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Original Article

Epidemiological Profile of Measles Cases in Azad Jammu & Kashmir, Pakistan: 2018

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ABSTRACT

Background: Measles is a highly contagious viral disease with significant childhood morbidity and mortality. This study was carried out to assess the magnitude of measles cases and its description with respect to socio demographic and clinical characteristics during 2018 in AJ& K.

Methodology: This descriptive study was carried out on secondary data received at the Directorate General Health Muzaffarabad. A suspected measles case was defined as *" any child of age < 15 years, belonging to either sex and resident of the state of Azad Jammu & Kashmir with non-vesicular macula papular rash and fever along with one of the symptoms of cough, coryza and conjunctivitis from 1st January 2018 to 31st December 2018*.A confirmed case of measles was defined as "*a suspected case of measles who is laboratory confirmed by* the presence of measles-specific IgM antibodies.".Line listing of all cases was done and data was analyzed by person place and time and frequencies proportions and rates were calculated.

Results: A total of 561 cases were recorded in which 58% (n=305) were males. The median age of cases was 30 months (range 2-180 months). Majority of cases (80%) were below 6 years of age. The Epi-curve showed that peak cases were reported from 20th epidemiological week to 27th week and thereafter the cases showed gradual decline. Fever and rash were associated with cough (87%) runny nose (75%) and conjunctivitis (63%). Majority of cases were reported from tertiary care hospitals followed by secondary care health facilities.

Conclusion: Most of the children with measles were up to 3 years of age group and were either not immunized or partial immunized against measles. Continuation of VPD surveillance and strengthening of routine immunization is the solution to achieve and sustain 100% immunization coverage rate in Azad Jammu & Kashmir.

Key words: Immunization, measles profile, AJ&K

Introduction

Measles is a highly contagious viral disease with significant childhood morbidity and mortality[1]. Measles presents with fever rash and or cough, coryza and conjunctivitis. The incubation period of measles is 8-12 days. The period of infectivity of measles is 2-4 days before the appearance of rash and 4-6 days after the disappearance of rash. It recovers completely within 2-3 weeks with symptomatic treatment but the malnourished and immune compromised children are prone to complication of measles.

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Complications of measles include pneumonia, croup and diarrhea which can lead to lifelong disabilities namely blindness, deafness and permanent brain damage[2].

Measles is one of the major causes of childhood morbidity and mortality in developing countries mainly due to underlying malnutrition and overcrowding[3 4 5]. Globally, measles was a cause of an estimated 2.6 million deaths each year during 1980s'.Major impact of widespread vaccination against measles lead to 80% drop in mortality due to measles. The World Health Organization (WHO) reported that estimated 21.1milloin deaths have been prevented worldwide by measles immunization between 2000-2017; thereby making it one of the best public health interventions[4]. As of today; measles vaccination is the

key strategy to prevent mortality and morbidity due to measles worldwide[6].

This study was carried out to assess the magnitude of measles and its description with respect to time, place and person, socio demographic and clinical characteristics of the dengue cases registered during 2018 across the State of Azad Jammu and Kashmir (AJ& K).

Material and Methods

The State of Azad Jammu & Kashmir (AJ&K) lies between longitude 73^0 – 75^0 and latitude 33^0 – 36^0 and comprises an area of 5,134 square miles (13,297 square kilometers). The AJ & K is divided into three divisions (Muzaffarabad, Poonch & Mirpur) and ten administrative districts with Muzaffarabad as the capital of the State. The Muzaffarabad Division comprises of Muzaffarabad, Hattian and Neelum districts, Poonch Division comprises of Bagh, Haveli, Poonch & Sudhnoti districts whereas Mirpur Division consists of Mirpur, Kotli & Bhimber districts. The population of State of Azad Jammu & Kashmir is 4.1 millions [7].

This study was carried out on secondary data of measles cases received at the Directorate General Health Muzaffarabad AJ&K. The permission for carrying out this study was obtained from Director General Health AJ&K as there is no ethical review board in Health Department AJ&K.. A suspected measles case was defined as " *any child of age < 15 years, belonging to either sex and resident of the state of Azad Jammu & Kashmir with non-vesicular maculopapular rash and fever along with one of the symptoms of cough, coryza and conjunctivitis from 1st January 2018 to 31st December 2018*.A confirmed case of measles was defined as "*a suspected case of measles who is laboratory confirmed by* the presence of measles-specific IgM antibodies at *NIH Islamabad.*". The inclusion and exclusion criteria were chalked out. All suspected and confirmed measles cases were included in the study while cases above 15 years and with incomplete record were excluded from the study Line listing of all cases were done and data was analyzed by person place and time and frequencies proportions and rates were calculated.

