International Journal of Science and Healthcare Research
[Indexed, Peer-Reviewed Journal]
Vol. 11; Issue: 3; July-Sept. 2026
Website: ijshr.com
Case Series *ISSN: 2455-7587*

Role of Low-Osmolar Oral Rehydration Solution in Managing Intractable Diarrhoea and Dehydration in Early Infancy: A Case Series

Aravind Swaminathan

Department of Paediatrics, St Peter's Medical College Hospital and Research Institute

Corresponding author: Dr Aravind Swaminathan

DOI: https://doi.org/10.52403/ijshr.20260312

Received: 27/04/2026; Revised: 26/06/2026; Accepted: 22/07/2026

ABSTRACT

Background: Pathologies causing excessive stool output and dehydration in young infants frequently prompt prolonged intravenous rehydration, which carries clinical risk. Although low-osmolar oral rehydration solution (ORS) is effective, it remains underutilized in neonates and early infancy due to safety concerns.

Methods: This case series evaluated three infants (aged 18 days to 4.5 months) with dehydration driven by distinct pathologies: an ex-preterm infant with bowel resection and a high-output stoma; a 6-week-old infant with severe cow's milk protein allergy; and an 18-day-old infant with parenteral diarrhoea from a urinary tract infection and secondary lactose intolerance. Fluid deficits were managed using the World Health Organization low-osmolar ORS (245 mOsm/l) alongside amino-acid-based or lactose-free formulas.

Results: Enteral low-osmolar ORS successfully corrected dehydration and fluid loss in all cases. The stoma output in case 1 decreased with weight gain within 2 days. Dehydration in case 2 resolved within 2 days, allowing for ORS discontinuation by day 6. Stool patterns in case 3 normalized within three days. Regular serum sodium monitoring revealed no adverse effects or dyselectrolytemia, enabling successful nutritional rehabilitation and weight gain.

Conclusions: Low-osmolar ORS appears to be a safe, effective, and sustainable enteral alternative to prolonged intravenous hydration for managing fluid loss and correcting dehydration in neonates and young infants. However, large-scale studies are needed to validate this recommendation.

Keywords: Infantile diarrhoea, Low-osmolar ORS, High-output stoma, Malabsorption, Dehydration

INTRODUCTION

The Global Burden of Disease Study published in 2019 concluded that diarrhoea was among the top five leading causes of death in children below the age of 5 years. [(1)] It is imperative to diagnose diarrhoea with dehydration in a timely manner and treat it promptly. Although deaths due to diarrhoea are high in Sub-Saharan Africa, a study revealed that there was only 38% prevalence of oral rehydration solution (ORS) use in under-five children with diarrhoea in this part of the world. [(2)] While this is the scenario in children under five years of age, there is more hesitation in the use of ORS in neonates and in early infancy, owing to a lack of awareness and concerns regarding its safety and efficacy. Pizarro et al reported the successful management of dehydration in

neonates with diluted ORS in 1979 without any significant dyselectrolytemias. [(3)] Another randomized controlled study revealed that the administration of low osmolarity ORS in children aged between 6 months and 12 years diagnosed with severe acute malnutrition resulted in similar outcomes to rehydration solution for malnutrition (ReSoMal) in terms of rise in serum sodium levels, 28-day mortality, and fluid overload. [(4)] Reports in adults have shown the benefits of replacing total parenteral nutrition with rice hydrolysate oral rehydration therapy, thereby avoiding the risks of long-term intravenous access, such as central line- associated blood stream infections. [(5)] However, similar reports on young infants are lacking in the literature.

Here, we present a series of three children in early infancy with varied pathologies who were treated with ORS with marked benefits and without any adverse effects.

Study Objective:

This case series aimed to evaluate the clinical efficacy, safety, and feasibility of using the World Health Organization (WHO) low-osmolar oral rehydration solution (245 mOsm/l) as an enteral strategy to correct dehydration and manage ongoing fluid losses in neonates and young infants with diverse, severe gastrointestinal pathologies. By documenting these clinical courses, this study aimed to challenge the conventional reliance on prolonged intravenous fluid therapy in early infancy and provide practical clinical insights into safe enteral fluid management.

