

Risk factors of persistent diarrhea in Iraqi children below 18 months of age for the year of 2022.

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Received: 25 November, 2022, Manuscript No. AAJCP-22-82521; **Editor assigned:** 28 November, 2022, Pre QC No. AAJCP-22-82521(PQ); **Reviewed:** 05 December, 2022, QC No. AAJCP-22-82521; **Revised:** 22 December, 2022, Manuscript No. AAJCP-22-82521(R); **Published:** 30 December, 2022, DOI:10.35841/0971-9032.26.12.1730-1733.

Abstract

Background: The vast majority of diarrhea bouts last less than a week; however, diarrhea that lasts 14 days or more is referred to as persistent diarrhea. In general, infectious disease and pediatric gastroenterology textbooks utilize the World Health Organization (WHO) threshold of 2 weeks to distinguish between chronic and acute episodes.

Methodology: A total of 230 patients with diarrhea more than 2 weeks have examined in a hospital-based, cross-sectional study extending from the first of January 2022 to the 1st of November 2022, with regular working hours.

Results: There is no significant difference statistically between the number of attacks of the persistent diarrhea and the type of feeding (p -value=0.7). There are statistically significant differences between vaccination status and the associated infections (p -value=0.005), between the antibiotic usage and the number of attacks (p -value=0.001) and between the stool culture and the associated infection (p -value=0.03) and the type of feeding (0.04).

Conclusion: In underdeveloped nations, chronic diarrhea is a major source of morbidity. To avoid difficulties, timely diagnosis and care are critical. The patient should be quickly referred to a tertiary care center for proper diagnosis and treatment.

Keywords: Persistent diarrhea, Children, Toddler, Infants, Pediatric, Diarrhea infection.

Accepted on 13th December, 2022

Introduction

The vast majority of diarrhea bouts last less than a week; however, diarrhea that lasts 14 days or more is referred to as persistent diarrhea. In general, infectious disease and pediatric gastroenterology textbooks utilize the World Health Organization (WHO) threshold of 2 weeks to distinguish between chronic and acute episodes [1,2].

The main causes and prevalence of chronic diarrhea differ across resource-rich and resource-limited nations. Persistent diarrhea commonly follows an acute illness in resource-limited settings and is associated with repeated enteric infections with insufficient time to heal between episodes. Children are vulnerable to malnutrition and frequently suffer from co-occurring ailments such as respiratory infections [3].

Although the actual frequency of chronic diarrhea is unknown in India, large-scale research show that the prevalence of chronic diarrhea infections globally ranges from 3% to 20%, with an average of 3.2 bouts per kid year [4]. The causes of chronic illness change depending on the age of the kid. In an Indian study of 137 infants with persistent diarrhea, celiac disease was the leading cause 26%, followed by parasitic diseases 9%, and TB 5% [5]. The involvement of infections in chronic diarrhea varies depending on the location and the child's nutritional and immunological state. Although enteric pathogens are frequently implicated in chronic diarrhea, the

majority of self-limiting bouts of chronic diarrhea perceived as infections test negative for a wide range of microbiologic tests [6].

In the respiratory tract, new molecular techniques for the detection of stool pathogens are raising concerns regarding the interpretation of data and treatment options. In children with CID, up to five distinct stool pathogens have been detected, making it difficult to discriminate between causative agents and bystanders. A case-controlled strategy, as utilized in the GEMS trial, may be the best way to properly set up suitable treatment [7]. In this study, we document the most common risk factors, causes and management plans for the children less than 18 months in Iraq who presented with persistent diarrhea to the outpatient clinics.

Methodology

Study design

We have undertaken a cross-sectional, local, multicenter study, using a self-administered questionnaire along with patients' records and follow up in three pediatric centers in Baghdad from the outpatient clinics (central hospital of child, Baghdad medical city and Al-Nu'aman teaching hospital). Ethical approval was obtained from the ethical committee in the Al-Iraqia University.

Setting

The data collection was done in the hospital with the follow up for the patients from the presentation till the discharge.

Participants

All of them were patients who were admitted to the outpatient clinic with persistent diarrhea and only those less than 18 months were included (because most of the patients admitted to the hospital with persistent diarrhea in Iraq are under 18 years). There was consent to participant in the beginning of each survey and an explanation for the study.

Variables

The data was made up of demographic questions and case related questions. Also, the patients laboratory investigations and assessment were included.

