



MEASLES OUTBREAK OCCURRING IN DIFFERENT DISTRICTS OF RAJASTHAN, INDIA

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ABSTRACT **Background:** We report an assessment of measles outbreak during the months of January 2018 to April 2018 in Rajasthan state of India .

Materials and methods: During the study in the year 2018 from January to April, a total of two hundred and thirty-three patients (233) of both sexes were studied. Serum separated and tested by ENZYGNOST anti measles IgM ELISA KIT for measles infection.

Results: 136 cases were sero-positive by ELISA test. Out of 136 samples, 72 specimens are of males rest 64 samples were females.

Conclusion: The recognition of early warning signals, timely investigation and application of specific control measures can control the outbreak.

KEYWORDS : outbreak,measles,ENZYGNOST

INTRODUCTION

Measles is a highly infectious and potentially fatal viral infection mainly affecting children, characterized by fever and respiratory symptoms, followed by typical maculopapular rash. It is also known as "RUBEOLA" OR "MORBILLI". Measles is an endemic disease meaning it is continually present in a community and many people develop resistance. Immunization against measles directly contributes to the reduction of under-five child mortality and hence to the achievement of Millennium development goal number 4. [1] After a bout of measles, a person gains immunity for the rest of their life. They are very unlikely to contract measles a second time.

Measles is endemic throughout the world, with epidemics which recur regularly every 2-3 years, typically in late winter and early spring. With the introduction of measles vaccine in the national programme from 1985, which is given at 9 to 12 months of age, the disease burden has reduced. Actual vaccine effectiveness, under field conditions usually lower (60%) [2]. In the backdrop of poor immunization coverage and persistence of multiple foci, there is heightened risk of the disease in an epidemic form in India. Investigating each outbreak to understand the epidemiology of the disease and its current status in the country is therefore necessary.

MATERIALS AND METHODS

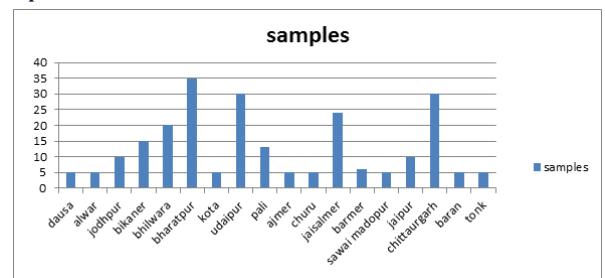
Samples were collected from various districts and different blocks of Rajasthan for a period of four months from January 2018 to April 2018. All the samples were sent to S.M.S medical college, microbiology department, Jaipur. The samples were tested serologically by Enzygnost Ig M Elisa using the kits from National Institute of Virology, Pune.

In this study, a total of 233 cases from various districts of Rajasthan were tested to identify the measles infection. For all cases, information on personal details age and sex, place of residence date of onset of illness and status of measles immunization was ascertained in the lab requisition forms (LRF). From this information, incidence of acute measles by age and sex was calculated. Sera from all cases were tested for measles immunoglobulin M (IgM) by enzyme linked immunosorbent assay at Sawai Man Singh Medical College, Jaipur.

RESULTS

The samples of measles outbreak come from all the districts of Rajasthan to check for seropositivity. According to this study, most no. of outbreaks occurred in Bharatpur district of Rajasthan. After Bharatpur, Udaipur and Chittaurgarh are major measles infected areas. Then comes Jaisalmer and Bhilwara. [Table -1]

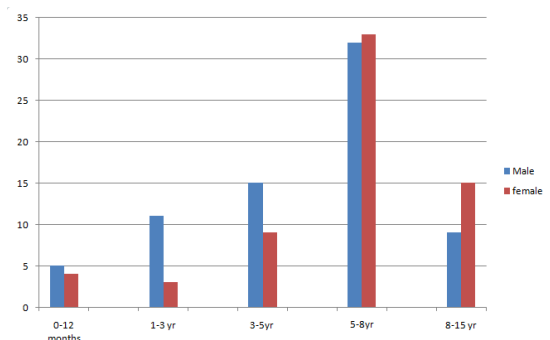
Table 1: District wise measles samples from months of January to April



Of the 233 suspected measles cases, 136 were seropositive by Enzygnost Ig M ELISA assay. Male to female sex ratio was 72 males and 64 females. Maximum number of positive cases was found in the age group 5-8 yr. [table -2]

Table 2: Age –Sex distribution of positive measles cases

Age -group	No. of suspected cases	Total no. of positive cases by Elisa	Male	female
0-12 months	12	9	5	4
1-3 yr	32	14	11	3
3-5yr	33	24	15	9
5-8yr	107	65	32	33
8-15 yr	49	24	9	15



Graph showing age –sex distribution of positive measles cases in male and females

Among the measles cases, only 60 cases had received dose of measles vaccine .rest of them either not received the vaccination or they do not remember their last vaccination dose.so, according to the information given in lab requisition forms. Out of 60, 44 cases were seropositive for measles.

DISCUSSION

Measles is rightly called as captain of killer team ,especially in developing countries .^[3] more than one –third of all measles deaths worldwide (around 56000 in 2011) are among children in India.^[4] Rajasthan state comprises of 33 districts, of which we get the samples of outbreaks from mostly all the districts. Cases are the only sources of infection .carriers are not known to occur in –apparent or sub-clinical infections are rare. Humans are the only reservoir of infection. There is no animal reservoir.

In our study most number of outbreaks are going in Bharatpur district of Rajasthan .After that Udaipur, Chittaurgarh , Bhilwara and Jaisalmer are most targeted areas of outbreaks. This data shows that these areas need urgent serosurveillance programs so that further measles cases do not occur.

Measles comes under regular surveillance programme (IDSP).More than five cases of clinical measles reported in a week in a block can be considered as outbreak as per the field guide 'measles surveillance and outbreak investigation(2005)^[5] further supports the evidence of outbreak.

In our study, it was noticed that majority were not known for immunization status of the patients. Only 60 of them came to be known for immunization dates .out of those 60 samples, 44 were seropositive for measles, which is an indication of vaccine failure or short lasting immune response as also reported by vitek et al.^[10]

Deaths from measles occur mainly due to complications of measles .infants and young children ,especially those who are malnourished ,are at highest risk of dying .in this outbreak no mortality was detected .In the present outbreak ,statistically significant higher attack rates was found between 3-8 years(table2, this was in contrast to gupta et al.^[4] overall attack rates in our study was as low as compared to other reported studies.^[6-9,11]

Strength Of The Study: Our laboratory is the only lab which is testing measles outbreak samples in north west of India and is working under collaboration with WHO (World Health Organization).

Limitations of Our Study: Measles outbreak samples are only tested by ELISA Test and no other test are done along with ELISA to test positive cases.

CONCLUSION

The recognition of early Warning signals, timely investigation and application of specific control measures can control an outbreak .there is further need of strengthening of existing routine immunization. Cold chain monitoring needs special attention. There is also need of sero –surveillance for measles in Rajasthan.

WHO recommends measles elimination strategy:”catch upkeep up and follow up “the immunization programme.

- Catch up campaign is a onetime effort to vaccinate all children between 9 months up to 10 years irrespective of their prior immunization status. The aim is to rapidly reduce the susceptible population in the community.
- Follow up campaigns are done every 2-4 years following catch –up campaigns to vaccinate all children of >9 months age who have born after the last catch up campaign.
- Keep up the ongoing national immunization programme.

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