METHODS

Study Design:

This retrospective case series evaluated the clinical utility, safety, and efficacy of the World Health Organization low-osmolar oral rehydration solution (WHO-ORS) in managing dehydration and ongoing fluid loss in early infancy.

Study Setting and Period:

The study was conducted in the Department of Paediatrics at St Peter's Medical College Hospital and Research Institute, a tertiary care teaching hospital in Hosur, Tamil Nadu, India. The infants were managed over a period spanning November 2025 to May 2026.

Neonates and young infants (under 6 months of age) admitted to the neonatal or paediatric intensive care unit with intractable diarrhoea or high-output stoma resulting in fluid deficit and dehydration and eligible for WHO-ORS administration were included in the study.

Data Collection Methods:

Clinical and laboratory data were retrospectively retrieved from the patients' medical records and bedside charts. The following data points were collected:

- **Demographics and Clinical History:** Gestational age, birth weight, chronological age at presentation, and primary aetiology of illness.
- **Vitals and Physical Signs:** Heart rate, respiratory rate, capillary refill time, and physical markers of dehydration (e.g., sunken eyes and depressed anterior fontanelle).
- **Fluid and Nutritional Management Logs:** Daily volumes of intravenous fluids, enteral feeds (amino-acid-based or lactose-free formulas), and low-osmolar ORS administered.
- **Laboratory Parameters:** Serial venous blood gas (pH, bicarbonate, base excess, lactate), complete blood counts, renal function tests, stool reducing substances, and serial serum sodium levels.

Intervention and Quantification of Losses:

Fluid deficits and ongoing gastrointestinal losses were corrected enterally using WHO low-osmolar ORS with an osmolarity of 245 mOsm/l. Ongoing stool and stoma losses were quantified by weighing the diapers or gauze pads. Thirst was subjectively assessed by monitoring infant irritability during or after feeding. Enteral feeding volumes were restricted to the minimum tolerated amount

to avoid osmotic overload and were advanced progressively as bowel tolerance improved.

Outcome Measures:

The primary clinical outcomes evaluated were as follows:

1. Successful correction of dehydration and stabilization of the vital signs.
2. Time taken to achieve a reduction and normalization of stool or stoma output.
3. Safety of enteral low-osmolar ORS, defined as the absence of secondary hypernatremia or hyponatremia during the therapy.
4. Time to achieve nutritional rehabilitation, defined as a steady weight gain.

Follow-Up:

Following clinical stabilization, normalization of stool patterns, and complete discontinuation of ORS, the patients were discharged with tailored enteral nutrition. Long-term outpatient follow-up was conducted at the paediatric clinic to monitor physical growth, weight velocity, feeding tolerance, and overall developmental thriving. The follow-up periods ranged from 2 to 7 months, depending on the case complexity.

CASE SERIES

Case 1:

A female infant born preterm at 25 weeks of gestation with a birth weight of 705 grams and treated for multiple morbidities in the first month of life, presented to the emergency room at 4.5 months of postnatal age with complaints of fever, abdominal distension, fast breathing, and lethargy for 1 day. On examination, she was noted to have tachypnoea (respiratory rate of 65/minute), tachycardia (heart rate of 148/min), hypoxemia (SpO2 of 80% in room air), shallow respiratory efforts, and a tense distended abdomen. Dark altered aspirates were observed in the orogastric tube. Venous blood gas analysis showed severe metabolic acidosis and elevated lactate levels (pH: 7.007, HCO3: 8.8 mmol/l, base excess [BE]: -22.4, PCO2: 35.2 mmHg, lactate: 21 mmol/l). Abdominal radiography revealed significantly dilated bowel loops and thickening of the bowel walls. Her blood work revealed the following: C-reactive protein (CRP): 88 mg/l (normal< 5mg/l), haemoglobin: 9.4 g/dl, leucocyte count: 12,800 cells/ cu.mm, platelet count: 1,00,000 cells/cu.mm, blood urea: 74 mg/dl, serum creatinine: 0.7 mg/dl, aspartate transaminase: 421 IU/l and alanine transaminase: 501 IU/l. Based on the above findings, she was diagnosed with necrotizing enterocolitis and possible sepsis. She was intubated and ventilated using high-frequency oscillatory ventilation and received intravenous meropenem for 2 weeks. She underwent an emergency laparotomy, during which necrotic bowels (ileum, ileocaecal valve and ascending colon) were resected, and a divided stoma from the transverse colon and ileum was created.

