

An Observational Study on Acute Gastroenteritis in Paediatric Patients in a Tertiary Care Hospital

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ABSTRACT

Background: Acute gastroenteritis is the common gastro-intestinal infections in paediatrics accounting for paediatric mortality

Objectives: The goal of the study was to assess the prevalence and prescription pattern of acute gastroenteritis in paediatric inpatients.

Methodology: A prospective observational study was carried out for a period of six months at Paediatric department of Basaveshwara Medical College & Hospital, Chitradurga.

Results: A total of 113 patient's data with gastro-intestinal infections were collected from in-patient of Paediatric department. 95 were diagnosed with acute gastroenteritis. Among them 54 were males and 41 were females. This study showed that males between 0-2 years were more prone to acute gastroenteritis than in females of 6 year age group. The most commonly prescribed class of drug was found to be Drugs acting on GI (Elemental Zinc 25.47%) followed by Antimicrobials (Ceftriaxone 23.34%), NSAIDs (Paracetamol 18.40%) and Vitamins (3.77%) in paediatric population.

Conclusion: The study concluded that male patients between 0-2 years were more prone to acute gastroenteritis when compared with female patients. Cephalosporins were the most prescribed Antimicrobial drug. The study shown that among Drugs acting on GI Elemental Zinc was the most commonly prescribed drug.

Key words: Prevalence, Prescribing pattern.

INTRODUCTION

Gastrointestinal tract infections are one of the major health concerns in many parts of world, including India. The main symptoms of GIT infections are abdominal cramps, nausea and vomiting, diarrhea, loss of appetite, weakness, fever or chills and dehydration which arise mainly due to bacterial, viral and parasitic infections. Some of the common gastro-intestinal tract infections are gastroenteritis, diarrhea, dysentery and enterocolitis. Acute gastroenteritis often considered a benign disease, remains a major cause of paediatric morbidity and mortality around the world, accounting for 1.87 million deaths annually in children younger than 5 years that is roughly 19% of all child deaths. [1]

Acute gastroenteritis (AGE) or acute enteritis refers to diarrhea, which is abnormal frequency and liquidity of fecal discharges i.e. more than three stools per day. It affects enterocyte secretory and absorptive function. Symptoms include vomiting, diarrhea and abdominal pain, fever and anorexia. In children, viral pathogen such as rotavirus accounts for 70-80% of all diarrhoeal episodes globally, 20-30% is due to bacteria (E.coli, Salmonella, Campylobacter, Shigella) and only 0-5% is due to other parasites (Entamoeba histolytica, Giardia lamblia, Cryptosporidium parvum). These enteropathogens get transmitted in the body

via contaminated food or water, unhygienic conditions like lack of hand hygiene and travel to endemic areas etc. [2]

Children with poor nutrition are at increased risk of complications. Some of the complications include dehydration, metabolic acidosis, electrolyte disturbances (hypernatremia, hyponatremia, hypokalemia), carbohydrate intolerance, development of food intolerance, Haemolyticuraemic syndrome, Iatrogenic complications and death. Dehydration, which may be associated with electrolyte disturbance and metabolic acidosis is the most frequent and dangerous complication. The best clinical indicators of more than 5% dehydration are prolonged capillary refill, abnormal skin turgor and absent tears. Medical attention was sought for 20% of children who had gastroenteritis. Diarrhoea with some dehydration was diagnosed in most patients followed by severe dehydration and no dehydration. [3,4]

The World Gastroenterology Organization standard treatment guidelines for gastroenteritis suggest a combination of oral rehydration therapy, dietary modification, probiotics, Zinc supplements, antimicrobials, supportive and symptomatic treatment. Thus empirical therapy is necessary in cases with diarrhea since acute diarrhea can greatly affect the quality of patient's life and compromise health status. [5]

From the above mentioned statements, it is necessary to conduct a study on Gastrointestinal Infectious in Paediatric department in a Tertiary Care Hospital.

MATERIALS AND METHODS

Study design: This was a prospective observational study.

Study site: The study was conducted in Paediatric Department of Basaveshwara Medical College & Hospital, Chitradurga on in patients.

Study period: The study was conducted over a period of six months from 2017 to 2018.

Study subjects: All in-patients admitted to Paediatric department of the hospital during the study period were enrolled into study. Patient who met the following criteria were enrolled.

