ORIGINAL ARTICLE

FREQUENCY OF VACCINATION IN CHILDREN WITH MEASLES

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ABSTRACT

Background: Measles is a highly contagious infection caused by single stranded RNA Paramyxo virus**.** Humans are the only natural host. Epidemics of the disease may occur. Measles vaccination is important for its prevention. The objective of this study was to find out the frequency of vaccination in children suffering from measles.

Materials & Methods: This cross-sectional descriptive study was conducted in Paediatric Unit of Women and Children Teaching Hospital, Bannu Medical College, Bannu, from November 2014 to February 2015. One hundred children with measles were taken both from indoor and outdoor patients department. Both males and females up to 15 years of age were included in the study. Clinical record along with vaccination status was recorded. The data was analyzed.

Results: Among 100 children, 2(2%) were under 6 months and were all males. Age group 6 months to one year included 17(17%) males and 11(11%) females. Among the age group 1-5 years, 40(40%) were males and 21(21 %) females. Age group 5-15 years included 7(7%) males and 2(2%) females. Total number of males was 66(66%) and females were 34(34%) with male to female ratio was 1.9:1. Among 100 children suffering from measles, only 7(7%) were vaccinated and 93(93%) were un-vaccinated.

Conclusion: Measles is common in un-vaccinated children. It is strongly recommended that all the children should be vaccinated against measles.

KEY WORDS: Measles**;** Vaccination; Immunization.

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INTRODUCTION

Measles (Rubeola) is a highly contagious infection caused by single stranded RNA Paramyxo virus with one antigenic type. Humans are the only natural host. The virus infects the upper respiratory tract and spreads to the regional lymph nodes and then a low titre primary viremia occurs. In a course of 5-7 days secondary viremia occurs when the virus infected monocytes spreads the virus to the respiratory tract, skin and other organs. Virus may be isolated from respiratory secretions, blood and urine of the infected persons. Infection is transmitted by droplets or the air borne routes and it is highly contagious from 1-2 days before the onset of symptoms i.e. five days before to four days after the appearance of rash. The immuno-compromised persons can excrete the virus for even prolong periods.[1]

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Clinical manifestations of measles are classically divided into four phases: Incubation period, which is about 8-12 days from exposure to the onset of symptoms (range 7 to 21 days). Second phase is prodromal period characterized by coryza, cough, conjunctivitis and Koplik spots, which are gray-white sand grain dots on the buccal mucosa opposite the lower molars. Koplik spots remain for 12 to 24 hours and often vanish before appearance of rash. The third phase is the exanthematous phase characterized by high fever (102-105 F). The classical measles rash is macular that begins on the head, mostly above the hair line and then spreads to the other parts of the body in a cephalo-caudal direction over 24 hours. Areas of rash are mostly confluent and classically appear in lacy pattern. Sometime rash may be petechial or haemorrhagic known as black measles. The fourth phase is the recovery phase which starts as the rash fades, undergoes brownish discoloration and desquamation. The diagnosis of Measles is mainly clinical; however antibody detection may help in the diagnosis. Antibodies may be detected in serum, saliva and CSF at different stages. Saliva is an established alternative to serum for IgM detection, and salivary diagnosis could play a major role

in achieving measles diagnosis and elimination.[2] Pneumonia, otitis media and diarrhea are common in infants. Liver involvement may occur.

Measles vaccination is important for its prevention. Since the introduction of measles vaccine, the annual number of measles cases has fallen lower than ever before.[3] Measles remains endemic in many areas where vaccination is not done and it is responsible for about 1 million deaths annually. Outbreaks of measles may occur due to lack of vaccination. Measles vaccination is safe and effective protection against measles. Measles vaccination in areas with high mortality of the disease have reduced the mortality of the disease.[4-6] A combination vaccine comprising of measles, mumps and Rubella (MMR) is also available. Side effects of vaccination are minimally reported. The possibility of MMR vaccine to be causally related to the risk of autism is currently of much concern. This was originated from a publication that described 12 case reports of vaccinated children whom later developed autistic behaviour.[7] However other studies showed that the number of autism cases did not correlate to the MMR vaccination.[8,9] Measles Vaccination not only reduces morbidity and mortality due to Measles but also is cost effective.[10]

MATERIAL AND METHODS

This cross-sectional descriptive study was conducted at Pediatric Unit of Women and Children Teaching Hospital, Bannu Medical College, Bannu, from November 2014 to February 2015.