Postoperatively, following treatment with antibiotics and total parenteral nutrition, she was initiated on amino-acid-based formula feeds on day 5 of admission in small quantities, which she tolerated. Although feed quantity was gradually increased, the stool output from the stoma was very high, resulting in dehydration and progressive weight loss. The feed exacerbated the diarrhoea, dehydration, and weight loss. Urine sodium was found to be low (14.4 mEq/l with an expected range of 20-40 mEq/l). Therefore, the baby was treated with enteral 3% sodium chloride to provide sodium at a dose of 4 mEq/kg/day. The feed volume was reduced according to the tolerance. Fluid deficit correction was performed using the World health Organization low-osmolar oral rehydration solution (WHO-ORS) with an osmolarity of 245 mOsm/l. With this strategy, her stoma output gradually reduced, and weight gain was noted after 2 days. The same was continued for a total of 7 days, after which she tolerated the conventional formula feeds in optimal quantity and continued to gain weight appropriately, as shown in Table 1. ORS was discontinued after 7 days. She

underwent stoma closure a month later and is thriving well at the follow-up at 7 months after discharge.

Table1: The timeline of events since admission, including fluid management, serum sodium status, and weight progression in case 1

Day	1	14	15	16	17	19	21	22
Intravenous fluid (IVF) (ml/kg/day)	100	0	0	0	0	0	0	0
Feeds (ml/kg/day)	0	140	186	140	160	170	120	180
ORS (ml/kg/day)	0	0	35	50	25	30	20	0
Serum Sodium (mEq/l)	133		134	138	140		138	142
Weight (g)	3760	3130	3160	3220	3285	3355	3540	3560

Case 2:

A 6 weeks old male infant presented to the emergency room with complaints of loose stools for 2 days, reduced activity, irritable cry, poor feeding, and abdominal distension for 1 day. Loose stools were passed 8-10 times a day in large quantities and were watery in consistency. He was born via normal vaginal delivery at term gestation, weighing 2600 grams and had a normal perinatal transition. He was exclusively breastfed directly since birth. The mother witnessed less breast milk output a week prior to admission, and started the baby on cow's milk diluted 1:1 with water.

On examination, his admission weight was 2860 grams. He had tachypnoea (respiratory rate of 82/minute), tachycardia (heart rate of 160/min), delayed capillary refilling time (8 seconds), mottling of skin, and unrecordable blood pressure. The child was intubated and ventilated. Initial blood gas analysis showed severe metabolic acidosis and elevated lactate levels (pH: 7.010, HCO3: 7, BE: -20.3, PCO2: 16.1 mmHg, lactate: 13.2 mmol/l). His investigations revealed a white cell count of 28,600 cells/cu.mm, C-reactive protein was elevated (24.2 mg/l), blood urea: 50 mg/dl and serum creatinine: 0.6 mg/dl. Liver enzymes were normal, but hypoalbuminemia was noted (serum albumin 2.3 g/dl). He was treated with intravenous fluid resuscitation, sodium bicarbonate infusion, inotropes, and antibiotics (intravenous piperacillin-tazobactum and amikacin).

