ISSN: 0975-3583, 0976-2833 VOL14, ISSUE10, 2023

Original Research Article

TO STUDY INCIDENCE AND RISK FACTORS ASSOCIATED WITH ACUTE WATERY DIARRHOEA IN CHILDREN LESS THAN 05 YEARS OF AGE.

Dr. Swetleena Mandavi[1] (Assistant Professor), Dr. Jyotsna Mishra[2] (Senior Resident) & Dr. Madhu Saurabh Singh Dhurvey[3] (Assistant Professor)

Dept. of Paediatrics, Birsa Munda Government Medical College, Shahdol[1&2]
Dept. of General Medicine, Birsa Munda Government Medical College, Shahdol[3]

Corresponding Author: Dr. Swetleena Mandavi

Abstract

Background & Methods: The aim of the study is to study incidence and risk factors associated with acute watery diarrhoea in children less than 05 years of age. All children satisfying the inclusion criteria (less than 5 years of age presenting with acute diarrhoea and admitted as In-patients or treated in the Emergency Department for at least 6 hours) were enrolled after obtaining informed and written consent from the parent/ guardian. Detailed clinical history including epidemiological factors was taken, clinical examination was done and management was started according to standard protocols.

Results: In our study we found, 56% cases received Rotavirus Vaccination, chi-square statistic is 0.0522. The *p*-value is .038232, result is significant at $p < .05$, 61% cases wash hands with water & soap, chi-square statistic is 6.5655. The *p*-value is .010397, result is significant at $p < .05$.

Conclusion: The study identifies risk factors associated with acute watery diarrhea in children less than 05 years of age. In our study we found that risk factors like delayed starting of complementary feeding and inadequate handwashing technique were statistically significant in children with acute watery diarrhea.

In our study we found that only 23% of children with history of rotavirus vaccination has episode of acute watery diarrhea, Also place of residence and history of exclusive breast feeding for 6 months showed no statistically significance.

Keywords: incidence, watery, diarrhea, virus & children.
Study Design: Observational Study.

1. Introduction

Acute gastroenteritis (AGE) is one of the common infectious disease entities that causes major morbidity and mortality in the world: Next to pneumonia, diarrhea is the second most important infectious cause of death in children under five years of age It is estimated that AGE causes 580 000 – 750 000 deaths in children aged less than five years old in the world every year[1]. Most of the fatality occurs in countries with poor health care systems and a

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE10, 2023

lack of safe water and sanitation, e.g. in Sub-Saharan Africa and Southeast Asia. However, AGE viruses circulate in both developed and developing countries, causing an estimated 1.5 billion AGE cases every year in children and adults. Consequently the disease burden in morbidity, heath care utilization and expenses caused by AGE is enormous[2].

Thus AGE is one of the most common problems leading to acute illness in the children as well as the most common reason for hospitalization in children in developing countries. However in the countries where the rotavirus (RV) vaccines have been adopted, the scale of paediatric infectious diseases in the patients has changed[3]. These vaccines have also had an impact on childhood deaths.

The severity of dehydration in a child is assessed by clinical signs: general condition, fatigue, alertness, turgor of skin, dryness of lips and mouth, and in infants depressed anterior fontanelle. Anamnestic information about frequency of vomiting and diarrheal stools, behavior and fatigue at home, amount of fluid intake and frequency of passing urine and duration of the symptoms are also important. The younger the child is, the greater the risk of severe dehydration and the faster it develops[4]. A dehydration rate of <5% is usually considered mild or moderate, 5-10% severe, and >10% critical. Laboratory tests for evaluating the electrolyte balance and acidosis can be helpful, but they usually are not essential in making treatment decisions[5].

2. Material and Methods

Present study was conducted at Birsa Munda Government Medical College, Shahdol for 01 Year. All children satisfying the inclusion criteria (less than 5 years of age presenting with acute diarrhoea and admitted as In-patients or treated in the Emergency Department for at least 6 hours) were enrolled after obtaining informed and written consent from the parent/ guardian. Detailed clinical history including epidemiological factors was taken, clinical examination was done and management was started according to standard protocols. Routine investigations (CBC, RFT) were sent. Every case of acute diarrhea (as per enrolment criteria) was enrolled in the study.

Inclusion Criteria:

AGE is defined as the occurrence of ≥3 episodes of diarrhea (stools of a less formed character than usual) within a 24 hour period, less than 7 days prior to hospital visit, which is not explained by an underlying medical condition.

Exclusion Criteria:

1. Age >5 years of age.
2. Unable to contact parent/caregiver or guardian to obtain informed consent.
3. Chronic diarrhea (duration of diarrhea more than 7 days)

3. Result

Table 1: Place of Residence

Place of Residence	No.	Percentage	P Value
Urban	37	37	.534356
Rural	63	63	
Total	100	100	

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE10, 2023

In our study we found, 63% in Rural & 37% Urban. The chi-square statistic is 0.3861. The *p*-value is .534356. The result is *not* significant at $p < .05$.

Table 2: History of Exclusive Breastfeeding (up to 6 months)

	No.	Percentage	P Value
No	24	24	.848385
Yes	76	76	
	100	100	

In our study we found, 76% Exclusive Breast feeding. The chi-square statistic is 0.0365. The *p*-value is .848385. The result is *not* significant at $p < .05$.

Table 3: Whether Started Complementary feeding after 6 months

	No.	Percentage	P Value
No	29	29	.047567
Yes	71	71	
Total	100	100	

In our study we found, 71% cases had Complementary feeding after 6 months. The chi-square statistic is 0.0453. The *p*-value is .047567. The result is significant at $p < .05$.