Results

A total of 561 measles cases were registered from all the districts of AJ&K during 2018(Fig-1) Males were 58%(n=305) The median age of the children is 30 months (age range 02 to 180 months) and the mean age was 47 months.

Fig-1: Map of Azad Jammu & Kashmir

Majority of the children (80%) affected were below 6 years of age as is evident from the Table-1.The main symptoms of the measles cases were fever and rash with cough runny nose and conjunctivitis as is evident from the Fig-3.The health facility wise distribution of cases is shown the Fig-4.Seasonal trend of measles is shown in the figure 5 while fig 6 shows vaccination status of the affected children.

Table-1: Age and Sex wise Distribution of Measles Cases in AJ&K: 2018

Age	Male	Female	Total	%age
< 1 year	97	67	164	29.2
1-3 years	95	52	147	26.2
4-6 years	75	60	135	24.2
7-9 years	29	24	53	9.4
10-12 years	19	17	36	6.4
13-15 years	11	15	26	4.6
TOTAL	**326**	**235**	**561**	**100**

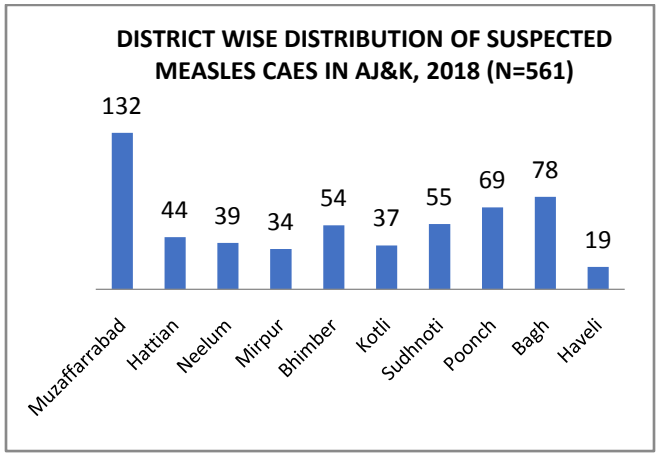

Fig-2: Area wise distribution of measles cases in AJ&K

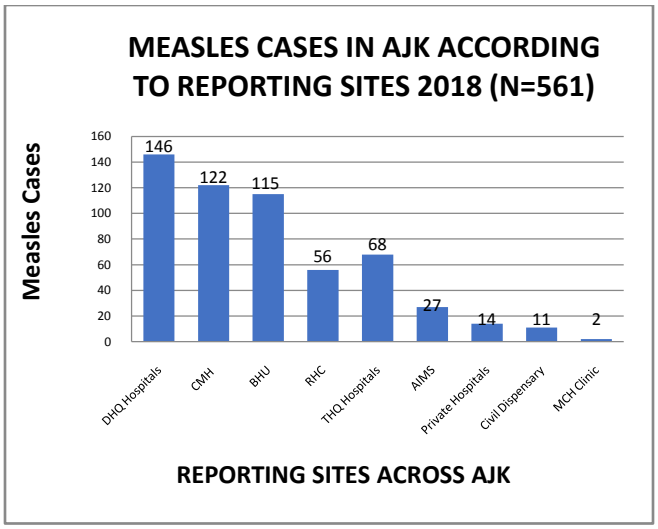

Fig. 3: Health facility wise distribution of measles cases in AJ&K

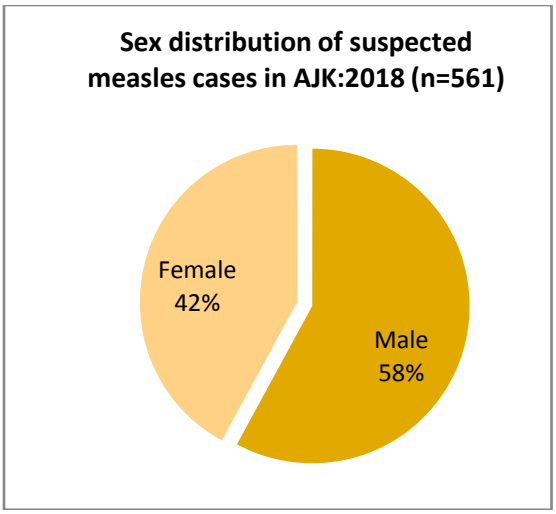