Upon recovery from the acute illness, he was given expressed breast milk in small quantities starting on day 4 of admission, which he tolerated. Due to inadequate breast milk supply, conventional cow's milk-based formula feed was added on day 15 of admission, which provoked severe diarrhoea and dehydration. The patient was diagnosed with severe non-IgE- mediated cow's milk protein allergy. Associated secondary lactose intolerance was identified due to the presence of reducing substances in the stool. The feeds were changed to an amino acid-based formula, and dehydration was managed using WHO ORS. The infant's general condition improved, and dehydration was corrected within 2 days. ORS was stopped after 6 days when the loose stools completely resolved. No adverse effects of ORS were observed in this baby as evident in Table 2. He was discharged in a good state with advice to continue the amino-acid-based formula. The child was thriving well and had normal bowel movements during the two months of follow-up.

Table 2: The timeline of events since admission including the fluid management, serum sodium status and progression of weight in case 2

Day	1	9	10	16	17	18	19
Intravenous fluid (ml/kg/day)	150	20	100	0	0	0	0
Feeds (ml/kg/day)	0	70	45	230	240	190	210
ORS use (ml/kg/day)	0	0	0	40	80	50	20
Serum Sodium (mEq/l)	134	149	150	139		135	
Weight (g)	2860	3000	2790	2790	2810	2910	2900

Case 3:

An 18 days old girl was brought to the emergency room with complaints of excessive crying and eight episodes of watery loose stools for one day. She was born at term by normal vaginal delivery weighing 2380 grams with normal perinatal transition. Formula feeding was initiated on day 7 of life due to inadequate maternal breast milk supply. At admission, her weight was 2215 grams, heart rate was 150/min, respiratory rate was 72/min, capillary refill time was 3-4 seconds while peripheral pulses were well felt. However, she was irritable, her anterior fontanelle was depressed, and the eyes appeared sunken implying dehydration.

Venous blood gas analysis showed severe metabolic acidosis with elevated lactate levels (pH:7.191, HOC3:12.6 mmol/l, BE: -17 mmol/l, PCO2:29.3 mmHg, lactate-3.5 mmol/l). She was treated with 100 ml/kg/day of maintenance intravenous fluid with 0.45% dextrose normal saline along with another 100 ml/kg/day of dehydration correction with 0.45% normal saline. The baby was kept nil per oral and her vital signs and urine output were monitored. C-reactive protein (CRP) levels were elevated (10.5 mg/l). Renal function tests, serum electrolytes, liver function tests, and full blood count were within normal limits. She was started on intravenous antibiotics (piperacillin-tazobactam and amikacin as per institutional policy). Urine culture grew multidrug-resistant *Klebsiella pneumoniae,* which was treated with intravenous tigecycline for 10 days. Cerebrospinal fluid analysis did not reveal any evidence of meningitis in the baby.

Conventional formula feeding was initiated on day 2 of admission. She once again had large- volume watery loose stools and worsening venous blood gas results (pH:7.153, HCO3:11.4 mmol/l, BE: -19.4, lactate-4.0 mmol/l, PCO2-26.8 mmHg). Dehydration was corrected with intravenous fluids and bicarbonate was infused to replenish the loss for 24 hours. Stool analysis revealed the presence of reducing substances, indicating secondary lactose intolerance. The next day, an amino-acid-based lactose-free formula milk was administered along with WHO ORS, which was well tolerated. The proportionate volume of intravenous fluids, feeds, and ORS administered to the baby each day is depicted in Table 3. The stool pattern normalized in the next 3 days, by which time the ORS was tapered and stopped, and the amino-acid formula was continued. The patient was discharged in stable condition. Upon reintroduction of conventional formula feed 6 weeks after discharge, the tolerance was good. Her weight gain was noted to be appropriate during the follow-up for 6 months.

