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Original Article

STUDY OF PREVALENCE OF DIARRHOEAL DISEASES AMONGST UNDER FIVE POPULATION

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ABSTARCT

Acute diarrheal disease with its accompanying dehydration has remained a challenging problem to the medical profession and the community in the third world countries especially in the age below five years. The current study was conducted to study the prevalence of diarrheal diseases amongst under five population and the seasonal distribution of diarrheal diseases amongst under five population. It was a longitudinal study conducted among 2408 children under 5 yrs age group including 541 infants. Maximum cases of diarrhea (81.89%) were in infants. 90.60% episodes of diarrhea were treated at home with ORS and/or home available fluids. About half of the diarrheal episodes 2798 (46.39%) were occurred in monsoon season.

Key words: Acute diarrheal disease, under five child, infant, ORS

INTRODUCTION

Acute diarrheal disease with its accompanying dehydration has remained a challenging problem to the medical profession and the community in the third world countries especially in the age below five years.[1] The WHO estimates that four million children under the age of five die each year in the world from diarrhea mainly in developing countries. The current global cholera epidemic can only be resolved through the introduction of safe drinking water supplies and appropriate levels of hygiene. These diseases are usually caused by water-borne pathogens such as salmonella, E. coli, shigella and enteroviruses.[2]

"The diseases associated with water are heavily contaminated in the developing world" comments Dr. Kreisel. "They hit hardest the poorest urban and rural households of the poor countries. Nearly half of the populations in developing countries suffer from health problems directly linked to insufficient or contaminated water".[3]

In hospitals up to a third of total pediatric admissions are due to diarrheal diseases and up to 17% of all deaths in indoor pediatric patients are diarrhea related.[4] The household surveys carried out during 1994-95 showed that in under five year children diarrhea episodes were 1,92,943 and morbidity rate was 1.7 episodes per year per child.[5]

MATERIAL AND METHODS

The present study was carried out during October 2001 to October 2002 in Dhinoj, Mervada, Sunsar, Chaveli, and Railwaypura villages of Dhinoj PHC. Out of 13 villages in Dhinoj PHC, 5 villages were selected by systematic random sampling method (38.76%). Every third village was selected. Children below five years were selected. A house to house survey was done in families having one or more children below 5 years of age. The selected families were visited for three reasons throughout the year to elicit information regarding occurrence of diarrhea (recall period being 12 months), etiological causes and types of

treatment, and agencies providing treatment of diarrhea. Mothers were specifically interviewed to elicit feeding/weaning practices during diarrhea.

A longitudinal study was planned to find out etiological causes and health seeking behavior for diarrheal diseases and laboratory investigations of selected stool samples. The stool samples were examined microscopically by concentration technique for presence of Ova, cysts, cells of parasites in a private laboratory.

RESULTS

Table 1 shows no. of children affected by diarrheal diseases. Among infants 2110(34.99%) were diarrheal episodes followed by children in the age group 1-5, 3921(65.01%). Maximum cases of diarrhea (81.89%) were in infants which was statistically significant. (X2= 26.75, df= 1, p< 0.001).

Table 1: Village wise Distribution of Diarrheal Episodes In Children Under 5 Years

Name of Village	Age Groups		
	0-1 yr	1-5 yrs	Total
Dhinoj	705 (11.7)	1209 (20.0)	1914 (31.7)
Railwaypura	201 (3.3)	355 (5.9)	556 (9.2)
Sunsar	845 (14.0)	1392 (23.1)	2237 (37.1)
Chaveli	151 (2.5)	315 (5.2)	466 (7.7)
Mervada	208 (3.5)	650 (10.8)	858 (14.2)
Total	2110 (35.0)	3921 (65.0)	6031 (100)