Fig. 4: Sex wise distribution of measles cases in AJ&K

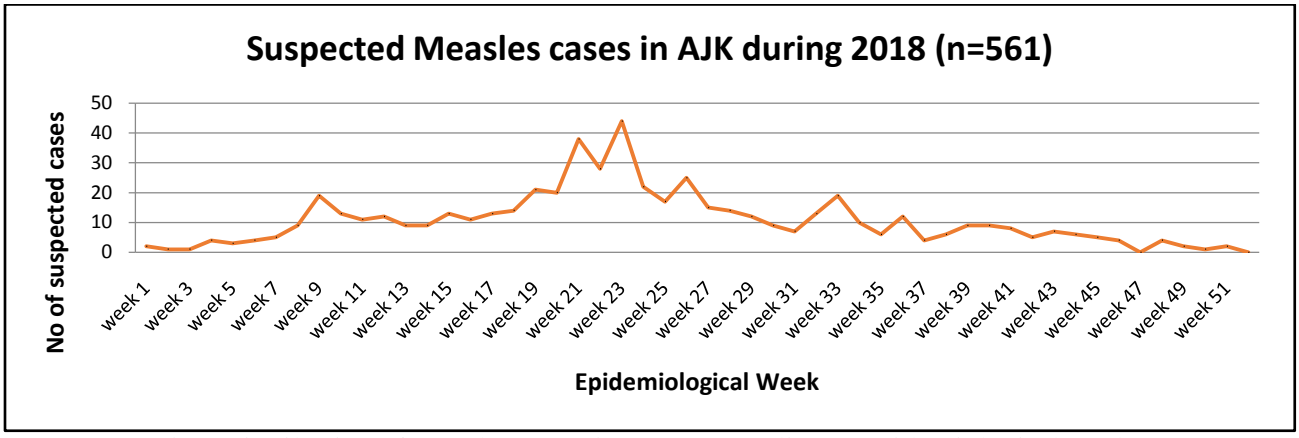

Fig.5 Distribution of Measles Cases in AJ&K according to epidemiological weeks

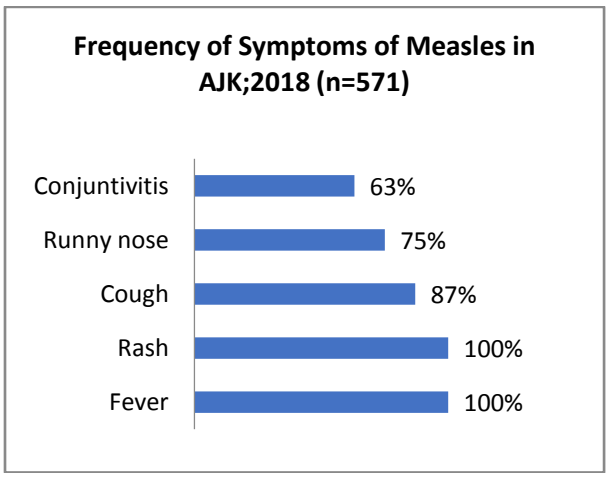

Fig-6: Frequency of Symptoms of Measles Cases in AJ&K during 2018

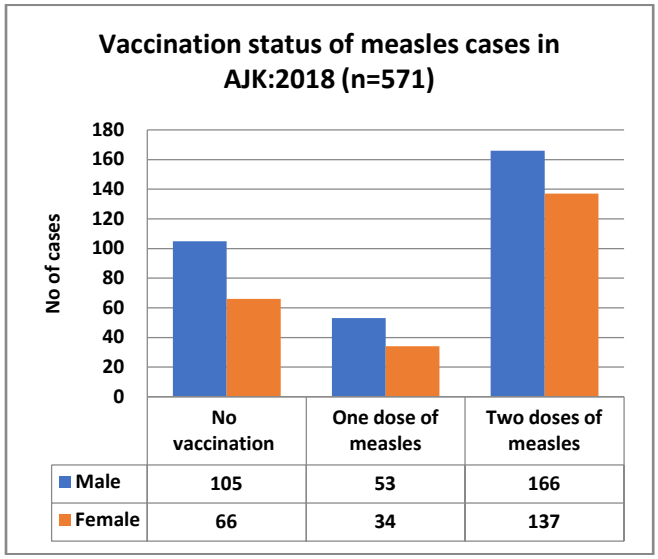

Fig. 7 Vaccination Status of Measles Cases in AJ&K during 2018

Discussion

Measles is a major childhood public health issue because of its associated morbidity and mortality in Pakistan [8 9 10]. Our study was aimed to assess the magnitude of the problem in AJ&K and to evaluate the characteristics of reported cases. The median age of measles cases in our study was 30 months which is in consistence with median age of infection found in many other studies conducted abroad as well as in Pakistan. The clinical presentation of the cases in the present study was found similar to the findings of many outbreak investigations carried out in other areas of Pakistan.[11 12] The commonest age group affected is < I year followed by 1-3 year which is in consistence with many other studies including large study conducted in China.[11 12 13]