Table 3: The timeline of events since admission including the fluid management, serum sodium status and progression of weight in case 3

Day	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Intravenous fluid (ml/kg/day)	170	100	46	200	100	70	60
Feeds (ml/kg/day)	27	0	120	0	0	100	193
ORS use (ml/kg/day)	0	0	20	150	100	0	0
Serum Sodium (mEq/l)	146	143	138	142	140	137	135
Weight (g)	2215	2405	2310	2100	2430	2300	2320

Table 4: Clinical Characteristics, Management, and Outcomes of the Patient Cohort

Parameter	**Case 1**	**Case 2**	**Case 3**
Age	4.5 months (ex-preterm)	6 weeks	18 days
Gender	Female	Male	Female
Underlying Diagnosis	Post-bowel resection with a high-output stoma	Severe non-IgE mediated cow's milk protein allergy	Parenteral diarrhoea due to UTI; secondary lactose intolerance
ORS Regimen	WHO low-osmolar ORS (245 mOsm/l) titrated to stoma losses; enteral volume restricted	WHO low-osmolar ORS (245 mOsm/l) enterally;	WHO low-osmolar ORS (245 mOsm/l) enterally;

		amino-acid based formula introduction	lactose-free infant formula
Duration of ORS Therapy	7 days (discontinued after symptom resolution)	6 days (discontinued after stabilization)	3 days (discontinued after symptom resolution)
Clinical Outcomes	•Stoma output decreased within 2 days •Initial weight gain within 48 hours •No secondary dyselectrolytemias	• Complete resolution of dehydration within 2 days • Safe nutritional rehabilitation • Stable normal serum sodium levels	• Stool frequency normalized within 3 days • Rapid clinical rehydration achieved • No adverse metabolic effects
Follow-Up	7 months outpatient follow-up; monitoring growth velocity & feeding tolerance; slow weight gain noted	2 months outpatient follow-up; steady physical growth achieved	6 months outpatient follow-up; thriving with normal weight gain

WHO, World Health Organization; ORS, Oral Rehydration Solution; UTI, Urinary Tract Infection

DISCUSSION

The National Family Health Survey-6 (NFHS-6) revealed that 7.9% of under-five children in India had suffered an episode of diarrhoea in the 2 weeks preceding the survey. [(6)] Untreated diarrhoea may lead to dehydration and loss of electrolytes in the stools, the severity of which is more in early infancy. Due to the wide range of variation in the frequency and consistency of stools in young infants, the diagnosis of diarrhoea may be delayed in this age group. The aetiology of diarrhoea in this age group is diverse and includes intolerance to milk protein, gastrointestinal infections, parenteral diarrhoea due to infections at sites other than the gastrointestinal tract (such as urinary tract infections), antibiotic-induced diarrhoea, congenital diarrhoeal disorders, Hirschsprung's disease, cystic fibrosis, immunodeficiency, and metabolic disorders. [(7)] In addition, infants with a stoma or those who had undergone bowel resection may also present with diarrhoea due to malabsorption or short bowel syndrome.

In the case series described here, the first infant had lost a significant length of bowel, which resulted in diarrhoea; the second one had a severe form of non-IgE-mediated cow's milk protein allergy; and the third infant initially presented with parenteral diarrhoea secondary to a urinary tract infection and then eventually developed worsening due to secondary lactose intolerance. In all these infants, prolonged parenteral therapy was avoided due to timely and diligent use of low osmolar oral rehydration solution in the requisite amount without any major adverse effects.

Increase in stool volume with increase in feed volume: hunger vs thirst conundrum

Neonates or young infants with excessive diarrhoea suffer dehydration, which activates the thirst mechanism. However, the ensuing increased feed intake may lead to diarrhoea (either due to reduced absorptive area or intolerance), worsening dehydration and thirst, and setting up a vicious cycle. In this context, it is prudent to ensure a feed intake that is tolerated by the viable gut and sufficient to provide adequate nutrients. The rest of the fluid requirement can be better delivered by a liquid that replenishes water and electrolytes without adding to the osmotic load in the gut. Neonates have limitations in coping with dehydration, such as a minimal reserve in ramping up the renin angiotensin aldosterone system and a higher volume of total body water in the extracellular compartment, the loss of which rapidly impacts the blood volume and the lack of an effective renal medullary osmotic gradient, which is essential to concentrate the urine.