Inclusion criteria:

- Subjects of both genders >1month to 6 years.
- Subjects who are willing to give informed assent.

Exclusion criteria:

- Subjects suffering from other Gastrointestinal Infections.
- Subjects who are admitted in neonatal intensive care unit.

Ethical approval:

The study was approved by the Institutional Ethical Committee of Basaveshwara Medical College Hospital & Research Centre, Chitradurga.

Sources of data:

- Medical records of in-patients
- Interview with patients and/or care takers.

Study procedure:

- The study was started after obtaining the approval from institutional ethical committee (IEC) of SJM college of Pharmacy.
- Patients who satisfied the above study criteria were included in the study after taking the informed assent.
- Patient's demographic details, complaints, history, diagnosis and prescribed drugs will be collected from medical records of the patients and will be documented in suitably designed data collection form.
- The obtained data will be analyzed by using statistical method

Statistical analysis:

- The data were entered in Microsoft excel and data were analyzed by SPSS software version 19.
- Categorical data were presented as frequency, percentage and quantitative data were analyzed by descriptive method.

RESULTS

Prevalence of Acute Gastroenteritis in Paediatric Population

Among 113 subjects, 95 subjects were diagnosed as acute gastroenteritis in paediatric population and the prevalence of AGE was found to be 84.07%.

Number of subject enrolled in the study (N)=113

Number of subject with AGE: 95

$$\text{Prevalence} = \frac{\text{Person with the given health indicator during a specified time period}}{\text{Population}} \times 100$$

$$\text{Prevalence of Age (p)} = \frac{95 \times 100}{113}$$

$$\text{Prevalence of Age (p)} = 84.07\%$$

Prevalence of Acute Gastroenteritis in Different Age Groups of Paediatric Patients

A total of 95 patient's data with acute gastroenteritis were collected. Among them 54 were males and 41 were females. Acute gastroenteritis was mostly seen in male children between 0-2 years and least common in female patients of 6 year age group. This study showed that males were more prone to acute gastroenteritis than in females.

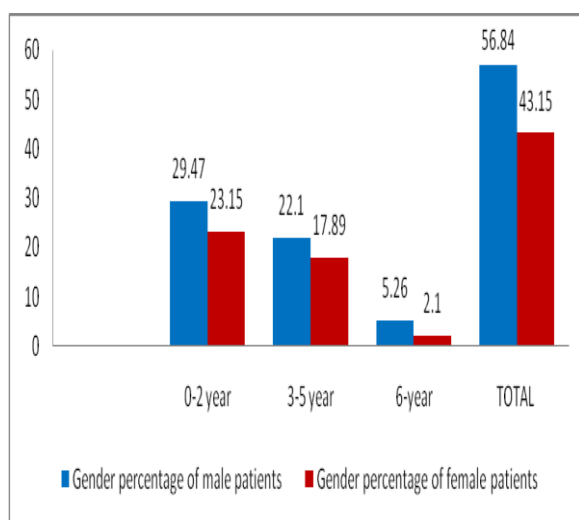
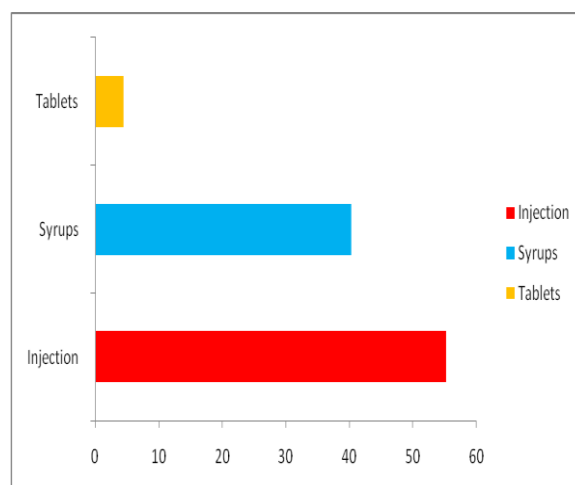


Fig 1: Distribution of Subjects Based on Different Age Group and Gender.