One hundred children with measles were taken randomly both from indoor and outdoor patients department of the hospital. Both males and females up to 15 years of age were included in the study. All the children belonged to district Bannu and the surrounding areas, including Internally Displaced Persons (IDPs) from the North Waziristan agency. Clinical record and vaccination status of all the children was recorded on a pre-set Performa. The data of these patients was analyzed.

RESULTS

Among 100 children 2 (2%) were under 6 months and were all males. Age group 6 months to 1 year included 17 (17 %) males and 11 (11%) females. Among the age group 1-5 years, 40 (40%) were males and 21 (21 %) were females. Age group 5-15 years included 7 (7 %) males and 2 (2%) females. Total number of males was 66 (66%) and total females were 34 (34%). Male to female ratio was 1.9:1. (Table-1)

Vaccination status showed that among 0-6 months group, only one (1%) was vaccinated and similarly one (1%) was not vaccinated. Among age group 6 months to one year, 0 (0%) were vaccinated and 28 (28%) were not vaccinated. Age group 1-5 years included 6 (6%) vaccinated and 55 (55%) non-vaccinated children. Among age group 5-15 years, 0 (0%) were vaccinated and 9 (9%) were non-vaccinated. So total among 100 children suffering from measles, only 7 (7%) were vaccinated and 93 (93%) were un-vaccinated. (Table 2)

DISCUSSION

In our study measles cases in children under 6 months were minimal i.e. only 2%, which shows that these children are protected by the maternally transmitted antibodies. The number of children 6 months to one year was 17%. The maximum number of measles cases in children was in the age group 1-5 years i.e. 40%. This reflects declining effect of

Table 1: Age and Sex distribution of children with measles.

Age Group	Male	Female	Total
0-6 months	2 (2%)	0 (0%)	2 (2%)
6 months to one year	17 (17%)	11 (11%)	28 (28%)
1-5 years	40 (40%)	21 (21%)	61 (61%)
5 to 15 years	7 (7%)	2 (2%)	9 (9%)
Total	66 (66%)	34 (34%)	100 (100%)

Table 2: Vaccination Status of children with measles.

Age Group	Vaccinated	Non-vaccinated	Total
0-6 months	1 (1 %)	1 (1 %)	2 (2%)
6 months- 1 year	0 (0 %)	28 (28%)	28 (28%)
1-5 years	6(6 %)	55(55%)	61 (61%)
5 to 15 years	0 (0 %)	9 (9 %)	9 (9%)
Total	7 (7%)	93 (93 %)	100 (100%)

maternally transmitted antibodies in this age group, in the un–vaccinated children. The number of vaccinated children among measles cases was only 7%. In contrast non- vaccinated children among measles cases were 93%. So majority of children suffering from measles were non-vaccinated. This shows high protection rate of measles vaccination. This is consistent with the report of one of the research council, which showed protection rate of measles vaccination to be 90%.[11] However it was found in another study done in Australia that only 84% children were immune to the disease after being vaccinated. The reason for reduced immunity was failed sero-conversion detected by estimation of IgG antibodies by indirect ELISA.[12] Furthermore outbreaks of measles have been reported in many countries in vaccinated population.[13] It was shown that two doses of measles vaccination are required for better immunity.[14] Protective levels of antibodies induced by MMR vaccine were first suggested to be lifelong but in two studies, the levels of antibodies have been shown to decline over time, faster after vaccinations as compared to the naturally acquired infection.[15,16] However in our study protection against measles was related to a single shot of measles vaccine given during routine immunizations of Expanded Program of Immunizations (EPI). In our study maximum number of cases of measles was found in the age group 1-5 years, i.e. 61%. Measles was also predominant in this age group even in a few vaccinated children. Similar declining effect of immunity after one year of age was shown in different other studies.[17,18.]

CONCLUSION

Measles is common in unvaccinated children. It is recommended that all the children should be vaccinated against measles.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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None declared.