ORIGINAL RESEARCH

Acute diarrhoea with complications in children

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ABSTRACT
Background: Acute gastroenteritis is a common condition in children characterized by inflammation of the stomach and intestines. The present study was conducted to assess cases of acute diarrhoea with complications in children. **Materials & Methods:** 65 pediatric patients of acute gastroenteritis of both genders were recorded. Parameters such as duration of illness, signs, and symptoms at admission, vital signs, anthropometry, level of dehydration, biochemical parameters, fluid therapy, antimicrobial therapy, complications, cause of death, and treatment given were recorded. **Results:** Out of 65 patients, males were 38 and females were 27. Symptoms were poor oral intake in 24 survived and 13 died children, dysentery was seen 36 survived and 8 died, lethargy in 14 survived and 11 died and oliguria 27 survived and 6 died children. Signs of tachycardia was seen in 38 and 14, hypotension in 15 and 8 and pallor in 26 and 15 survived and died children respectively. The difference was significant (P< 0.05). The mean inotropes in first 24 hours was needed in 32 and 12, ventilation in the first 24 hours seen in 26 and 15, RC transfusion in the first 24 hours in 17 and 10 and duration of PICU stay was seen in 5.2 and 4.1 days, blood glucose was 98.4 mg/dl and 96.2 mg/dl, blood urea was 64.2 mg/dl and 58.4 mg/dl, creatinine was 0.9 mg/dl and 0.7 mg/dl and albumin was 3.4 mg/dl and 2.3 mg/dl in survived and died children respectively. **Conclusion:** Severe acute malnutrition and hypoalbuminemia were associated with increased risk of death. Common symptoms were poor oral intake, dysentery, lethargy and oliguria.
Key words: Acute gastroenteritis, oliguria, diarrhea

INTRODUCTION

Acute gastroenteritis is a common condition in children characterized by inflammation of the stomach and intestines, leading to symptoms such as vomiting, diarrhea, abdominal pain, and sometimes fever. It is often caused by viral, bacterial, or parasitic infections and is typically self-limiting, meaning it resolves on its own without specific medical treatment in most cases.[1]

Non-gastrointestinal tract infections such as meningitis, bacterial sepsis, pneumonia, otitis media, and urinary tract infection can all begin with diarrhea. Vomiting can be the initial symptom of metabolic problems, congestive heart failure, ingesting a poisonous chemical, or being harmed.[2] A complete history and physical examination should be undertaken as part of the evaluation of all children with acute gastroenteritis to rule out any serious illnesses. The clinical history should include information about the onset, frequency, quantity, and nature (i.e., the presence of bile, blood, or mucus) of vomiting and diarrhea. Recent oral intake, including breast milk and other fluids and food; urine output; weight prior to illness; and accompanying symptoms, such as fever or changes in mental state, should all be documented. The past medical history should reveal any underlying conditions.[3]

The Global Burden of Diseases, Injuries, and Risk Factors Study 2015 reported the diarrheal incidence of 2079 episodes per 1 lakh population under 5 years in children in 2015 in India. In India, 9% deaths in under 5 age group are due to diarrhoea.[4] Children with AGE with severe dehydration who are critically ill (shock, electrolyte disturbances, respiratory distress) have a more fulminant and complicated course with higher mortality and morbidity requiring intensive resources as compared to those with only some dehydration.[5] The present study was conducted to assess cases of acute diarrhoea with complications in children

MATERIALS & METHODS

The present study comprised of 65pediatric patients of acute gastroenteritis of both genders. Parental written consent was obtained before starting the study.

Data such as name, age, gender etc. was recorded. Severe dehydration was defined as per WHO criteria by the presence of 2 of the following signs lethargy or unconsciousness; floppy sunken eyes, thirst – drinks poorly or not able to drink, skin pinch goes back very slowly. Diarrhea was defined as three or more loose stools in a 24-hours period. Parameters such as duration of illness, signs, and symptoms at admission, vital signs, anthropometry, level of dehydration, biochemical parameters, fluid therapy, antimicrobial therapy, complications, cause of death, and treatment given were recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS
Table I Distribution of patients

| Total- 65		
Gender	Male	Female
Number	38	27

Table I shows that out of 65 patients, males were 38 and females were 27.