Table 2: Number of Cases and Episodes of Diarrhea Treated Among Under 5 Children

Sr. No.	Particular	Age Group (%)		
		0-11months	1-5 Yrs	Total
1	Total no. of Children	541 (22.47)	1867 (77.53)	2408 (100)
2	Total no. of Children affected	443 (18.39)	1320 (54.82)	1763 (73.21)
3	No. of diarrhea episodes per child/year	4.76	2.97	3.42
Total	Total no. of diarrhea episodes	2110 (34.99)	3921 (65.01)	6031 (100)
1	Treated at home with home available fluids and ORS	1861 (30.85)	3603 (59.74)	5464 (90.60)
2	Need to consult Doctor	217 (3.59)	310 (5.14)	527 (8.74)
3	Hospitalized	32 (0.55)	8 (0.13)	40 (0.66)

Table 2 shows that out of total 6031 episodes, 5464 (90.60%) episodes of diarrhea were treated at home with ORS and/or home available fluids. PHC staff created good rapport with community. Information, Education and Communication activities were done by BEICO and MO. Out of 6031 (100%) episodes of diarrhea, 5464 (90.6%) episodes were effectively controlled by ORS & home available fluids only. 217 (3.59%) episodes in infants and 310 (5.14%) episodes in children of 1-5 yr age group required to consult doctors for treatment. 32 (0.55%) episodes in infants and 8 (0.13%) episodes in children of 1-5 yr age group required hospitalization.

Table 3: Seasonal Distribution of Episodes of Diarrhea

Sr. No.	Village	Total Episodes (Cases)	Season		
			Winter	Summer	Monsoon
1	Dhinoj	1914 (559)	317 (93)	699 (204)	898 (262)
2	Railwaypura	556(163)	92 (27)	203 (59)	261 (77)
3	Sunsar	2237 (654)	413 (121)	797 (233)	1027 (300)
4	Chaveli	466 (136)	83 (24)	174 (51)	209 (61)
5	Mervada	858 (251)	142 (41)	313 (92)	403 (118)
	Total	6031 (1763)	1047 (306)	2186 (639)	2798 (818)

It was observed that about half of the diarrheal episodes 2798 (46.39%) were occurred in monsoon season; summer season accounted 2186 (36.25%) episodes and winter season 1047 (17.36%) episodes. Episodes of diarrhea were increasing season wise. There were 208.8% more

episodes of diarrhea in summer than winter, 128% more episodes in monsoon than summer and 374.2% more in monsoon than winter. Episodes of diarrhea were less in the Chaveli village and more in Sunsar out of selected five villages.

Table 4: Micro-organism found in Stool Sample Taken in Diarrhea

Organism	Prevalence
E. histolytica	5.8
A.Lumbricoides (Round Worm)	4.7
A. Duodenale (Hook Worm)	3.9
T. trichura (Whip Worm)	1.2
E. Vermicularis (Thread Worm)	0.4
V. Cholerae	00

Maximum prevalence rate was noted for E. histolytica followed by A. lumbricoides and A. duodenale.

DISCUSSION

Out of 2408 children in five villages, 541 were infants and 1867 were in 1-5 yrs age group. Out of 541 infants, diarrheal diseases affected 443 infants (81.88%) and out of 1967 children of 1-5 yr age group, diarrheal diseases affect 1320 (70.70%) children. In 0-11 yr age groups, no. of diarrheal episodes per child per year was 4.76 which was higher than 2.97 that was observed in 1-5 years age group which is similar with the study of Dr. C. Shiva Ram on diarrheal diseases in rural Karnataka[6] and with Sircar B.K. study in Calcutta.[7]

Out of 2408 children, diarrheal diseases affected 1763 children (73.21%). In study period total 6031 episode were observed and found that 90.6% cases treated at home with HAF and ORS. In study of Dr. C. Shiva Ram this figure was 85% which is an identical finding observed in studies in other parts of India. 527 (8.74%) children need to consult doctor. There were 40(0.66%) cases with severe dehydration or associated with other diseases and need hospitalization. The need for hospitalization of infants was higher 32(0.55%) in comparison to 1-5 yr age group children 8(0.13%). It was observed in this study that most of mothers did not consider diarrhea to be dangerous and try to use home remedies. Dr. Rita and Paramjit in Varanasi found same results but mothers did not use home remedies.[8]

Village wise distribution of diarrhea episodes shows poor health situation of Sunsar village which account for more than one-third diarrheal episodes. Reasons behind this was that no pipeline water supply and use of pond water without any treatment, low literacy status, scattered houses, distance from health facility; so less utilization of health facility, low socio-economic status, malnutrition among children and women.

