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Original Research Article

A study on clinical profile, personal and socio-economic risk factors in acute diarrheal disease in children

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ABSTRACT

Background: Diarrhea is the 3rd leading cause of under-5 child mortality worldwide. The main intervention in the management of diarrhea includes oral rehydration and nutritional management. This study aims at studying the clinical profile of acute diarrheal disease and to determine the risk factors associated in causing diarrhea.
Methods: A hospital based descriptive study was conducted involving 150 children aged between 6 months - 10 years, presenting with acute watery diarrhea to identify the clinical profile of acute diarrhea and the various risk factors in causing diarrhea which includes personal risk factors and socioeconomic risk factors are studied. Children with other systemic infections, immunosuppression and other severe systemic illnesses were excluded from the study.
Results: Majority of children are in the study belong to the age group of 6 months to 1 year and 6-10 years. The presenting symptoms in the study are loose stools in 100%, fever in 59%, vomiting in 21% and abdominal pain in 15%. The personal risk factors including, native treatment, antibiotic intake, outside food intake, bottle feeding, bad child rearing practices in infants and socioeconomic risk factors including annual income, number of family members, drinking water and locality were identified as risk factors in causing diarrhea.
Conclusions: This present study confirms that the majority of the children presented with complaints of fever along with loose stools and factors such as outside food intake, dwelling in pukka houses, consumption of unsafe drinking water was associated with increased risk.

Keywords: Clinical presentation, Diarrhea, Risk factors

INTRODUCTION

The term diarrhea is derived from Greek and it means 'TO FLOW THROUGH'.[1] Diarrhea is the 3rd leading cause of under-5 child mortality worldwide.[2] Diarrhea refers to a condition characterized by increase in frequency, fluidity and weight of stool, compared to the normal bowel habit of the child.

The normal stool weighs in the range of 5-10 gm/kg/day. Stool weight more than 10 gm/kg/day contributes to diarrhea. The risk factors include various personal and socioeconomic factors like history of native treatment, outside food intake, type of house, type of family, locality, annual income<4 lakhs, overcrowding, toilet facility and consumption of unsafe drinking water, of which certain risk factors are associated with increase in severity of the disease. The complications of diarrhea include, dehydration, Prerenal acute kidney failure, hemolytic uremic syndrome, metabolic abnormalities - which includes, hyponatremia, hypokalemia, malnutrition, micronutrient deficiency etc.[2]

The causative pathogens of acute diarrhea in children include a wide range of pathogens, including viral, bacterial and protozoal pathogens, most common being viral, which includes rotavirus (majority), Norwalk virus, enteric adenovirus.[1] The study was conducted to

determine the clinical presentation of diarrhea and the risk factors associated in causing diarrhea, which helps in preventing the exposure to risk factors and modifying the course of the disease earlier. Hence easily modifiable risk factors should be identified and clinical presentation should be managed accordingly to prevent the occurrence of complications.

METHODS

This study was conducted among children admitted in view of acute diarrheal illness in the age group between 6 months to 10 years in government medical college and hospital, Cuddalore district.

Study duration

The study duration was of 18 months from July 2023 to December 2024.

Study population

Hospital based descriptive study.

Sample size

The sample size was of 150 patients.

Sampling technique

It was consecutive sampling technique.

Inclusion criteria

Children aged between 6 months and 10 years with acute bacterial or viral gastroenteritis. Acute diarrhea for a duration of <5 days were included in the study.

Exclusion criteria

Presence of systemic infections. Children with known immunocompromising morbidities. Children with chronic diarrhea or severe respiratory, cardiovascular, central nervous system, endocrine and other gastrointestinal disorders on clinical examination were excluded from the study.

Children admitted in department of pediatrics with complaints of acute diarrheal illness aged between 6 months -10 years in Government medical college, Cuddalore district were examined after getting informed consent from the parents. For each child, detailed history about demographic factors such as age, sex, presenting complaints, personal risk factors including antibiotic intake, native treatment intake, outside food intake, bad child rearing practices and socio economic and environmental risk factors including type of house, number of family members, overcrowding, toilet facility, drinking water, locality, overcrowding were documented and their association in causing diarrhea was studied.

Ethical committee approval

Approved by institutional human ethics committee, Government medical college and hospital, Cuddalore district (erstwhile rajah Muthiah medical college) on 21/11/23 ref no. IHEC/1229/2023.The registration number of IEC is EC/NEW/INST/2020/1249.

