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Acute Diarrhea in Children Aged 0 to 15 Years in the Pediatric Department of the Boffa Prefectural Hospital: Epidemiological, Clinical and Therapeutic Aspects

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Abstract

Introduction: Diarrhea is defined as the passage of at least three loose, watery, or abnormal stools per day. It is considered acute when it lasts less than 14 days. **Objective:** To study the epidemiological, clinical, and therapeutic aspects of acute diarrhea in children at the pediatric ward of the Boffa Prefectural Hospital. **Methods:** A prospective descriptive study was conducted on all children aged 0 to 15 years seen in consultation or hospitalized for acute diarrhea at the pediatric ward of the Boffa Prefectural Hospital from July 1, 2024, to June 30, 2025. **Results:** We identified 128 cases of diarrhea in children out of a total of 1257, representing a hospital frequency of 10.18%. This places diarrhea fourth among the most frequently encountered illnesses in our ward. The mean age was 43.18 ± 36.79 months, with a range of 3 to 145 months. Signs of dehydration were predominantly sunken eyes (48.44%) and poor skin folds (26.6%). 52% of the children had mild dehydration, 33% moderate dehydration, and 15% severe dehydration. 95.3% of our patients received oral rehydration solution (ORS), and 21.9% received parenteral rehydration. **Conclusion:** Acute diarrhea remains a major public health problem, primarily affecting children under one year of age. The major risk of complications from acute diarrhea is related to the degree of dehydration and malnutrition, hence the need for early intervention.

Keywords

Diarrhea, Children, Hospital, Boffa

1. Introduction

Diarrhea is defined as the passage of at least three liquids, loose or abnormal stools per day (WHO 2013) [1].

It is considered acute when it lasts less than 14 days [1].

Representing a major public health problem in all regions of the world, particularly in developing countries where hygiene is precarious [2].

It is one of the main causes of morbidity and mortality in children under 5 years of age, and the second leading cause of death worldwide after pneumonia [3].

Although infant mortality from acute diarrhea has decreased, many children in developing countries still continue to succumb to this disease [4].

In developing countries, the problem remains significant due to factors such as dysfunctional health systems, child malnutrition, low health budgets, and insufficient equipment and qualified personnel [4].

These deaths can be explained by several factors: acute dehydration, systemic infections with invasive germs, and malnutrition which may precede or follow a diarrheal episode [5].

Current management, recommended by WHO and UNICEF, is based on the use of reduced osmolarity oral rehydration salt, zinc supplementation, continued feeding including breastfeeding and selective use of antibiotics [6].

In Guinea, according to the Demographic and Health Survey with Multiple Indicators (DHS-MICS) carried out in 2018, 15% of children under 5 years of age had at least one episode of diarrhea during the 2 weeks preceding the survey [7].

In 2015, the World Health Observatory reported a prevalence of 12.4% of diarrhea cases in Guinea [3].

This study would be appropriate to examine the sociodemographic, clinical, paraclinical, etiological and therapeutic aspects of acute diarrhea in children aged 0 to 15 years.

2. Methods

This was a prospective descriptive study lasting twelve (12) months, from July 1, 2024 to June 30, 2025, including all children aged 0 to 15 years seen in consultation and/or hospitalized in the pediatric department of the Boffa Prefectural Hospital and whose parents accepted of participate in the study.

The prefecture of Boffa is one of the five prefectures of the Boké Administrative Region.

For the completion of this study we used consultation records, hospitalization records and individual medical records of patients.

Sociodemographic variables (age, sex, origin, birth order, mother's age, mother's occupation, mother's education level, marital status), clinical data (vomiting, intense thirst, rhinorrhea, cough, physical asthenia, anorexia, abdominal pain, fever, lethargy, skin folds, sunken eyes, inability to drink, agitation, prostration, associated with stool description according to WHO classification criteria), paraclinical data (stool parasitology, RDT, THb), therapeutic data (antipyretics, antiemetics,

antihelminths, antifungals, antibiotics, antimalarials, antianemics), and outcome data (recovered, deceased) were studied.

Data entry and analysis were performed using Word, Excel, PowerPoint, and Epi Info version 7.2 software.

3. Results

Diarrhea was the 4th most common pathology encountered in the pediatric department of the Boffa prefectural hospital during our study period, *i.e.* 10% (Table 1).

Table 1. Hospital frequency of diarrhea among the main pathologies.