It was observed that about half of the diarrheal episodes 2798(46.39%) were occurred in monsoon season; followed by summer season accounting 2186(36.25%) episodes and later on winter season 1047 (17.36%) episodes. There were 208.8% more episodes of diarrhea in summer than winter, 128% more episodes in monsoon than summer and 374.2% more in monsoon than winter. This results correlate with studies of S. Villa and others in seasonal diarrheal morbidity among Mexican children.[9] This study compare well with Dr. C.P.Mishra et al, observed maximum prevalence in rainy season (32.99%) followed by summer month (12.93%). Least number of such cases (8.64%) was reported during winter months.[10]

Laboratory report of stool sample suggested that there were large number of worm infestation cases. Most common cause was poor hygiene. Children were playing in and with soil. Most of the times bare footed and no hand washing before meal and after defecation. E. histolytica was found in 5.8% of stool samples. Eggs of roundworm were present in 4.7% cases and pathogen was found in 16% cases. These findings were similar to the results of M. Mahajan et al study.[11]

CONCLUSION AND RECOMMENDATIONS

Out of 541 infants diarrheal diseases affected 443 infants (81.88%) and 1320 (70.70%) from 1967 children of 1-5 yr age group. In 0-11 months age group, number of diarrheal episodes per child per year was 4.76 which was higher than 2.97, that was observed in 1-5 yrs age group. Half of the diarrheal episodes 2798 (39%) were occurred in monsoon season, 2186 (36.25%) episodes in summer and 1047 (17.36%) in winter. 5464 (90.60%) episodes were treated at home, 527 (8.24%) need to consult doctor and 40 (0.66%) children were hospitalized. More than half children utilized subcenters and ORS depot. 371 (21.05%) treated by private practitioner.

Diarrhea can be prevented by breastfeeding, by immunizing all children against measles, by using sanitary latrines, by keeping food and clean water and by washing hands before touching food. When a breastfed child has diarrhea, it is important to continue breastfeeding. A child with diarrhea needs food. Trained help is needed if diarrhea is more serious than usual.

REFERENCES

1. P. Mohapatra et al, Diarrhoea, A raid on under five children. Indian Journal of Preventive and Social Medicine, Vol. 22,3-4,1991.
2. http://www.who.int/abotwho/en/preventing/diarrhoeal.htm
3. WHO issues drinking water guidelines for the 1990s, Indian Journal of Community Medicine, Vol. XVIII No. 4, 1993.
4. UNICEF (1989), The state of world report, 1989.
5. WHO (1999), Health situation in the South East Asia region 1994-97.
6. Dr. C. Shivram, Diarrhoeal Diseases in children a survey in the rural area of Bellary District. IJPSM Vol.23, No. 2.
7. B.K.Sircar, M.R. Maha, Effectiveness of oral rehydration salt solution in reduction of death during cholera epidemic, Indian Journal of public health, Vol. XXXIV, No. 1, Jan-March, 1990.
8. Rita B. P. Kaur. Epidemiological correlates of diarrhoea in a rural area of Varanasi, Rita B. & P. Kaur. IJCM Vol. XIV No. 2.
9. S. Villa, H. Guiscafre et al Seasonal diarrhoeal mortality among Mexican children, bulletin of WHO, 1999, Pg 77.
10. C.P.Mishra. A study on some diarrhoea related practices in urban Mirzapur, IJPH, Vol. XXXIV No.1.
11. Mahajan, M. Mathur et al, Prevalence of intestinal parasitic infection in east Delhi, Indian Journal of Community Medicine, Vol- XVIII, No. 4, 1993.