} Sri Lanka, Latin America¹⁵, Romania¹⁶, and South Korea¹⁷ experienced outbreaks of measles in spite of sustained high coverage with single-dose vaccination strategy. Thus, the 2001–2005 WHO/UNICEF strategic plan for measles mortality reduction and regional elimination recommended achieving high routine vaccination coverage (>90%) in every district and ensuring that all children receive a second opportunity for measles immunization.¹⁸ The three phases of the strategy are measles control, outbreak prevention, and measles elimination.¹⁹ In this present study, 87 cases were of Measles among 257 hospital cases admitted. Hospital based prevalence of Measles found 34.25%. Similar Study conducted by Muhammed Adeboye *et al.* in Bida Nigeria show (8%) It found to be high may be due the most the case were unimmunized and also most cases represent from Urban Slum area. A majority of the Affected children were more aged between 1-5 years (56.32%) followed by 6-12 year may be due the antibody levels induced by vaccination decline over time and may become undetectable as many of immunological study documented fact. Similar finding was document by NICD team observation and Najam Khalique an associate study on Measles outbreak in UP India. A majority of the cases in the present study belonged to lower socioeconomic status (52.87%). In this present study, a higher prevalence was reported in relation to non-working mother with a significant proportion of mothers being illiterates. More study require to conduct in Hospital as well as community based Scenario to find Incidence and Attack rate in Community.

CONCLUSION

The majority of the cases had occurred in the unvaccinated children that point out to increase Vaccination coverage along with this there also cases from vaccinated children points toward the fact that there is a possibility of a vaccine failure in older children and requirement of Second dose inclusion promptly in Immunization program. Even though we conquered over Polio Eradication for measles from above study it's clear that along with strengthening of routine immunization activity More Effort on Female education necessary to achieve desire milestone.

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