Statistical analysis

All the data collected were recorded in a Master Chart and data analysis was carried out using statistical package of social sciences (SPSS-21). To describe the data, descriptive statistics frequency analysis and percentage analysis were used.

In order to find the association between the various risk factors and severity, Pearson's chi square test was used. P value less than 0.05 denotes statistically significant relationship between two variables.

RESULTS

In our study population, 31% were infants, 19% were toddlers, 33% were preschoolers and 41% were school-going children. Among them, 52.6% were males and 47.3% were females (Table 1). In the present study, all children in the study group presented with loose stools (100%), followed by fever (59%), vomiting (41%) and abdominal pain (30%) pain (Table 2).

Among the study population, the most predominant personal risk factor noted was outside food intake (38%), followed by bad child rearing practices (23%), bottle feeding (20%), native treatment (6%) and antibiotic intake (1.3%) (Table 3).

In the study, based on socioeconomic status, only 45% of children had access to safe drinking water meanwhile a majority (54%) had access to unsafe drinking water. A large group of population belonged to rural areas (52%) and a proportionate of children (48%) lived in urban areas. There was no significant difference in the incidence of diarrhea among rural and urban population even though rural population were found to be higher (Table 4).

In our study, the annual income of parents was mostly belonging to 2-4 lakhs (44%), whereas some (41%) had annual income <2 lakhs and a small proportion (14%) had income>4 lakhs. A majority of children (39%) belonged to a 4-membered family, whereas 18% belonged to 3 membered family and 2 membered family each.

Meanwhile, some (16%) belonged to five membered family and a small portion (8%) belonged to six membered family. Also, children from lower- and middle-income family had more risk of diarrhea, compared to higher income families. A large proportion

of children belonged to family more than four members and incidence of diarrhea were found to be higher in them. Hence, crowding plays as a crucial risk factor (Table 4).

Table 1: Age and sex distribution (demography).

Age	Sex		Total
	Male	Female	
6 months- 1 year (infants)	26	21	47
1 year - 3 years (toddlers)	15	14	29
4 years-6 years (pre-schoolers)	17	16	33
7 years-10 years (school-going)	21	20	41
Total	79	71	150

Table 2: Distribution of presenting complaints.

Symptoms	Total
Loose stools	150
Fever	89
Vomiting	62
Abdominal pain	45

Table 3: Personal risk factors among study population.

Personal risk factors	Sub classification	N
History of native treatment	Present	9
	Absent	141
	Total	150
History of antibiotic intake	Present	2
	Absent	148
	Total	150
History of outside food intake	Present	57
	Absent	93
	Total	150
History of bottle feeding (in infants)	Present	12
	Absent	47
	NA	91
	Total	150
History of bad child rearing practices (in infants)	Present	27
	Absent	49
	NA	74
	Total	150

NA-Not applicable.

Table 4: Risk factors based on socioeconomic status.

Socioeconomic risk factors	Sub classification	N
Annual income (in INR)	< 2 Lakhs	62
	2- 4 Lakhs	67
	> 4 Lakhs	21
	Total	150
Number of family members	2 Members (single parent with 1 child)	27
	3 Members	28
	4 Members	59
	5 Members	24
	6 Members	12
	Total	150
Drinking water	Safe drinking water	68

Continued.

Socioeconomic risk factors	Sub classification	N
	Unsafe drinking water	82
	Total	150
Locality	Urban	72
	Rural	78
	Total	150

DISCUSSION

Acute diarrheal disease is a significant public health problem, which is both preventable and treatable. Various personal day to day activities and socioeconomic factors play an important role in causing diarrhea. The present study highlights key clinical presentations and personal and socioeconomic risk factors contributing to acute diarrheal diseases in children. Loose stools were reported in nearly all cases, which aligns with the classical presentation of acute diarrhea. Fever and vomiting were the next most common symptoms, consistent with findings from previous Indian studies such as that by Imanadhia et al, where 72.7% of pediatric diarrheal cases were associated with vomiting and 42% with a combination of fever and vomiting.[3]

Personal risk factors like outside food consumption (38%) and bottle feeding (20%) were significantly associated with the disease burden. These findings echo the observations of Santika et al and Joshi et al, who reported that unhygienic food habits and feeding practices were major contributors to diarrheal morbidity among children under five in rural India.[4,5] Additionally, the use of native or traditional treatments (6%) before seeking medical care may delay appropriate treatment, a concern also raised by Liheluka et al who noted delayed health-seeking behavior in over 40% of caregivers in similar settings.[6]