Study size

The study involved 230 patients distributed 3 centers in Baghdad.

Statistical method

We used SPSS version 24 in finding a relationship between our variables for significance and correlation. Chi-square and fisher's test were used in analysis.

Results

A total of 230 patients with diarrhea more than 2 weeks have examined in a hospital-based, cross-sectional study extending from the first of January 2022 to the 1st of November 2022, with regular working hours.

Their demographic data included the age (in months) and the gender (Table 1). Also in Table 1, the patients' related data and investigations are shown. Those related to the presentation and the investigations done to them.

| Variable | No. of cases (%) |
|---|------------------|
| Distribution of cases according to the age group in months | |
| 1–6 months | 75 (32.5%) |
| 7–12 months | 30 (13.04%) |
| 13–18 months | 25 (54.46%) |
| Distribution of cases according to the associated illnesses with persistent diarrhea | |
| Pneumonia | 110 (47.8%) |
| Measles | 20 (8.7%) |
| Urinary Tract Infection (UTI) | 100 (43.5%) |
| Distribution of cases according to the results of general stool examination | |
| <i>E.histolytica trophozoite</i> | 15 (33.3%) |
| <i>G.lamblia</i> | 20 (44.4%) |

| | |
|--|--------------|
| +Pus cells | 10 (22.3%) |
| Total | 45 Patients |
| Distribution of cases according to the results of stool culture for <i>E.coli</i> | |
| +ve | 54 (23.47%) |
| -ve | 176 (76.53%) |
| The relation between type of feeding and persistent diarrhea | |
| Bottle | 135 (58.7%) |
| Breast | 35 (15.2%) |
| Mixed | 15 (6.5%) |
| Weaned | 45 (19.6%) |
| The relation between persistent diarrhea and prior antibiotic usage | |
| +ve | 208 (90.43%) |
| -ve | 22 (9.57%) |
| The relation between previous diarrheal attack and persistent diarrhea | |
| More than one attack | 43 (18.7%) |
| Only present attack | 187 (81.3%) |
| The relation between state of vaccination and persistent diarrhea | |
| Complete | 56 (24.34%) |
| Incomplete | 174 (75.66%) |
| The relation between persistent diarrhea and discontinuation of feeding during diarrheal attack | |
| Yes | 40 (17.4%) |

Table 1. Demographic data and the distribution of the variables on the included patients.

117 patients of them (50.6%) were females and 113 of them (49.2%) were males. So, they were half to half and there was no significant difference in means. Chi-square and fisher's test were conducted among the variables to find the statistically significant differences with confidence interval of 95% (Table 2).

| Variable 1 | Variable 2 | | p-value |
|-------------------------------|------------------|--------------|---------|
| Associated infection | Stool culture | | |
| | -ve | +ve | |
| Pneumonia | 81 (46%) | 29 (53.7%) | 0.03 |
| Measles | 15 (8.5%) | 5 (9.25%) | |
| Urinary Tract Infection (UTI) | 80 (45.5%) | 20 (37.05%) | |
| Type of feeding | -ve | +ve | |
| Bottle | 106 (60.22%) | 29 (53.7%) | 0.04 |
| Breast | 30 (17.04%) | 5 (9.25%) | |
| Mixed | 10 (5.7%) | 5 (9.25%) | |
| Weaned | 30 (17.04%) | 15 (27.8%) | |
| Number of attacks | Antibiotic usage | | |
| | -ve | +ve | |
| >1 attack | 15 (34.8%) | 28 (65.2%) | 0.001 |
| Only present attack | 7 (3.75%) | 180 (96.25%) | |

| Associated infections | Vaccination status | | |
|-------------------------------|--------------------|-------------|-------|
| | Complete | Incomplete | |
| Pneumonia | 26 (23.6%) | 84 (76.4%) | 0.005 |
| Measles | 6 (30%) | 14 (70%) | |
| Urinary Tract Infection (UTI) | 24 (24%) | 76 (76%) | |
| Type of feeding | Number of attacks | | |
| | >1 attack | 1 attack | |
| Bottle | 9 (21%) | 126 (67.3%) | 0.7 |
| Breast | 15 (34.8%) | 20 (10.7%) | |
| Mixed | 4 (9.4%) | 11 (5.88%) | |
| Weaned | 15 (34.8%) | 30 (16.12%) | |

Table 2. The p-value of the fisher's tests among the variables.