Pathologies	Number	Percentage (%)
Severe malaria	432	34.37
ARI	182	14.48
Uncomplicated malaria	171	13.60
Acute diarrhea	128	10.18
Helminthiasis	127	10.10
Salmonellosis	120	9.55
Measles	29	2.31
Malnutrition	22	1.75
Neonatal infection	12	0.95
Other	34	2.71
Total	1257	100

More than half of the children received for acute diarrhea were under 12 months of age, *i.e.* 51.6%, with a predominance of males, and 66.4% came from urban areas (Table 2).

Table 2. Distribution of the 128 cases of acute diarrhea in children aged 0 to 15 years according to epidemiological characteristics.

	Effective	Percentage
Age (Months)		
<12	66	51.56
12 - 59	30	23.44
60 - 120	20	15.63
>120	12	9.37
Sex		
Male	78	60.94
Female	50	39.06
	SEX RATIO = 1.5	
Provenance		
Urban	85	66.41
Rural	43	33.59

The majority of mothers (71.9%) seen with their children were housewives (Table 3).

Table 3. Distribution of the 128 cases of acute diarrhea in children aged 0 to 15 years according to the mothers' occupation.

Mother's occupation	Number	Percentage (%)
Official	8	6.25
Liberal	28	21.88
Housewife	92	71.87
Total	128	100

Nearly all the children seen (95%) had 3 to 5 bowel movements per day, with 62.5 % having loose stools. The consultation delay was 1 to 7 days in 92% of cases. 79% of the children experienced vomiting as a symptom associated with diarrhea. 48.44% had sunken eyes and 52% presented with mild dehydration. Malaria was the most frequent illness, followed by acute respiratory infection (Table 4).

Table 4. Distribution of the 128 cases of acute diarrhea in children aged 0 to 15 years according to clinical characteristics.

	Effective	Percentage
Number of saddles/day		
3 - 5	122	95.31
6 - 10	4	3.13
>10	2	1.56
Consultation timeframe (days)		
1 - 7	118	92.19
8 - 14	10	7.81
Types of stools		
Liquid	80	62.50
Mucusy	29	22.63
Bloody glairo	10	7.81
Semi-liquid	9	7.03
Associated signs		
Vomiting	101	78.91
Fever	77	60.16
Cough	25	19.53
Rhinorrhea	6	4.69
Abdominal pain	50	39.06
Intense thirst	42	32.81
Physical asthenia	42	32.81
Anorexia	15	11.72

Continued

Physical signs		
Sunken eyes	62	48.44
Skin folds	34	26.56
Prostration	20	15.63
Inability to drink	15	11.78
Lethargy	11	8.59
Agitations	2	1.56
Type of dehydration		
Light	66	51.56
moderate	42	32.81
Severe	20	15.63
PATHOLOGIES		
Malaria	72	56.25
IRA	21	16.40
Candidiasis	2	1.56

The RDT was the most frequently performed test in children in 56.25% of cases, followed by stool parasitology in 48.44%.

ORS was used as treatment for dehydration in the majority of cases, *i.e.* 95 %, as well as antipyretics as adjunctive treatment in more than half of the patients, *i.e.* 60.16% (Table 5).

Table 5. Frequency of the 128 cases of acute diarrhea in children aged 0 to 15 years according to treatment.

	Number of employees = 128	Percentage
SRO	**122**	**95.31**
Ringer's lactate	**28**	**21.86**
Antipyretic	**77**	**60.16**
Antimalarial	72	56.25
Antibiotic	27	21.09
Anti-helminthiasis	62	48.44
Antifungal	2	1.60
Metronidazole	39	30.47
Antiemetic	32	25.00
Antianemic	6	4.69

The outcome was favorable in 95.3% of the children.

4. Discussion

This study was conducted in a reference service and had the general objective of

studying the epidemiological, clinical and therapeutic aspects of acute diarrhea in children aged 0 to 15 years in the pediatric service of the Boffa prefectural hospital.

During this study, we identified 128 cases of acute diarrhea in children aged 0 to 15 years out of a total of 1257, representing a hospital frequency of 10.18%. This places acute diarrhea fourth among the most frequently encountered conditions in our department.

Togo A. in Mali reported a frequency of 31% of acute diarrhea [5], while Seck N, *et al.* in Senegal reported a hospital frequency of 12.9% [8].

Raising awareness among the local population by community relays present in all rural communes of the prefecture about the risk factors of diarrhea, as well as the improvement of certain basic hygiene measures such as hand washing since the advent of epidemic episodes in our country (Ebola and COVID-19), would explain this result in our study.

Children under 12 months were the most affected, with a frequency of 51.6%, an average age of 43.18 months, and extremes from 3 to 145 months.

This predominance of children under 12 months had also been reported in other studies [9]-[13].

