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THE IMPORTANCE OF ORAL REHYDRATION SOLUTION IN THE TREATMENT OF DIARRHEAL DISEASES IN CHILDREN UNDER FIVE YEARS OF AGE

Abdullaev Nosir Zhuraevich
Central Asian Medical University, Fergana, Uzbekistan

Abstract

Diarrheal diseases remain one of the leading causes of morbidity and mortality among children under five years of age worldwide, particularly in low- and middle-income countries. Dehydration resulting from acute diarrhea is the primary factor contributing to severe complications and death in this age group. Oral rehydration solution (ORS) is recognized as a simple, effective, and cost-efficient intervention for the prevention and treatment of dehydration associated with diarrheal illnesses. The present article aims to analyze the significance of oral rehydration solution in the management of diarrhea in children under five years of age. The study highlights the mechanism of action of ORS, its clinical effectiveness, and its role in reducing hospitalization rates and mortality. Emphasis is placed on the importance of early administration of ORS and adherence to international treatment guidelines. The findings support the continued use of oral rehydration therapy as a cornerstone in the management of pediatric diarrheal diseases and underscore the need for increased awareness among healthcare providers and caregivers.

Keywords. Diarrheal diseases, children under five, oral rehydration solution, dehydration, pediatric care, oral rehydration therapy

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Introduction

Diarrheal diseases represent a major public health problem and remain one of the leading causes of illness and death among children under five years of age worldwide. Despite significant progress in prevention and treatment strategies, diarrhea continues to contribute substantially to childhood morbidity, particularly in developing countries. The most serious and life-threatening complication of acute diarrhea is dehydration, which can rapidly develop in young children due to their limited physiological reserves and higher fluid requirements.

Oral rehydration solution (ORS) has been widely recognized as a cornerstone of diarrhea management in pediatric practice. Its effectiveness lies in its ability to restore fluid and electrolyte balance through the sodium–glucose co-transport mechanism in the intestinal mucosa, even during episodes of severe diarrhea. The simplicity, safety, and low cost of ORS make it an essential therapeutic tool at both community and healthcare facility levels.

Children under five years of age are particularly vulnerable to dehydration caused by diarrheal diseases, as repeated episodes of fluid loss may lead to electrolyte imbalance, metabolic acidosis, and circulatory failure if not promptly managed. Early and appropriate use of ORS has been shown to significantly reduce the need for intravenous therapy, hospital admissions, and mortality rates associated with diarrheal illnesses.

Given the global burden of diarrheal diseases and the proven effectiveness of oral rehydration therapy, understanding the role and importance of ORS in the treatment of diarrhea among young children remains highly relevant. This article aims to emphasize the clinical significance of oral rehydration solution in the management of diarrheal diseases in children under five years of age and to highlight its role in preventing dehydration and improving clinical outcomes.

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Materials and Methods

This study was conducted as an observational and analytical assessment of the use of oral rehydration solution in the treatment of diarrheal diseases in children under five years of age. The study population included children who presented with acute diarrhea and varying degrees of dehydration at primary healthcare facilities and pediatric departments.

Children aged from 1 month to 59 months with a clinical diagnosis of acute diarrhea were included in the study. Diarrhea was defined as the passage of three or more loose or watery stools within a 24-hour period. Children with signs of mild to moderate dehydration were managed with oral rehydration solution according to World Health Organization guidelines. Patients with severe dehydration, chronic gastrointestinal diseases, or serious comorbid conditions were excluded from the analysis.

Clinical evaluation included assessment of hydration status, general condition, frequency of stools, presence of vomiting, and associated symptoms such as fever. The degree of dehydration was determined based on standard clinical criteria, including skin turgor, mucous membrane moisture, capillary refill time, and level of consciousness. Oral rehydration solution was administered orally in small, frequent amounts, and caregivers were instructed on proper preparation and administration.

Data were collected on clinical response to oral rehydration therapy, duration of diarrhea, need for additional medical interventions, and hospitalization rates. The effectiveness of ORS was evaluated based on improvement in hydration status, reduction in clinical symptoms, and prevention of progression to severe dehydration.

Statistical analysis was performed using descriptive methods to summarize clinical outcomes and assess the overall effectiveness of oral rehydration solution in the management of diarrheal diseases in children under five years of age.

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Results

The analysis of clinical outcomes demonstrated that oral rehydration solution was effective in the majority of children under five years of age presenting with acute diarrheal diseases. Following the initiation of oral rehydration therapy, most patients showed a rapid improvement in hydration status, with a noticeable reduction in clinical signs of dehydration within the first 24 hours of treatment.

Children with mild dehydration responded particularly well to oral rehydration solution, achieving full rehydration without the need for additional medical interventions. In cases of moderate dehydration, ORS administration resulted in significant clinical improvement, reducing the progression to severe dehydration and minimizing the need for intravenous fluid therapy. The frequency of diarrheal stools gradually decreased during the course of treatment, and vomiting episodes were effectively managed by administering ORS in small, frequent amounts.

The use of oral rehydration solution was associated with a reduced rate of hospitalization among the study population. Caregivers who received appropriate instructions on the preparation and administration of ORS were able to continue effective rehydration at home, contributing to shorter disease duration and improved overall outcomes. No serious adverse effects related to oral rehydration therapy were observed during the study period.

Overall, the results indicate that timely and appropriate use of oral rehydration solution plays a crucial role in preventing dehydration-related complications and improving clinical outcomes in children under five years of age with diarrheal diseases.

Discussion

The findings of this study confirm the critical role of oral rehydration solution in the management of diarrheal diseases among children under five years of age. Dehydration remains the most dangerous complication of acute diarrhea, and timely intervention is essential to prevent severe outcomes. The observed clinical

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improvements following ORS administration highlight its effectiveness in restoring fluid and electrolyte balance, even in the presence of ongoing diarrheal losses.

The results are consistent with international evidence demonstrating that oral rehydration therapy significantly reduces the need for intravenous fluids and hospitalization. The rapid improvement in hydration status observed in most patients emphasizes the importance of early initiation of ORS, particularly at the community and primary healthcare levels. Proper caregiver education regarding preparation and administration of ORS played a key role in successful home-based management and contributed to favorable clinical outcomes.

Despite its proven efficacy, underutilization of oral rehydration solution remains a challenge in some settings, often due to lack of awareness or misconceptions regarding its effectiveness. The findings underscore the necessity of strengthening educational efforts among healthcare providers and caregivers to promote correct and consistent use of ORS as the first-line treatment for childhood diarrhea.

Conclusion

In conclusion, oral rehydration solution is a highly effective, safe, and accessible intervention for the treatment of diarrheal diseases in children under five years of age. Its timely use prevents dehydration, reduces the risk of severe complications, and decreases the need for hospitalization. Oral rehydration therapy should remain the cornerstone of diarrhea management in pediatric practice, supported by continuous education of caregivers and healthcare professionals. Strengthening the implementation of ORS-based treatment strategies is essential for improving child health outcomes and reducing diarrhea-related morbidity and mortality.

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