Original Article

Vitamin A in Measles

Vitamin A Status in Measles Patients of District Abbottabad

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ABSTRACT

Objective: This study was carried out to assess the vitamin A supplementation status inpediatric measles patients.
Study Design: Analytical study
Place andDuration of Study: This study was conducted at Pediatric Department of Women and Children Hospital, Abboatabd from January 2014 to December 2014.
Materials and Methods: Detailed history and physical examination of 200 patients was recorded in a proforma. Vitamin A supplementation and vaccination status were recorded along with demographic profile.
Results: 103 (51.5%) were males and 97 (48.5%) were females. Majority of these patients (55.5%) were residents of rural area of Abbottabad district. 77% of the children were low weight. The mean age of the children was 37±9 months. Out of 173 patients who were eligible for vaccination, only 34.5 % of the patients were vaccinated for measles, and 47% of the eligible patients did not receive measles booster dose. 79% of the patients did not receive vitamin A supplementation in the last 6 months. Conjunctivitis (86%) and oral ulcers (73.5%) were the most common complications.. Other complications included pneumonia (25.5%), diarrhea (19.5%), congestive cardiac failure (1%), epistaxis (1%), otitis media (0.5).
Conclusion: Majority of the patients did not receive vitamin A supplementation. The most common complication were conjunctivitis and oral ulcers, which can be associated with vitamin A deficiency during measles.
Key Words: Vitamin A, Measles, Conjunctivitis

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INTRODUCTION

Measles, the disease with its first written description in the 9th century, still remains a killer disease, despite of the discovery of its vaccine in 1980. [1] It is a highly contagious viral disease caused by morbillivirus, that spreads primarily through coughing and sneezing.[2,3,4] The disease has made a comeback even in the unexpected parts of the world. The reason for the outbreak has been the same, whether developed or underdeveloped, that is - failure to vaccinate.[5]

Severe measles is more common in poorly nourished children especially with vitamin A deficiency. Since there is no treatment of measles, the severe complications can be avoided through adequate hydration and vitamin A supplementation.[6]

Vitamin A supplements have been associated with approximately 50% reduction in morbidity and mortality.[7] Vitamin A refers to a subclass of retinoic acids, long understood to help regulate immune functions and to reduce morbidity of infectious disease.[8] The various functions of vitamin A includes normal functioning of the visual system, maintenance of cell function for growth, epithelial integrity, production of red blood cells, immunity and reproduction.[9] Vitamin A is an essential nutrient, so it must be obtained through diet. The WHO has long recommended vitamin A supplementation for children below 5 years of age. It consists of 2 doses of 50,000 IU for infants less than 6 months of age, 100,000 IU for those 6 months to 1 year of age and 2 lac IU for more than 1 year of age.[10] Previous meta-analysis has suggested that vitamin A supplementation for children in developing countries is associated up to 30 % reduction in mortality.[11]

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MATERIALS AND METHODS

This analytical study was conducted in Pediatric department of women and children hospital, Abboatabd, from January 2014 to December 2014, and of both out patient and admitted cases. Measles was confirmed by physical findings. Measles vaccination status and vitamin A supplementation was confirmed by either seeing the vaccination card or verbal recall of parent. Patients were managed accordingly along with vitamin A supplementation.

RESULTS

A total of 200 patients presenting with measles were studied, out of which 103 (51.5%) were males and 97 (48.5%) were females. Majority of these patients (55.5%) were residents of rural area of Abbottabad district. 81 % of the patients belonged to low family income, and 77% of the children were low weight. The

mean age of the children was 37±9 months.Minimum age of the patient presenting was 4 months, and maximum was 15 years. Majority of the patients (51%) were between the age 6 to 12 months. 95.5% presented with rash, whereas 94.5% of the patients presented with fever. Out of 173 patients who were eligible for vaccination, only 34.5 % of the patients were vaccinated for measles, and 47% of the eligible patients did not receive measles booster dose. Unawareness of the parents (50%) was the major reason for the children not being vaccinated. 38.5 % of children's parents were uneducated.

Table No.1: Demographic profile of the measles patients (n=200)

Demographic profile	Number	%age
Age categories		
Below 6 months	6	3
6 to 12 months	51	25.5
12 to 24 months	44	22
24 to 36 months	33	16.5
36 to 60 months	35	17.5
Above 60 months	31	15.5
Sex		
Male	103	51.5
Female	97	48.5
Weight		
Low	154	77
Normal	46	23
Area of residence		
Rural	111	55.5
Urban	42	21
Peri urban	47	23.5
Presence of lady health worker		
Yes	177	88.5
No	20	10
Don't know	03	1.5
Measles vaccination status (1st dose)		
Yes	69	34.5
No	96	48
Don't know	8	04
Vitamin A supplementation		
Received in last 6 months	39	19.4
Not received in last 6 months	159	79.1
Don't know	01	0.5

Our study showed that 79% of the patients did not receive vitamin A supplementation in the last 6 months, in spite of the fact that 88.5% of the residence areas had the availability of lady health workers. Conjunctivitis (86%) and oral ulcers (73.5%) were the most common complications. Out of the 172 patients which presented with conjunctivitis, 84.3 % had not received vitamin A and out of 147 patients who presented with oral ulcers, 74.8% did not receive vitamin A supplementation. Other complications included pneumonia (25.5%), diarrhea (19.5%), congestive cardiac failure (1%), epistaxis (1%), otitis media (0.5%). Majority of the patients were managed for measles and discharged, except for one which died out of congestive cardiac failure.

DISCUSSION

The results of the study showed that majority of the patients were not provided with vitamin A supplementation, in spite of presence of lady health workers. Studies regarding vitamin A supplementation in children in Pakistan are lacking. Vitamin A plays an essential role in reducing morbidity in infectious disease, especially in the epithelial integrity.[8,9] In our study, the most common complication are conjunctivitis and oral ulcers, followed by pneumonia and diarrhea, in contrast to other studies where pneumonia and diarrhea are the most common complications[12,19] Only 42% of the patients were vaccinated for measles, which was similar to study held in Islamabad.[13] Serum concentration of retinol are significantly lowered during measles [14]. Two doses of vitamin A resulted in decreased mortality of measles patients [13,14]. A significant reduction in the complications like diarrhea, pneumonia, cough was also observed in patients supplemented with vitamin A.[16-19] There was a 64% reduction seen in mortality in children who were given two doses of vitamin A supplementation.[19, 20, 21] The high number of complications associated with lack of vitamin A supplementation in our study, indicates the necessity to improve vitamin A supplementation coverage in Pakistan.

CONCLUSION

Majority of the children of Abbottabad district are not provided with vitamin A supplementation. Lack of this supplementation can be the major cause of complications, which could have been prevented. Hence, apart from the awareness programs, there is a need to supervise our primary health care system. In spite of vaccinations, the patients are presenting with measles along with complications. So, there is also a need to improve the substandard performance of immunization programs.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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