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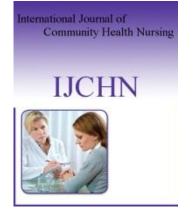

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A RETROSPECTIVE STUDY OF EPIDEMIOLOGICAL FACTORS ASSOCIATED WITH MEASLES IN CHILDREN (0-5 YEARS) IN FOUR VILLAGES OF BARABANKI DISTRICT IN RURAL UTTAR PRADESH

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ABSTRACT

Measles is a leading cause of death among young children even though a safe and cost-effective vaccine is available to prevent the disease. The objective of the present study was to study the epidemiology of measles in children (0-5 years) in the four villages of Barabanki district in Rural Uttar Pradesh and also to study the various factors responsible for measles in rural Uttar Pradesh. It is a retrospective cross sectional epidemiological study conducted in the four villages in barabanki. A total of 2220 children (1225 males and 995 females) were selected. All the houses having children 0-5 years were taken up for the study. The mothers were interviewed with a pretested, structured questionnaire and data was analyzed by SPSS Software, version 16.0. In the present study 25.27% children were normal, 53.92% children were malnourished (Grade I), 15.63% were having Grade II and 5.18% Grade III malnutrition as per Gomez classification. Measles vaccine was not given in 77.61% children and in only 22.39% it was given. Most of the measles cases (32.94%), occurred during the winter season between December to February, showing the normal seasonal trend of measles.

Key Words: Measles, Malnutrition, Rural area.

INTRODUCTION

Measles is an infectious disease in children caused by a virus which spreads through respiratory passages. It is endemic in all parts of the world and sometimes comes in epidemic forms. According to the World Health Organization (WHO), measles is a leading cause of vaccine-preventable childhood mortality [1]. In 2007, there were 197 000 measles deaths globally - nearly 540 deaths every day or 22 deaths every hour. More than 95% of measles deaths occur in low-income countries with weak health infrastructure. The infection has an average incubation period of 14 days (range 6–19 days) and infectivity lasts from 2–4 days prior, until 2–5 days following the onset of the rash (i.e. about 4-9 days infectivity in total)[1]. An alternative name for measles in English - speaking countries is *rubeola*, which is sometimes confused with rubella (German measles); the diseases are unrelated [2,3].

Mortality varies in different parts of the world and is more common (about 44% more) in malnourished children. In developing countries case fatality rate varies from 2 to 15%. In developing countries where measles is highly endemic, the WHO recommends that two doses of vaccine be given at six months and at nine months of age. Complications with measles are relatively common, ranging from relatively mild and less serious diarrhea, to pneumonia and encephalitis (subacute sclerosing

panencephalitis), corneal ulceration leading to corneal scarring [4].

Methodology:

In the present study four villages in Health block in Rural Kanpur were taken up for survey. These four villages were adjacent to each other and were typically rural in character. The total population of these four villages was 15900 as per the records available at Rural Field Training Centre under GSVM Medical College, Kanpur. All the houses having children between 0-5 years i.e. 2220 children were taken up for the study. The mothers were interviewed with a pretested questionnaire. History was taken regarding any fever with rash, nature of rash and diagnosis was made by the attending doctor. Also any deaths in the last three months from any such diseases were recorded.

RESULTS

In the present study out of total 2220 children, 1225 were males and 995 females. 25.27% children were normal, 53.92% children were malnourished (Grade I), 15.63% were having Grade II malnutrition and 5.18% Grade III malnutrition as per Gomez classification [1]. It was observed that severe malnutrition (Grade III) was more common in male children (7.15%) as compared to female children (2.31%) and was found to be statistically significant ($p<0.05$) (Table 1). In the present study 67.82% children had completed UIP immunization schedule. 18.06% had partially completed UIP. In 2.47% children only BCG was given, in 1.83% only pulse polio vaccination was done and surprisingly in 9.8% mostly female (16.38%) as compared to 2.85% male) no vaccine was given (Table 2).

In the present study measles vaccine was not given in 77.61% children and in only 22.39% it was given. In 84.72% female children and 71.83% males the measles vaccine was not given and this was found to be statistically significant ($p<0.05$). As under UIP schedule measles vaccine is given at 9 months, some children may have been below that age and thus were yet to receive the scheduled dose (Table 3).

In this study most of the measles cases (32.94%), occurred during the winter season between December to February, showing the normal seasonal trend of measles (Table 4) though it was statistically not significant.

Table 1. Distribution of children by Nutritional Status and sex.

Nutritional Status	As per Gomez classification		**Total** No. (%)
	Male child No. (%)	Female child No. (%)	
Normal	275 (22.45)	286 (28.74)	561 (25.27)
(Grade I) Malnutrition	674 (55.02)	523 (52.56)	1197 (53.92)
(Grade II) Malnutrition	184 (15.02)	163 (16.38)	347 (15.63)
(Grade III) Malnutrition	92 (7.51)	23 (2.31)	115 (5.18)
Total	1225 (100.00)	995 (100.00)	2220 (100.00)

Table 2. Distribution of Children by Immunization Status & Sex.