Advantages and safety profile of ORS in neonates and young infants

ORS contains equimolar concentrations of sodium and glucose that are absorbed in the intestine via the sodium glucose co-transporter 1, whose function is reasonably

retained despite intestinal inflammation. Low osmolarity ORS enhances fluid absorption. Oral administration of fluid enables neonates to determine the volume of fluid intake, thereby avoiding the hazards of intravenous rehydration, including fluid overload, infections, and abrupt changes in haemodynamics.

The infant described in case 1 underwent a complicated bowel surgery and suffered excessive stomal fluid loss as a result. Having received prolonged intravenous fluids and parenteral nutrition, the treatment of this baby's dehydration could be successfully managed with the use of ORS in a safe and effective manner. The avoidance of restarting intravenous hydration benefitted this baby in multiple ways, as mentioned above. Sodium loss via stoma in infants who have undergone bowel surgeries can lead to growth faltering. The sodium deficit can be identified by urinary sodium levels and replenished as part of nutritional management of such infants. [8] The same strategy was followed in case 1 by treating with 3% sodium chloride. However, it is prudent to monitor the sodium levels in such infants who receive sodium through multiple modalities – ORS, 3% NaCl, and feeds.

A case series report including five infants aged between 1.5- 8 months with ileostomy stoma and excessive stoma loss outlined the applicability of oral rehydration solution in this population to maintain fluid and electrolyte balance. [9] A similar strategy was adopted in case 1, which was described in this series and was successful in treating and eventually preventing dehydration and enabling weight gain.

A controlled randomized study in neonates and young infants demonstrated the safety and efficacy of low osmolar ORS compared to conventional ORS. [10] A randomized controlled clinical trial using low osmolar ORS in neonates and young infants with acute watery diarrhoea also proved the effectiveness in managing dehydration and the absence of hypernatremia and other concerns in this age group. [11] A recent meta-analysis and systematic review revealed that low osmolarity ORS use in children aged below 10 years resulted in a significant decrease in the duration of diarrhoea and stool output when compared to the standard ORS. [12] Hence, the available literature clearly outlines the practical applicability of low osmolar ORS in young infants.

Limitations of the Study:

This study demonstrates the successful clinical application of low-osmolar ORS in early infancy; however, several key limitations must be acknowledged. First, the small sample size of only three patients restricts our ability to draw statistically significant conclusions or establish broader clinical guidelines. Second, the single-centre design, conducted within a specific tertiary care setting in southern India, means that the outcomes may reflect localized clinical protocols, nursing expertise, and demographic traits that may not fully represent other healthcare environments. Third, the absence of a comparator group (such as a parallel cohort managed strictly with standard intravenous fluid therapy) makes it impossible to directly compare recovery velocities, complication rates, or cost-effectiveness. Finally, due to these constraints, there is limited generalizability of our findings; the diverse and highly specific aetiologies of the infants presented mean that the enteral fluid tolerances observed here may not universally apply to all forms of neonatal diarrheal illness or anatomical high-output states. Larger, multicentre, prospective studies are required to validate these findings on a wider scale.

CONCLUSION

The timely recognition and appropriate management of diarrhoea and dehydration in young infants constitute a major challenge. It is essential to address the underlying cause of diarrhoea and implement the requisite modification in feeding i.e.; adoption of extensively hydrolyzed or amino-acid-based formula in an infant with severe cow's milk protein allergy or lactose-free formula in those with lactose intolerance. It is equally

important to address dehydration and dyselectrolytemias in such infants arising from excessive stool loss. This is also imperative to achieve nutritional rehabilitation and recovery from the underlying illness. Low osmolar ORS is a safe and effective option to correct dehydration and sodium deficit in neonates and young infants, especially in subacute or chronic fluid losses, and is a better sustainable choice compared to intravenous rehydration or parenteral nutrition in this age group.