Table II: Comparison of parameters

Parameters	Variables	Survived (45)	Died (20)	P value
Symptoms	Poor oral intake	24	13	0.03
	Dysentery	36	8	0.01
	Lethargy	14	11	0.82
	Oliguria	27	6	0.01
Signs	Tachycardia	38	14	0.01
	Hypotension	15	8	0.01
	Pallor	26	15	0.05

Table II, graph I shows that symptoms were poor oral intake in 24 survived and 13 died children, dysentery was seen 36 survived and 8 died, lethargy in 14 survived and 11 died and oliguria 27 survived and 6 died children. Signs of tachycardia was seen in 38 and 14, hypotension in 15 and 8 and pallor in 26 and 15 survived and died children respectively. The difference was significant (P< 0.05).

Graph I: Comparison of parameters
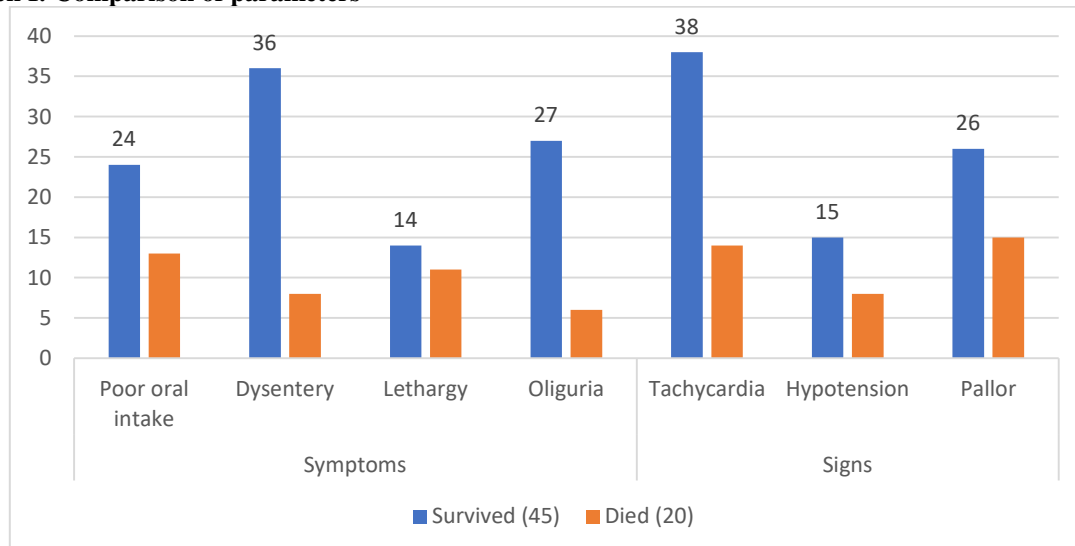
Table III: Comparison of laboratory parameters

Parameters	Survived	Died	P value
Inotropes in first 24 hours	32	12	0.02
ventilation in the first 24 hours	22	15	0.91
RC transfusionin the first 24 hours	17	10	0.05
Duration of PICU stay (days)	5.2	4.1	0.46
Blood glucose (mg/dl)	98.4	96.2	0.95
Blood urea (mg/dl)	64.2	58.4	0.05
Creatinine (mg/dl)	0.9	0.7	0.87
Albumin (g/dl)	3.4	2.3	0.03

Table III shows that mean inotropes in first 24 hours was needed in 32 and 12, ventilation in the first 24 hours seen in 26 and 15, RC transfusion in the first 24 hours in 17 and 10 and duration of PICU stay was seen in 5.2 and 4.1 days, blood glucose was 98.4 mg/dl and 96.2 mg/dl, blood urea was 64.2 mg/dl and 58.4 mg/dl, creatinine was 0.9 mg/dl and 0.7 mg/dl and albumin was 3.4 mg/dl and 2.3 mg/dlin survived and died children respectively.