Table 4: History of Rotavirus Vaccination received

	No.	Percentage	P Value
No	44	44	.038232
Yes	56	56	
Total	100	100	

In our study we found, 56% cases received Rotavirus Vaccination, The chi-square statistic is 0.0522. The *p*-value is .038232. The result is significant at $p < .05$.

Table 5: Method of Hand washing

	No.	Percentage	P Value
Water only	28	28	.010397
Water & soap	61	61	
Don't wash hands	11	11	
	100	100	

In our study we found, 61% cases wash hands with water & soap. The chi-square statistic is 6.5655. The *p*-value is .010397. The result is significant at $p < .05$.

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE10, 2023

4. Discussion

This study provided thorough information about the significant risk factors that were associated with the occurrence of diarrhea among children under five years of age. They included source of drinking water, polio 3 and DPT3 vaccination[6]. These were the independent factors that remained significant even after adjusting to all the significant independent variables in the crude analysis for any confounding factors. This study also found a high prevalence in the occurrence of diarrhea among the under five children in a two week period. This high rate of childhood diarrhea with the extensive enhancements in water sources and sanitation toilets indicates the demand for more responsiveness.

The age of the mother was a significant predictor for the occurrence of diarrhea among children under five years of age. The current study revealed that odds of diarrhea were higher among children to mothers aged less than 24 years old. This was in line with a cross sectional study conducted in Ghana to determine the risk factors associated with diarrhea morbidity among under five children[7]. This result can be justified by the fact that younger mothers could be less experienced with child care and have less understanding and knowledge about diarrheal disease mode of transmission and pathogens spread in the household environment compared to older mothers.

These findings are comparable to other studies conducted previously specifically in low-income countries (LIC) as discussed below. The household source of drinking water was found to be positively associated with childhood diarrhea[8]. Under five children in households using protected sources including piped public taps, tube well, protected well, protected spring, and rainwater had less risk to experience diarrheal episodes. Whereas, children in households using unimproved sources including unprotected well, unprotected spring, tanker truck, surface water and sachet water were 19% more prone to diarrheal episodes[9]. This was in line with Mengistie et al. where diarrhea was significantly associated with domestic water supply from unimproved sources among children under five. Water source is part of the hygiene and correct handling of drinking water is an important factor to prevent any contamination. Thus, purifying techniques prior to drinking should be a part of implementation programs for households since even if water came from a protected source it could be under high risk of contamination due to unhygienic drawing from wells or storage at home that explains the presence of diarrhea among children in households that used protected sources for drinking water. In contrast, Gebru et al. [10] did not find any significant association between water source and childhood diarrhea.

5. Conclusion

The study identifies risk factors associated with acute watery diarrhea in children less than 05 years of age. In our study we found that risk factors like delayed starting of complementary feeding and inadequate handwashing technique were statistically significant in children with acute watery diarrhea.

In our study we found that only 23% of children with history of rotavirus vaccination has episode of acute watery diarrhea, Also place of residence and history of exclusive breast feeding for 6 months showed no statistically significance.

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE10, 2023

6. References

1. Walker CL, Rudan I, Liu L, Nair H, Theodoratou E, Bhutta ZA, et al. Global burden of childhood pneumonia and diarrhoea. Lancet 2013 Apr 20;381(9875):1405-1416.
2. Liu L, Johnson HL, Cousens S, Perin J, Scott S, Lawn JE, et al. Global, regional, and national causes of child mortality: an updated systematic analysis for 2010 with time trends since 2000. The Lancet 2012 6/9–5;379(9832):2151-2161.
3. Liu L, Oza S, Hogan D, Perin J, Rudan I, Lawn JE, et al. Global, regional, and national causes of child mortality in 2000-13, with projections to inform post-2015 priorities: an updated systematic analysis. Lancet 2015 Jan 1;385(9966):430-440.
4. Mandeville KL, Krabshuis J, Ladep NG, Mulder CJ, Quigley EM, Khan SA. Gastroenterology in developing countries: issues and advances. World J Gastroenterol 2009 Jun 21;15(23):2839-2854.
5. Gastanaduy PA, Sanchez-Uribe E, Esparza-Aguilar M, Desai R, Parashar UD, Patel M, et al. Effect of rotavirus vaccine on diarrhea mortality in different socioeconomic regions of Mexico. Pediatrics 2013 Apr;131(4):e1115-20.
6. Alam MM,Pun SP,Gauchal P,Yokoo M,Doan Yh,Tran TN,et al.The first identification of the Rotavirus be from children and adults with acute diarrhoea Kathmandu,Nepal.Trop Med Health.2013;41(3):129 – 34.doi:10.2149/tmh.2013-15.(Pub Med).
7. A.Sumi,K.Rajendran,T.Ramamoorthy,Murthy,T.Krishnan,G.B Nair ,K.Herigane et al.Effect of temperature,relative humidity and rainfall on Rotavirus infection in Kolkata,India,Epidemol infec.141(Aug 8)(2013),PP :1652 – 1662.
8. Sanjay Mehendale, S Venkatasubramanian, CP Girish Kumar, Gagandeep Kang, MD Gupte and Rashmi Arora; Rotavirus Disease in India: the present and future July 2016 Volume 53 Number 7 575
9. Preeti Jain, Gopalkrishna Varanasi, Rohan Ghughe, Vijay Kalrao, Ram Dhongade, Ashish Bavdekar, Sanjay Mehendale and Shobha Chitambar Rotavirus Disease in India: the present and future July 2016 Volume 53 Number 7 589
10. Gebru T, Taha M, Kassahun W. Risk factors of diarrhoeal disease in under-five children among health extension model and non-model families in Sheko district rural community, Southwest Ethiopia: comparative cross-sectional study. BMC Public Health. 2014;14(1):395.