Our results showed that 30% of the measles cases received no vaccination while 16% received one dose of vaccine and 54% of the registered cases were fully immunized against measles. The transmission of measles virus can be interrupted at herd immunity level of 93-95% and the epidemics of measles are common in populations with low immunization coverage rates and this finding is inconsistence with findings of our study. [14 15 16 17 18] Moreover according to PDHS 2017-18 reports, the immunization coverage in Azad Jammu and Kashmir is 75% and the data analysis of our study showed similar results[19 20]. Further research is warranted for better understanding of measles epidemiology in the State of Azad Jammu & Kashmir.

Conclusions

Most of the children with measles were up to 3 years of age group and were either not immunized or partial immunized against measles. Continuation of VPD surveillance and strengthening of routine immunization is the solution to achieve and sustain 100% immunization coverage rate in Azad Jammu & Kashmir.

Conflict of Interest: Nil

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References

1. Park K. Epidemiology of communicable diseases. In: K Park (ed.), Textbook of preventive and social medicine, 21st ed. Jabalpur, India: Banarsidas Bhanot Publishers, 2011.
2. Mason WH. MeaslesIn RM, Kliegman HB, Jenson RE, Behrman et al. (ed.), Nelson Textbook of Pediatrics. Saunders Press, Philadelphia. 2008, 1331-1335.
3. Morris SK, Awasthi S, Kumar R, Shet A, Khera A, Nakhaee F et al. Measles mortality in high and low burden districts of India: estimates from a nationally representative study of over12,000 child deaths. Vaccine, 2013; 31:4655-61.
4. Dosseter J, Whittle HC, Green Wood BM. Persistent measles infection in malnourished children. BMJ, 1997; 1:1633-35.
5. Imran Q, Ameer A, Fiaz A, Atta ullah M. Comparison of measles complications in wellnourished and malnourished children. J Ayub Med Coll Abbottabad 2009; 21 (2).
6. World Health Organization. Media Centre. Measles Fact Sheet- November, 2018.
7. AJK at a Glance, P&D Department 2017
8. Khan T, Qazi J. Measles outbreaks in Pakistan: causes of the tragedy and future implications. Epidemiol Rep 2014;2(1):1.
9. Riaz H . Public Health Failings Behind Pakistan's Measles Surge. Lancet 2013;381(9862):189.
10. 1Qazi MS, Ali M. Pakistan's Health Managment Information System:Health Managers' Perspective. J Pak Med Assoc 2009;59(10):10–4.
11. 11 Saqib Y,Amir S, Bushra W et al. Measles virus outbreak in district Karak, KP, Pakistan. JEZS 2017:5(4):1655-1661
12. 12.Abid S,Zahid AB,Tabinda M. Investigation of measles outbreak in a district of Balochistan Province,Pakistan.J Ayub Med Coll Abbottabad 2015: 27(4): 900-3
13. 13.Rong Z,Hong L,Feng L e tal. Epidemiological characteristics of measles from 2000 to 2014:Results of a measles catch-up vaccination campaign in Xianyang,China.Journal of infection and public health 2017:10(1):624-29
14. 14.Gustafson TL, Lievens AW, Brunell PA, Moellenberg RG, Buttery CM, Sehulster LM. Measles outbreak in a fully immunized secondary-school population. N Engl J Med 1987; 316:771-4.
15. Nkowane BM, Bart SW, Orenstein WA, Baltier M. Measles outbreak in a vaccinated school population: Epidemiology, chains of transmission and the role of vaccine failures. Am J Public Health 1987; 77:434-8.
16. Hersh BS, Markowitz LE, Hoffman RE, Hoff DR, Doran MJ, Fleishman JC, et al. Measles outbreak at a college

with a pre matriculation immunization requirement. Am J Public Health 1991; 81:360-4

17. Anders JF, Jacobson RM, Poland GA, Jacobsen SJ, Wollan PC. Secondary failure rates of measles vaccines: A metaanalysis of published studies. Pediatr Infect Dis J 1996;15:62-6.
18. Bajaj S,Bobdey P,singh N.Measles outbreak in adults: A changing epidemiological pattern. Med J DY Patil Univ 2017: 10: 447-52
19. Pakistan Demographic and Health Survey (PDHS) 2017-18
20. World Health Organization. WHO Guidelines for Epidemic Preparedness and Response to Measles Outbreaks, Geneva, Switzerland. 2017.

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