This high frequency in children under 12 months could be explained by the development of the child's own immunity while maternal antibodies decline, making them more vulnerable to infections. It is also at this time that the child's diet begins to be diversified, and if this process is poorly managed, diarrhea and then malnutrition can occur. This period also corresponds to the time when children begin to explore their environment and are therefore exposed to contamination by pathogens.

Males were dominant with a sex ratio of 1.5. This male predominance is reported by several authors [14]-[16], but on the contrary, Ondima LH *et al.* [3] and Sangaji, *et al.* [11] had respectively reported 57.14% and 52.3% female predominance.

This is why we say that sex has no influence on the occurrence of diarrhea, because both sexes become infected in the same way and under the same conditions due to their behavior in unsanitary places and the consumption of contaminated food.

The majority of children came from the urban commune with a frequency of 66.41%.

Kabore *et al.* in Burkina Faso [12] and Maiga A in Mali [17] had found respectively 87.7% and 90% of children coming from urban communes while Diaby A. *et al.* had found that 63.6% of children coming from rural areas [18].

This result could be explained by the fact that the prefectural hospital is a reference hospital.

71.9% of mothers were housewives, comparable to several findings in the literature [5] [9] [10] [19]. This is due to the fact that mothers, likely uneducated, are not well-informed about hygiene measures related to diarrhea prevention. Illiteracy would constitute a hindrance to the dissemination of messages aimed at chang-

ing behavior regarding diarrhea.

95.31% of children passed 3 to 5 stools per 24 hours. Ba A. *et al.* in Senegal had reported that 49% of children had passed 3 - 5 stools per day [19].

This difference could be explained by the fact that the majority of children were seen on the first day of diarrhea, as 92.2% of our patients were seen within the first 3 days following the onset of diarrhea. Togo A found that 92.49% of diarrhea cases lasted 7 days or less, with an average duration of 3 days [5], while Ba A. *et al.* in Senegal reported 62.8% of cases with a delay of less than 3 days [19].

Vomiting and fever were the signs most frequently associated with diarrhea, with respective frequencies of 78.91 % and 60.16%.

These results are higher than those of Sidibe T in Mali which were respectively 38% and 43% [9], Togo A respectively 40% and 36% [5], but comparable to those of Seck N *et al.* in Senegal which had reported respectively 80% and 61% [8], and of Kabore A *et al.*, (2017) in Burkina Faso with respective frequencies of 92% and 80.7% [12].

The appearance of the stools was dominated by liquid forms which represented 62.50%.

This predominance of liquid stools had been reported in other studies such as that of Sidibe T in Mali with 92% of aqueous stools [9]; Togo A with 80% of aqueous stools [5]; Seck N, *et al.* in Senegal with 76% of liquid stools [8].

Our result could be due to the types of pathophysiological mechanisms of diarrhea and the pathogenesis of the infectious agent.

Signs of dehydration were dominated by sunken eyes (48.44%) and skin folds (26.56%). Abdoul K. *et al.* reported 92% of skin folds and 71% of sunken eyes [4].

Indeed, sunken eyes and skin folds are among the first signs of dehydration, as 48% of our patients were dehydrated. This is significantly lower than the results reported by Sidibe T and Togo A, who found 83.1% and 64.16% of dehydrated children, respectively [5] [9], but comparable to those reported by Narimane *et al.* in Algeria and Kabore A *et al.* in Burkina Faso, who reported 47.37% and 41.8% of dehydrated children, respectively [14] [16]. Early management of our children. This could explain the fact that our patients were received within the first 3 days following the onset of diarrhea.

Malaria was the most frequently associated condition, accounting for 56.25% of cases, followed by acute respiratory infections at 16.40%. Togo A in Mali reported that malnutrition and acute respiratory infections were the most frequently associated conditions, with respective proportions of 23% and 20% [5]. Malaria is endemic in Guinea, and children under 5 years of age are the most vulnerable.

95.31% of our patients received oral rehydration therapy (ORS) and 21.86% received parenteral rehydration. Our results are comparable to those of Togo A with 76.30% and 23.70% [5]. Sidibe T with 64.2% and 35.8% [9]. However, according to Seck N *et al.* in Senegal, 37% of children received oral rehydration and 63% received intravenous rehydration [8]. Our result demonstrates the rational prescribing practices of healthcare workers, adhering to the WHO guidelines for the

management of acute diarrhea.

5. Conclusion

Acute diarrhea remains a major public health problem, primarily affecting children under one year old. The main risk of complications from acute diarrhea is linked to the degree of dehydration and malnutrition, hence the need for early intervention.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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