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Original Research Article

Prognostic significance of initial management of childhood diarrhoea in rural areas: an observational study

Poorva Gohiya[1], Varsha Shrivastava[1]*, Rashmi Dwivedi[2]

[1]Department of Pediatrics, Gandhi Medical College, Bhopal, Madhya Pradesh, India
[2]Department of Pediatrics, L.N. Medical College, Bhopal, Madhya Pradesh, India

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***Correspondence:**
Dr. Varsha Shrivastava,
E-mail: sweetsweetchilly@gmail.com

ABSTRACT

Background: To identify current evidence in order to guide scaling up of initial management of diarrhoea among children of age group 2-60 months in rural areas of the country.
Methods: This hospital based cross sectional study included all children 2 months to 60 months of age admitted with chief complains of loose stools in the last 7 days over a period of one year. A pre-tested questionnaire was used as the data collection tool and face to face interviews were conducted on mothers of children. All the data were analyzed using IBM SPSS version 20 software. Chi-square/Fisher Exact/ Student t-test and ANOVA test has been used. Significance was assessed at 5%.
Results: Data showed the use of antibiotic in 55.9% cases, IV fluids in 50.3%, ORS in 6.7%, zinc in 2.0% and blood transfusion in 13.8% cases as an initial management of diarrhoea in peripheral health care centers. Of these, 37.6% cases were severely dehydrated, and 8.14% cases were in shock at the time of admission. 10.1% mothers did not intervene in the first 3 days of the disease whereas 45.2% consulted some health care center only in the later part. 4.5**%** cases expired after admission of which 69% were malnourished.
Conclusions: This study summarizes the importance of initial management of a child with diarrhoea in defining the further course of the disease and also the failure of effective promotion and propagation of the most appropriate and cost-effective therapy (ORS and Zinc) for diarrhoea in this part of the country. Pre-existing malnutrition further complicates the situation.

Keywords: Antibiotics, Diarrhoea, Oral rehydration solution, Primary health care, Zinc

INTRODUCTION

Although India has made a steady progress in reducing diarrheal deaths in children younger than five years, it still remains an important killer in developing countries like ours. Remarkable reduction in mortality rates was observed after inception and introduction of various health programmed such as expanded programmed on immunization, control of diarrheal disease programmed and introduction of Oral Rehydration Therapy (ORT). Total deaths declined from 2.5 million in 2001 to 1.5 million in 2012.[1] Even though the total deaths have declined, the proportional mortality rate still remains high. Children under age 5 account for about half the cases and deaths.[2] Diarrheal control does not require higher technology. Simple measures like breast feeding, improved sanitation, safe drinking water, hand washing, hygienic practices and access to basic health care can control the major percentage of these episodes.[3] UNICEF diarrheal data 2015 states that only 39% infants of age less than 6 months receive exclusive breast feeding whereas only 35% children with diarrhoea receive ORT.[4]

Large, protract ted outbreaks with high case-fatality ratios reflect a lack of adequate preparedness, early detection, prevention and timely access to healthcare. These explosive and deadly outbreaks affect the whole of society and can disrupt essential services. Information on diarrheal diseases, its determinants in India and preventive and control strategies in light of recent developments need to be reviewed for better planning and organization of health services within the community.

METHODS

This was a hospital based cross sectional study, in which all children in the age group of 2 months to 60 months were included over a period of one year who were admitted with chief complaints of loose stools in the last 7 days. A pre-tested questionnaire was used as the data collection tool and face to face interviews were conducted with mothers of children. Data regarding diarrheal episode, initial management done at home, family outlook towards diarrheal diseases, health seeking behavior of caretakers, use of ORS solutions and referral cards stating the treatment received were collected. Children of age less than 2 months or more than 60 months, diarrhoea lasting for more than 7 days at the time of admission, episodes of loose stools less than 3 per day, patients being treated on OPD basis and those with non-consenting caregivers were excluded from the study.

Statistical analysis

All the data were analyzed using IBM SPSS version 20 software. Results on continuous measurements were presented on Mean SD (Min-Max) and results on categorical measurements were presented in Number (%). Significance was assessed at 5% level of significance. Chi-square/Fisher Exact test was used to find the significance of study parameters on categorical scale between two or more groups. Null hypothesis of discrepant results was declined when p-value were less ≤0.05.

RESULTS

This study revealed the distribution of cases according to their referrals from peripheral health centers. Out of 356 cases of diarrhea, 122(34.3%) were primary patients and attended the OPD of our tertiary care center themselves. 128(36.0%) were referred from district hospital, 96(27.0%) were referred from community health center and10(2.8%) were referred from primary health center (Table 1).

Table 1: Referrals of cases to tertiary care centre.