Immunization status	**Male child** No. (%)	**Female child** No. (%)	**Total** No. (%)
Completed UIP Schedule	935 (76.33)	585 (58.79)	1520 (67.82)
Partially completed	220 (17.96)	195 (19.59)	415 (18.06)
Only BCG given	15 (1.22)	35 (3.52)	50 (2.47)
Only Pulse Polio Vaccination Given	20 (1.63)	17 (1.71)	37 (1.83)
`NO vaccine given	35 (2.85)	163 (16.38)	198 (9.80)
Total	1225 (100.00)	995 (100.00)	2220 (100.00)

Table 3. Status of giving Measles vaccine

Measles vaccine	**Male child** No. (%)	**Female child** No. (%)	**Total** No. (%)
Given	345 (28.16)	152 (15.28)	497 (22.39)
Not Given	880 (71.83)	843 (84.72)	1723 (77.61)
Total	1220 (100.00)	995 (100.00)	2220 (100)

Table 4. Distribution of cases by seasonal incidence

Months	**Season**	**Male** No. (%)	**Female** No. (%)	**Total** No. (%)
June to August	Summer	23 (28.04)	20 (22.72)	43 (25.29)
September to November	Autumn	18 (21.95)	27 (30.68)	45 (26.47)
December to February	Winter	30 (36.58)	26 (29.54)	56 (32.94)
March to May	Spring	11 (13.41)	15 (17.04)	26 (15.29)
Total One year	All Seasons	82 (100.00)	88 (100.00)	170 (100.00)

DISCUSSION AND CONCLUSION

Measles is endemic virtually in all parts of the world. It tends to occur in epidemics when the proportion of susceptible children reaches about 40 per cent [5]. When the disease is introduced into a virgin community more than 90 per cent of that community will be infected[6]. In the present study the total number of children (0-5 years) present during last one year, who could be contacted, was 2220, out of which 1225 were males and 995 were females. The educational status of parents showed that most of them 57% fathers and 75% mothers of the study children were illiterate. No significant relation was observed between educational status of father with sex of their child.

Most of fathers were farmers and labourers and most of mothers were housewives. Out of total 170 measles cases, most of them 50.59% were in 1-2 year age group, followed by 2-3 year (32.94%), 0-1 year (7.65%), 3-4 year (7.06%) and in 4-5 year (1.7%). Due to use of vaccine, the disease is now known to occur in older age groups[7]. Also mortality is 400 times in malnourished children with measles [8,9] & they excrete the measles virus for longer periods than better nourished children [10].

The compliance of vaccination showed that only 22.39% had taken measles vaccine although 67.82% had taken complete UIP schedule. The reason could be that the vaccine is given at 9 months of age, about 3 months after the schedule of other vaccines, therefore parents usually forget about it, especially for female children. It has also been observed that many children suffer from an episode of measles before 9 months and thus fail to take this vaccine. Hence, it is better to change the age of vaccination as was recommended by IAP to 6 months and give a booster at 9 months. So that at least the child could get one primary vaccine at an early age and even if forgotten, may get some immunity. In the present study most of measles episodes occurred during months of June (22.35%) and November (25.29%), followed by February (13.53%). No case occurred during August, October and May. The month wise association was not statistically significant. In temperate climates, measles is a winter disease, probably because people crowd together indoors [11]. Epidemics of measles are common in India during winter and early spring (January to April). Population density and movement do affect epidemicity [12].

REFERENCES

1. Technical Report Series. (1972). *Indian Pediatrics*, 49, 150-151.
2. Perry, Robert T, Halsey, Neal A. The Clinical Significance of Measles, A Review. *The Journal of Infectious Diseases (Infectious Diseases Society of America)*, 189, 1547–1783.
3. Sension MG, Quinn TC, Markowitz LE, Linnan MJ, Jones TS, Francis HL, Nzilambi N, Duma MN, Ryder RW. (2008). Measles in hospitalized African children with human immunodeficiency virus. *American Journal of Diseases of Children*, 142(12), 1271–1272.
4. Skalka, Anna M, Johnson, Enquist LW, Racaniello, Vincent R. (2003). Principles of Virology, Molecular Biology, Pathogenesis, and Control of Animal Viruses. *American Society Microbiology*, 25, 143-156.
5. Acheson RM. *Brit Med Jr*, 2, 1978, 1737.
6. Last, John Med. (1984). A Dictionary of Epidemiology, A Handbook sponsored by the IEA, Oxford Univ. Press, 25, 1983, 27-34.
7. Yelimirovic B. (1984). *Infec Dis In Europe*, A fresh look WHO 34, 1984, 156-162.
8. Morley David. (1973). Pedi*atric priorities in developing world,* 2, 13-16.
9. Katz M and Steimamn ER. (1977). In*dian Paediatrics*, 59, 490.
10. Dossetor J. (1973). *BMJ*, 1, 1977, 1633-35.
11. WHO. (1982). The Place of Epidemiology in Local Health Geneva, WHO 70, 21-34.
12. WHO. (1968). *Techn. Rep. Ser*, No. 389.