There is no significant difference statistically between the number of attacks of the persistent diarrhea and the type of feeding (p-value=0.7). There are statistically significant differences between vaccination status and the associated infections (p-value=0.005), between the antibiotic usage and the number of attacks (p-value=0.001) and between the stool culture and the associated infection (p-value=0.03) and the type of feeding (0.04). The results are similar among all the three locations and there is no difference among them.

Discussion

Children are the mother's responsibility in Iraqi society, as they are in other underdeveloped nations, even if a woman works outside the house; she retains all child-care obligations. Women with inadequate knowledge in our study may have been less likely to adhere to safe food handling [8]. Better educated moms may have been more inclined to boil drinking water for their young children, limiting pathogen exposure. Other studies have found a link between having a mother with little or no education and diarrhea [9,10].

Women who reported having their main water source as piped water and residences with flush toilets were more likely to have diarrheal children, whereas women who utilized protected wells were less likely to have diarrheal children [11]. As a result of the wars and sanctions, water treatment plants lacked spare parts, equipment, treatment chemicals, sufficient maintenance, and suitably skilled employees, causing them to function only as pumping stations [12].

In this study, we found that the most common associated infection with persistent diarrhea is pneumonia and UTI and most of them were not completing their vaccines according to the Iraqi schedules. So, we can explain this that the infections are related to those preventive infections than can be prevented by vaccines.

Also, we found that the type of feeding is highly related to the infections, attacks and the *E.coli* positivity among the patients. This also can be explained by the role of the breast feeding in the prevention of the community acquired infections and pathogens especially from the bottle feeding that attributed to the lack or underestimation of the proper way of sterilization for the bottles or using a low-cost formula to feed their

children because of their low socioeconomic status. Antibiotic usage and misuse actually contributed highly to the spreading of infections among the children especially that the mothers give their babies these antibiotics over the counter and without a doctors' prescription.

The vast majority of diarrhea bouts last less than a week; however, diarrhea that lasts 14 days or more is referred to as persistent diarrhea. In general, infectious disease and pediatric gastroenterology textbooks utilize the World Health Organization (WHO) threshold of 2 weeks to distinguish between chronic and acute episodes. Some writers use the word "chronic" to describe diarrheal diseases that persist 30 days or more [13]. Persistent diarrhea may be caused by a chronic enteropathy, which causes poor mucosal repair as well as decreased digestive and absorptive ability, culminating in malabsorption or maldigestion [14].

In resource-limited ("developing") nations, chronic diarrhea is most frequent in children under the age of two, particularly in children under the age of one year, but it can also affect older children [15]. Although less prevalent in resource-limited contexts than acute diarrhea, these extended episodes are significant not just because of the inconvenience of having diarrhea, but also because of their link with overall diarrheal burdens, such as malnutrition and increased risk of mortality [16,17].

The main causes and prevalence of chronic diarrhea differ across resource-rich and resource-limited nations. Persistent diarrhea commonly follows an acute illness in resource-limited settings and is associated with repeated enteric infections with insufficient time to heal between episodes [18].

Children in resource-rich nations are less likely to be subjected to repeated gastrointestinal illnesses and the resulting malnutrition. Chronic diarrhea is more likely to be caused by an underlying condition in these groups, such as celiac disease or another autoimmune inflammatory bowel disease [19]. However, enteric infections (especially in immunocompromised individuals), malnutrition, food allergy, and other dietary variables (for example, excessive juice intake or withholding meals during diarrhea and delaying return to regular eating) might also play a role in some cases [20].

It is important for hospitals to educate mothers and other caregivers about the prevention and treatment of persistent diarrhea in children. Diarrhea is a common condition that can be caused by a variety of factors, including infections, food poisoning, and certain medications. It can lead to dehydration, malnutrition, and other serious health problems if not properly managed.

There are several things that hospitals can do to educate mothers about persistent diarrhea in children:

Providing information and resources

Hospitals can provide mothers with informational materials about persistent diarrhea, such as leaflets or brochures, to help them understand the causes, symptoms, and treatment of the condition.

Offering counseling and support

Hospitals can also offer mothers support and counseling to help them manage their child's diarrhea and address any concerns or questions they may have.

Providing treatment

Hospitals can offer treatment for persistent diarrhea, including medications to reduce diarrhea and rehydration solutions to prevent dehydration.