Referrals	Male N (%)	Female N (%)	Total N (%)
Primary patients/self*	68(19.1%)	54(15.2%)	122(34.3%)
From PHC	3(0.8%)	7(2.0%)	10(2.8%)
From CHC	44(12.4%)	52(14.6%)	96(27.0)
From DH	68(19.1%)	60(16.9%)	128(36.0%)
Chi square value	4.096		
Significance 'p' value	0.251(NS)		

*Cases attending the OPD of our hospital directly

This study also showed treatment received by the cases before being referred to the tertiary care. Antibiotic was given to 199(55.9%) cases, IV Fluid was given to 179(50.3%) cases, ORS was given to 24(6.7%) cases, zinc was given to 7(2.0%) and blood transfusion was given to 49(13.8%) cases as a primary management in acute diarrhea cases (Figure 1).

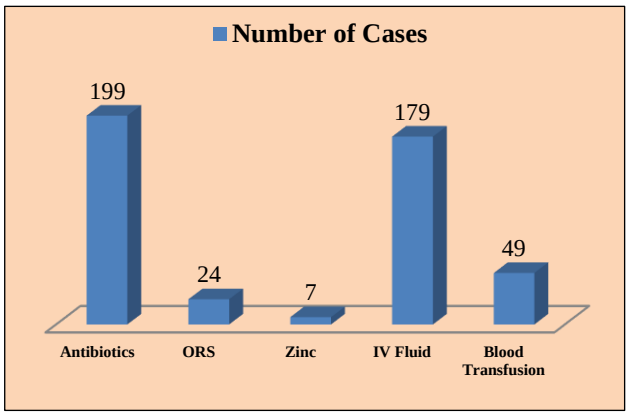

Figure 1: Treatment received before reaching tertiary care centre.

Table 2: Initial intervention by mother when diarrhoea started.

Initial intervention	1-3 days		4-7 days	
	Number	Percentage	Number	Percentage
Nothing	36	10.1%	87	24.4%
Boiled water	29	8.1%	8	2.2%
Consult asha/ anganwadi worker	24	6.7%	9	2.5%
ORS	53	14.9%	24	6.7%
Consult local doctor	51	14.3%	8	2.2%
Visit referral centre	97	27.2%	59	16.6%
Visit tertiary centre	66	18.5%	161	45.2%

Data revealed primary intervention by mother when Diarrhoea started. 36(10.1%) and 87(24.4%) mothers did nothing in 1-3 days and 4-7 days respectively. 29(8.1%) gave boiled water and 53(14.9%) gave ORS in 1-3 days. While 97(27.2%) visited referral center and 66(18.5%) visited tertiary center in 1-3 days of incidence, most of mothers 161(45.2%) visited tertiary care center in 4-7 days (Table 2).

Condition of cases on admission in tertiary care center- Data revealed that out of 356 cases, 193(54.2%) were not having dehydration, 134(37.6%) were severely dehydrated and 29(8.14%) were in shock. Regarding the final outcome of cases, 260(73.0%) were successfully discharged while 16(4.5%) expired. (Figure 2) Mean duration of stay was calculated at 4.74±4.06 days.

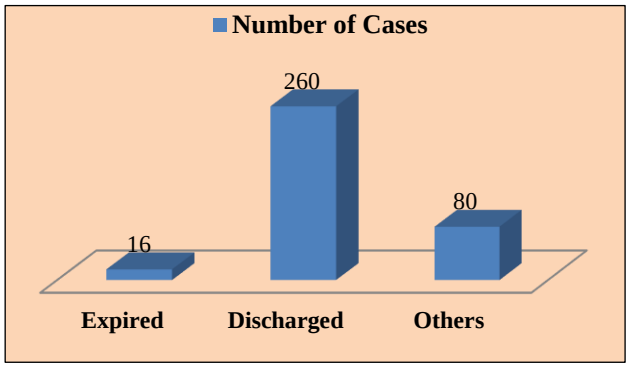

Figure 2: Final outcome of cases.

Results also showed the frequency of expired cases according to nourishment. Out of 16 expired cases, 11(68.8%) were mal nourished and 5(31.3%) were well nourished. (Figure 3)

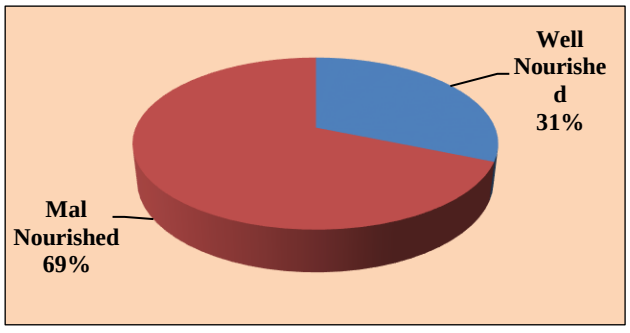

Figure 3: Frequency of Expired cases according to nourishment.