Declaration by Authors
Acknowledgement: None
Source of Funding: None
Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. GBD 2019 Under-5 Mortality Collaborators. Global, regional, and national progress towards Sustainable Development Goal 3.2 for neonatal and child health: all-cause and cause-specific mortality findings from the Global Burden of Disease Study 2019. *Lancet*. 2021 Sep 4;398(10303):870-905. doi: 10.1016/S0140-6736(21)01207-1.
2. Adedokun ST, Yaya S. Prevalence of oral rehydration solution use and its determinants in the treatment of diarrhea among under-five children in sub-Saharan Africa. *PLoS One*. 2024 May 16;19(5): e0303193. doi: 10.1371/journal.pone.0303193.
3. Pizarro D, Posada G, Mata L, Nalin D, Mohs E. Oral rehydration of neonates with dehydrating diarrhoeas. *Lancet*. 1979 Dec 8;2(8154):1209-10. doi: 10.1016/s0140-6736(79)92332-8.
4. Maitland K, Sainna H, Connon R, George EC, Chimalizeni Y, Mpoya A, et al. Oral rehydration for severe malnutrition in children with moderate and severe dehydration (GASTROSAM): a phase 2, open-label, superiority randomised controlled trial. *Lancet Child Adolesc Health*. 2026 May;10(5):319-329. doi: 10.1016/S2352-4642(25)00371-2.
5. Wright SM, Noon MJ, Greenough WB. Oral rehydration therapy and feeding replaces total parenteral nutrition: a clinical vignette. *J Gen Intern Med*. 2016 Feb;31(2):255-7. doi: 10.1007/s11606-015-3396-1.
6. International Institute for Population Sciences (IIPS). National Family Health Survey (NFHS-6), 2023-24: India and State/UT Fact Sheets [Internet]. Mumbai: IIPS; 2026 [cited 2026 Jun 17]. Available from: https://www.nfhsiips.in/nfhsuser/assets/National%20Family%20Health%20Survey%20(NFHS-6)%202023-2024%20Fact%20Sheets.pdf
7. Passariello A, Terrin G, Baldassarre ME, De Curtis M, Paludetto R, Berni Canani R. Diarrhea in neonatal intensive care unit. *World J Gastroenterol*. 2010 Jun 7;16(21):2664-8. doi: 10.3748/wjg. v16.i21.2664.
8. Mansour F, Peterson D, De Coppi P, Eaton S. Effect of sodium deficiency on growth of surgical infants: a retrospective observational study. *Pediatr Surg Int*. 2014 Dec;30(12):1279-84. doi: 10.1007/s00383-014-3619-2.
9. Radlovic V, Lekovic Z, Radlovic N, Simic D, Asanin B, Radlovic P, et al. Significance of the application of oral rehydration solution to maintain water and electrolyte balance in infants with ileostomy. *Srp Arh Celok Lek*. 2013 May-Jun;141(5-6):325-8. doi: 10.2298/sarh1306325r.
10. Bhargava SK, Sachdev HP, Das Gupta B, Daral TS, Singh HP, Mohan M. Oral rehydration of neonates and young infants with dehydrating diarrhea: comparison of low and standard sodium content in oral rehydration solution. *J Pediatr Gastroenterol Nutr*. 1984 Jul;3(4):500-5. doi: 10.1097/00005176-198409000-00004.
11. Khan AM, Sarker SA, Alam NH, Hossain MS, Fuchs GJ, Salam MA. Low osmolar oral rehydration salts solution in the treatment of acute watery diarrhoea in neonates and young infants: a randomized, controlled clinical trial. *J Health Popul Nutr*. 2005 Mar;23(1):52-7.
12. Zubairi MBA, Naqvi SK, Ali AA, Sharif A, Salam RA, Hasnain Z, Soofi S, Ariff S, Nisar YB, Das JK. Low-osmolarity oral rehydration solution for childhood diarrhoea: A systematic review and meta-analysis. J Glob Health. 2024 Dec 6; 14:04166. doi: 10.7189/jogh.14.04166.

How to cite this article: Swaminathan A. Role of low-osmolar oral rehydration solution in managing intractable diarrhoea and dehydration in early infancy: a case series. *Int. J. Sci. Healthc. Res.* 2026; 11(3): 97-104. DOI: *https://doi.org/10.52403/ijshr.20260312*

******