Conclusion

In the future, hospitals may also consider using technology, such as telemedicine or online resources, to reach more mothers and provide them with information and support related to persistent diarrhea in children. In underdeveloped nations, chronic diarrhea is a major source of morbidity. To avoid difficulties, timely diagnosis and care are critical. The patient should be quickly referred to a tertiary care center for proper diagnosis and treatment. The pathophysiology of most episodes of chronic diarrhea in resource-limited nations differs from that of resource-rich countries, necessitating distinct methods to diagnosis and therapy in the two situations.

References

- Mandell GL, Bennett JE, Dolin R. Principles and syndromes of enteric infections. In: Principles and practice of infectious diseases. (7th edn) Churchill Livingstone, Philadelphia 2009.
- Guarino A, de Marco G. Persistent diarrhea. In: Pediatric gastrointestinal disease. (5th edn) Decker, Hamilton 2008.
- Shane AL, Mody RK, Crump JA, et al. Infectious diseases society of america clinical practice guidelines for the diagnosis and management of infectious diarrhea. Clin Infect Dis 2017; 65: e45.
- Kosek M, Bern C, Guerrant RL. The global burden of diarrhoeal disease, as estimated from studies published between 1992 and 2000. Bull World Health Organ 2003; 81(3): 197-204.
- Yachha SK, Misra S, Malik AK, et al. Spectrum of malabsorption syndrome in North Indian children. Indian J Gastroenterol 1993;12:120-125.
- Koletzko S, Niggemann B, Arato A, et al. Diagnostic approach and management of cow's-milk protein allergy in infants and children: ESPGHAN GI committee practical guidelines. J Pediatr Gastroenterol Nutr 2012;55:221-229.
- Tovo PA, de Martino M, Gabiano C, et al. Prognostic factors and survival in children with perinatal HIV-1 infection. The Italian register for HIV infections in children. Lancet 1992; 339: 1249-1253.
- Nimri LF, Hijazi S. Rotavirus-associated diarrhoea in children in a refugee camp in Jordan. J Diarrhoeal Dis Res 1996; 14(1): 1-4.
- Muhsen K, Athamna A, Cohen D. Incidence and risk factors of diarrheal diseases among 3-5 years old Israeli Arab children attending kindergartens. Harefuah 2001; 146: 341-344.
- Rahmanifar A, Kirksey A, McCabe GP, et al. Respiratory tract and diarrheal infections of breast-fed infants from birth to 6 months of age in household contexts of an Egyptian village. Eur J Clin Nutr 1996; 50(10): 655-62.
- Sha NM, Sha MA, Radovanovic Z. Social class and morbidity differences among Kuwaiti children. J Health Popul Dev Ctries 1999; 2(1): 58-69.
- Mashal T, Takano T, Nakamura K, et al. Factors associated with the health and nutritional status of children under 5 years of age in Afghanistan: Family behaviour related to women and past experience of war-related hardships. BMC Public Health 2008; 8: 301.
- Baqui AH, Black RE, Yunus M, et al. Methodological issues in diarrhoeal diseases epidemiology: Definition of diarrhoeal episodes. Int J Epidemiol 1991; 20(4): 1057.
- Johnston BC, Shamseer L, da Costa BR, et al. Measurement issues in trials of pediatric acute diarrheal diseases: A systematic review. Pediatrics 2010; 126(1): e222-31.
- Karim AS, Akhter S, Rahman MA, et al. Risk factors of persistent diarrhea in children below five years of age. Indian J Gastroenterol 2001; 20: 59.
- Bhandari N, Bhan MK, Sazawal S, et al. Association of antecedent malnutrition with persistent diarrhoea: A case-control study. BMJ 1989; 298: 1284.
- Manger MS, Taneja S, Strand TA, et al. Poor folate status predicts persistent diarrhea in 6- to 30-month-old north Indian children. J Nutr 2011; 141(12): 2226-32.
- Andrade JA, Fagundes-Neto U. Persistent diarrhea: Still an important challenge for the pediatrician. J Pediatr 2011; 87: 199.
- Mathai J, Raju B, Bavdekar A, et al. Chronic and persistent diarrhea in infants and young children: Status statement. Indian Pediatr 2011; 48: 37.
- Bhutta ZA, Ghishan F, Lindley K, et al. Persistent and chronic diarrhea and malabsorption: Working group report of the second world congress of pediatric gastroenterology, hepatology, and nutrition. J Pediatr Gastroenterol Nutr 2004; 39 Suppl 2: S711-6.

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