Socioeconomic factors played a crucial role in disease incidence. Children from households with lower income i.e., less than 4 lakhs rupees annually (86%) and those without access to safe drinking water (54%) had higher rates of diarrhea. This is in concordance with the findings of Lee B et al, who found a strong association between household poverty and diarrhea prevalence in Indian children under five.[7] Okpasuo et al in their study reported that consumption of poor-quality drinking water is significantly associated with an increased risk of diarrhea.[8] Moreover, UNICEF and WHO have emphasized that children living in poverty are more vulnerable to enteric infections due to poor sanitation and limited access to clean water. Even though more children in our study were from rural areas (52%), no significant difference in diarrhea incidence was observed between rural and urban populations. Farhana et al and Kalakheti et al, in their study reported that urban slums may have equal or worse sanitation conditions compared to rural settings, leading to comparable disease incidence.[9,10]

The study observed that children belong to larger families (more than four members) had higher diarrhea incidence, suggesting crowding as a risk factor. Kangangi et al and Alemu et al reported similar trends, showing a significant association between overcrowded households and increased diarrheal episodes due to increased person-to-person transmission.[11,12]

Only children aged between 6 months and 10 years were studied while other pediatric population were excluded from our study. The sample size was small. It wasn't possible to confirm which pathogen caused the diarrhea (name of the bacteria or viruses). A short follow-up period makes it hard to understand long-term outcomes or recurrences.

CONCLUSION

The overall findings reinforce the need for improved water quality, hygiene (WASH) interventions and health education, particularly in low-income and overcrowded households, irrespective of rural or urban settings. In addition, addressing harmful feeding practices and encouraging early medical consultation instead of native treatments are essential to reduce disease burden.

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REFERENCES

1. Riyaz A. Paediatric Gastroenterology and Hepatology. 3rd ed. Hyderabad: Paras Medical Publishers. 2019:48-71.
2. Kliegman RM, St Geme JW, Blum NJ, Shah SS, Tasker RC, Wilson KM. Nelson Textbook of Pediatrics. 22nd ed. Philadelphia, PA: Elsevier. 2024:2355-2376.
3. Imanadhia A, Ranuh IR, Nuswantoro D. Etiology Based on Clinical Manifestation of Acute Diarrhea Incidence of Children Hospitalized in Dr. Soetomo General Hospital Surabaya Period 2011-2013. Biomolecular and Health Science J. 2019;2(1):31.
4. Santika NK, Efendi F, Rachmawati PD, Has EM, Kusnanto K, Astutik E. Determinants of diarrhea among children under two years old in Indonesia. Childr Youth Serv Rev. 2020;111:104838.
5. Joshi R, Kumar A, Masih S. Food hygiene practice among mothers and its association with occurrence

of diarrhea in under-five children in selected rural community area. Int J Med Sci Public Health. 2020;9:179-84.
6. Liheluka E, Gibore NS, Lusingu JP, Gesase S, Minja DT, Lamshöft M, Dekker D, Bali T. Community perceptions on the effectiveness of herbal medicines and factors associated with their use in managing diarrhoea among under-five children in North-eastern Tanzania. Tropical Med Heal. 2023;51(1):48.
7. Lee B, Damon CF, Platts-Mills JA. Pediatric acute gastroenteritis associated with adenovirus 40/41 in low-income and middle-income countries. Curr Opin Infect Dis. 2020;33(5):398-403.
8. Okpasuo JO, Aguzie OI, Toochukwu JA, Okafor FC, et al. Risk assessment of waterborne infections in Enugu State, Nigeria: Implications of household water choices, knowledge and practices. AIMS Public Health. 2020;7(3):634-49.
9. Farhana S, Raihan A. Comparative study of the prevalence and risk factors associated with diarrhoea among the people of rural areas and urban slums in Chittagong, Bangladesh. Int J Adv Res Innov Idea Edu. 2022;8(3):1389-98.
10. Kalakheti B, Panthee K, Jain KC. Risk factors of diarrhea in children under five years in urban slums. J Lumbini Med Coll. 2016;4(2):94-8.
11. Kangangi FM, Kikuvi G, Mokaya D. Environmental factors associated with diarrhoea prevalence among children under five years in Mathare informal settlement, Nairobi County. East Afr Med J. 2024;101(11):23536.
12. Alemu TG, Fentie EA, Asmamaw DB, Shewarega ES, Negash WD, Eshetu HB, et al. Multilevel analysis of factors associated with untreated diarrhea among under five children in Ethiopia using Ethiopian demographic and health survey. Sci Rep. 2023;13(1):547.

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