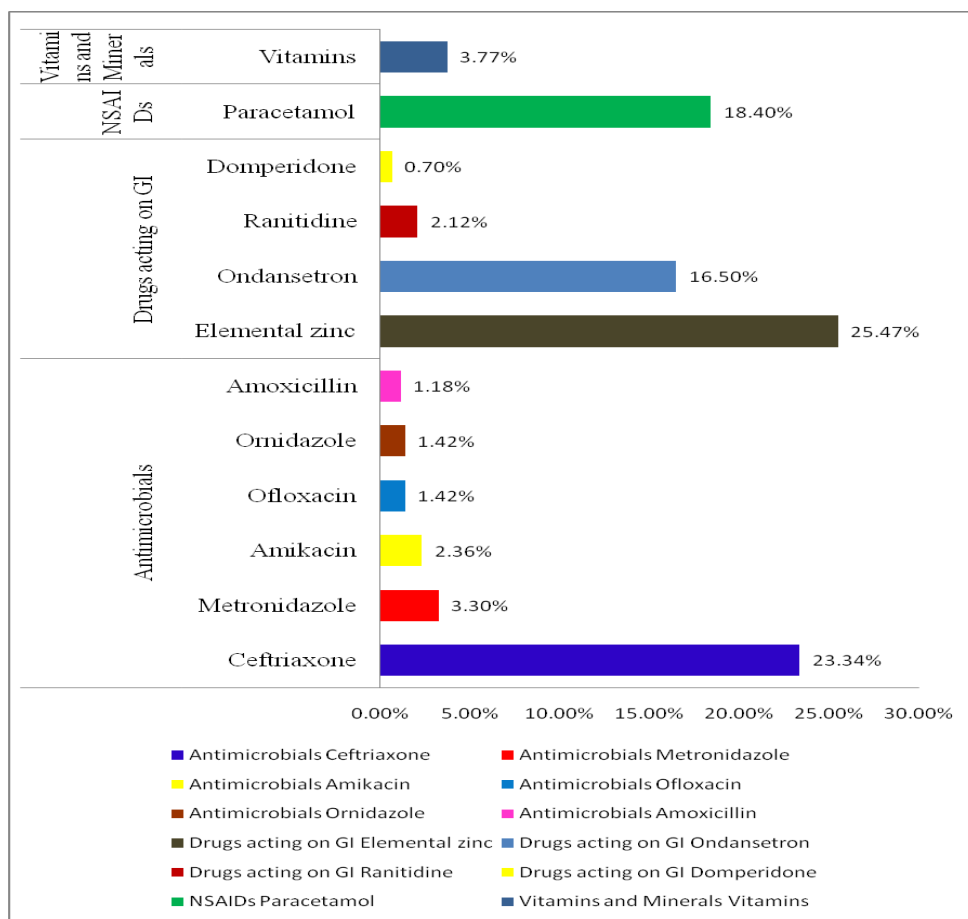
Among 424 drugs prescribed, injection 234(55.2%) was the most common dosage form and tablets 19(4.5%) were the least preferred dosage form in paediatric population. The data is represented in table 5.2 and graphically represented in Figure 5.2.



Study of Prescribing Pattern

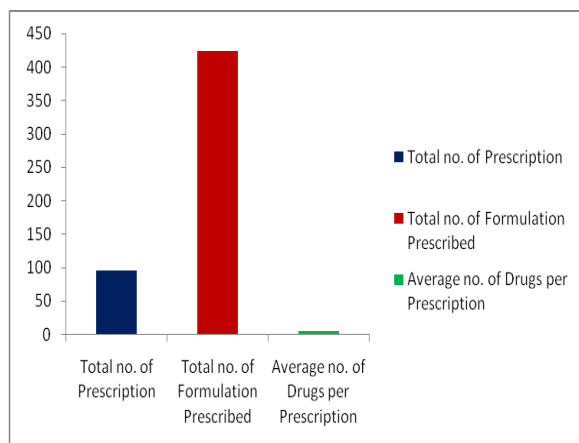
Out of 424 drugs, the most commonly prescribed class of drug was found to be Drugs acting on GI (Elemental Zinc 25.47%) followed by Antimicrobials (Ceftriaxone 23.34%), NSAIDs (Paracetamol 18.40%) and Vitamins (3.77%). The details are graphically illustrated in figure given below.