DISCUSSION
In developing nations, acute gastroenteritis (AGE) or diarrheal sickness is still one of the main causes of death. Acute gastroenteritis, defined as diarrhea or vomiting (or both) lasting more than seven days, can be accompanied by fever, abdominal pain, and anorexia.[6] Diarrhoea is defined as the passing of overly watery or frequent faeces with high water content. In young children, stooling patterns vary greatly, and diarrhoea is a deviation from the norm. Every year, 3-5 billion instances of acute gastroenteritis and about 2 million fatalities occur in children under the age of five worldwide.[7] In the United States, gastroenteritis accounts for around 10% of hospital admissions, more than 1.5 million outpatient visits, and approximately 300 deaths in children under the age of five each year. Diarrhea is characterized by the passage of loose or watery stools; a common case definition of acute diarrhea is ≥ 3 loose or watery stools/day. The volume of fluid lost through stools can vary from 5 mL/kg body weight/day (approximately normal) to ≥ 200 mL/kg body weight/day.[8] Dehydration and electrolyte losses associated with untreated diarrhea cause the primary morbidity of acute gastroenteritis.[9,10]The present study was conducted to assess cases of acute gastroenteritis in children.

We found that out of 65 patients, males were 38 and females were 27. Singh et al[11] discovered risk variables for mortality in children. During this time, 62 children were admitted to the PICU with AGE. Twenty-four children (39%) were died. On univariate analysis, the following variables were found to be substantially linked with death: clinical pallor, thrombocytopenia, increased leucocyte count, hypoalbuminemia, and severe acute malnutrition (SAM). Only hypoalbuminemia and SAM remained statistically significant after multivariate analysis. The mortality rate for children admitted with severe dehydration and shock was significant. These children belonged to a sicker subset who had sepsis. In these patients, severe acute malnutrition and hypoalbuminemia were linked to an elevated risk of mortality.

We observed that symptoms were poor oral intake in 24 survived and 13 died children, dysentery was seen 36 survived and 8 died, lethargy in 14 survived and 11 died and oliguria 27 survived and 6 died children. Signs of tachycardia was seen in 38 and 14, hypotension in 15 and 8 and pallor in 26 and 15 survived and died children respectively. Chisti et al[12]compared and analysed factors among diarrhoeal children who died (n = 29) with those who survived (n = 229).In logistic regression analysis, after adjusting for potential confounders (infusion of intravenous fluid and immature PMN), absent peripheral pulse even after complete rehydration (OR 10.9, 95% CI 2.1-56.8; p < 0.01), severe malnutrition (OR 7.9, 95% CI 1.8-34.8; p < 0.01), hypoxaemia (OR 8.5, 95% CI 1.0-75.0; p = 0.05), radiological lobar pneumonia (OR 17.8, 95% CI 3.7-84.5; p < 0.01) and hypernatraemia (OR 15.8, 95% CI 3.0-81.8; p < 0.01) were independently associated with deaths among diarrhoeal children admitted to SCW.

We found that the mean inotropes in first 24 hours was needed in 32 and 12, ventilation in the first 24 hours seen in 26 and 15, RC transfusion in the first 24 hours in 17 and 10 and duration of PICU stay was seen in 5.2 and 4.1 days, blood glucose was 98.4 mg/dl and 96.2 mg/dl, blood urea was 64.2 mg/dl and 58.4 mg/dl, creatinine was 0.9 mg/dl and 0.7 mg/dl and albumin was 3.4 mg/dl and 2.3 mg/dl in survived and died children respectively. Alam et al[13]compared clinical and laboratory characteristics between study children those who died (n = 29) and those who survived (n = 62). In logistic regression analysis, after adjusting for potential confounders, the independent predictors for death in children hospitalized for diarrhea and severe respiratory distress were severe sepsis and hypoglycemia. Thus, recognition of these simple parameters may help clinicians identify children with diarrhea at risk of deaths in order to initiate prompt management for the better outcome, especially in resource-poor settings.

CONCLUSION
Authors found that severe acute malnutrition and hypoalbuminemia were associated with increased risk of death. Common symptoms were poor oral intake, dysentery, lethargy and oliguria.

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