DISCUSSION

Diarrhoea is defined as at least three or more loose stools in 24 hours. However, it is the recent change in consistency and character of stools rather than the number of stools that is more important. The term 'diarrheal diseases' is used for a group of diseases in which the predominant symptom is diarrhoea.[5]

Management of cases prior to reaching any tertiary care center is an important prognostic marker and defines the further course of the disease. Our study reveals a very dangerous trend prevailing in the peripheries and primary care centers of our country. Out of total 128 diarrheal cases that were referred to our center from other various health care setups, 55.9% received antibiotics. IV fluids were given to 50.3% cases and 13.8% received blood transfusions. ORS and Zinc which forms the backbone of acute diarrheal management was given in only 6.7% and 2.0% cases respectively. Low rates of use of ORS and zinc is also seen in other studies and points towards the failure of promotion and propagation of these in the community.[6,7] It also points towards the failure on the part of health care staff in this part of the country that is not providing the most appropriate and cost-effective therapy for diarrhoea. This not only negatively affects the economy of our country but also prolongs the treatment time and thus increases morbidity of the child.

Primary intervention by mother when diarrhoea started also has impact on prognosis of the child. First 3 days are most important, and mother's behavior and practices define the duration of the disease. Out of 356 cases, 10.1% did not consider diarrhoea to be dangerous and did no interventions in the initial phase of the disease. This was also noticed by Rita B in her study.[8] Our study also shows use of ORS by 14.9% mothers in the first 3 days whereas 27.2% visited some health care center. About 8.1% mothers started using boiled water after start of loose stools and 6.7% consulted ASHA/Anganwadi worker. The importance of primary management by mothers is also shown by Sutaria S et al, Khalili M et al, and others.[9-12]

Clinical status at the time of admission also marks as an important prognostic factor. The more severe is the condition on admission higher is the morbidity and mortality. This also relates to the nutritional status of the subjects. A malnourished child is more likely to be morbid as compared to a well-nourished child when admitted under the same circumstances. Out of 356 cases of our study, 54.2% had no signs of dehydration at the time of admission while 37.6% had signs of severe dehydration and 8.14% presented with shock. Out of these, 4.5% expired and 73% were successfully discharged. Amongst those who expired, 69% were malnourished. These findings were supported by studies of Patwari AK et al and Molbak et al, in which they had reported that there was a marked negative relationship between diarrhoea and physical growth and development of a child.[13,14]

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. WHO global health observatory, 2017. Available at:

http://www.who.int/gho/countries/ind/country-profiles/en/ Accessed 9 July2017.
2. Progress on sanitation and drinking water 2015 update and MDG assessment. Available at: http://www.who.int/water-sanitation health/monitoring/jmp-2015-update/en/ Accessed 10 August 2016.
3. Progress on sanitation and drinking water 2015 update and MDG assessment. Available at http://files.unicef.org/publications/files/Progress-on-Sanitation-and-Drinking-Water-2015-Update-pdf Accessed 15Aug 2016.
4. Diarrheal diseases- UNICEF data, 2015. Available at: https://data.unicef.org/topic/child-health/diarrhoeal-disease/ Accesses 1January 2018.
5. Park K. Epidemiology of communicable diseases. Park's Textbook of Preventive and Social Medicine. 24th Ed. Jabalpur, India: Banarsidas Bhanot; 2017:236-242.
6. Shah D, Choudhury P, Gupta P, Mathew JL, Gera T, Gogia S, Mohan P, Panda R, Menon S. Promoting appropriate management of diarrhea: a systematic review of literature for advocacy and action: UNICEF-PHFI series on newborn and child health, India. Indian Pediatr. 2012 Aug 1;49(8):627-49.
7. Singh J, Gowriswari D, Chavan BR, Patiat RA, Debnath AC, Jain DC, Sharma RS, Sharma RC, Datta KK. Diarrhoeal diseases amongst children under five. A study in rural Alwar. J Commun Dis. 1992;24(3):150-5.
8. Bhattacharya R, Kaur P. Epidemiology correlates of diarrhea in a rural area of Varanasi. IJCM 1989;14(2):79-82.
9. Sutaria S, Talsania N, Shah C. Study of prevalence of diarrhoeal diseases among under five population; Nation J Commu Medi. 2011;2(1):96-9.
10. Khalili M, Mirshahi M, Zarghami A, Rajabnia Chenari M, Farahmand F. Maternal Knowledge and Practice Regarding Childhood Diarrhea and Diet in Zahedan, Iran. Heal Scop. 2013;2(1).
11. Chaudhary P, Basu S, Dzeyie KA, Gulla S, Khade S, et al. Knowledge, attitude and practices of mothers regarding diarrheal illness in children under five years of age: A cross sectional study in an urban slum of Delhi. India J Commun Dis. 2014;46(3):13-21.
12. Bachrach LR, Gardner JM. Caregiver knowledge, attitudes, and practices regarding childhood diarrhea and dehydration in Kingston, Jamaica. Revista Panamericana de Salud Pública. 2002;12:37-44.
13. Patwari AK. Diarrhoea and malnutrition interaction. Indian J Pediatr. 1999;66(1 Suppl):S124-34.
14. Mølbak K. The epidemiology of diarrhoeal diseases in early childhood: a review of community studies in Guinea-Bissau. Danish Medi Bullet. 2000;47(5):340-58.

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