Distribution Based on Dosage Form Used



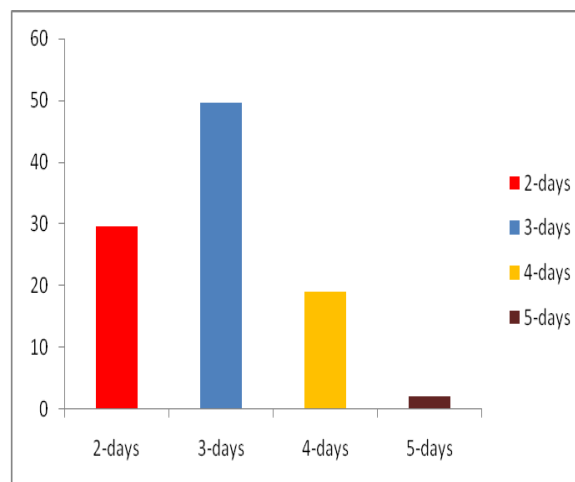
Average Drugs Per Prescription

Out of 95 prescription, total number of formulation prescribed was 424. Among them average number of drugs per prescription was found to be 4.36. The results are shown in the table and graph given below.



Distribution Based on Length of Staying in the Hospital

Among 95 patients maximum number of patients were hospitalised for 3 days and minimum number of patients were hospitalised for 5 days.



DISCUSSION

Gastrointestinal tract infections are one of the major health concerns in many parts of world, including India. The main symptoms of GIT infections are abdominal

cramps, nausea and vomiting, diarrhea, loss of appetite, weakness, fever or chills and dehydration which arise mainly due to bacterial, viral and parasitic infections. Acute gastroenteritis remains a major cause of paediatric morbidity and mortality around the world, accounting for 1.87 million deaths annually in children younger than 5 years that is roughly 19% of all child deaths. [1]

The study was conducted to assess the prevalence and prescription pattern of acute gastroenteritis in paediatric patients in a tertiary care hospital.

In the present study a total of 113 patient's data was collected from in-patient of Paediatric department from the hospital. Among the whole 113, 61 were males and 52 were females. Acute gastroenteritis was more prevalent in children between 0-2 years and least prevalent in 6 year age group. This study showed that males are more prone to acute gastroenteritis than in females.

Cephalosporins (82.5%) were the most prescribed class of antibiotic drug followed by Aminoglycosides (8.4%), Fluoroquinolones (5%) and Penicillin 4.1%. The study shows that most prescribed anti-amoebic drug was Metronidazole 70% followed by least prescribed ornidazole 30%. It was found that ondansetron 95.9 % was the most prescribed anti-emetic drug and Domperidone 4.1% was least prescribed drug. Among other class of drugs Anti-diarrhoeals 51.1% were commonly prescribed followed by antacids 4.3% were least prescribed in the paediatric population.

Fatima S *et al.*, conducted a retrospective cross sectional study to assess prevalence and management of acute gastroenteritis in the pediatric inpatients was evaluated in a total of 210 patients. The prevalence of AGE was common in males (53.6%) than compared to female (46.6%) patients. AGE was most prevalent in children of age less than 2 years. Antiemetic most commonly prescribed was ondansetron (94%) in patients suffering from severe vomiting, followed by NSAIDS like

acetaminophen (66.19%) for fever. Antimicrobials administered mainly included third generation Cephalosporins (45%) (Cefotaxime and ceftriaxone), aminoglycoside like amikacin (37%) and antiprotozoal like metronidazole (10%). [1]

Similar study was conducted by Bhavshaikh N *et al.*, Drug prescribing pattern in acute gastroenteritis in paediatric in-patient setting in a private hospital and it showed Ceftriaxone (71/208 patients) was the most commonly prescribed cephalosporin. Third generation cephalosporins were the most preferred choice for initiating treatment for gastroenteritis followed by fluoroquinolones Ceftriaxone was the most frequently prescribed antibiotic (34.13%), followed by metronidazole (32.21%), ofloxacin (25%), cefixime (20.67%), ciprofloxacin (19.23%) and amoxicillin (18.75%). Most commonly prescribed drugs were Ondansetron (86.54% patients). [4]

CONCLUSION

According to the analyzed results and from view of literature, the conclusions made are;

- Acute gastroenteritis was more prevalent in male as compared to female children.
- Most common route of administration was found to be injection.
- Cephalosporins were the most commonly prescribed class of Anti-microbial drug.
- It was found that Drugs acting on GI like Elemental Zinc, Ondansetron, were commonly prescribed in the paediatric population

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