



## Diarrhoea Management Flouting National Guidelines - A Case Study

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### Abstract

As per WHO every year around 525000 children die due to Diarrhoea, making it second most cause of death among under five children and which is both preventable and treatable.

Dehydration and electrolyte imbalance are the main complications of diarrhoea. Timely replacement of fluids and electrolytes are the simple interventions to prevent dehydration and resultant consequences. I report here such a case in a two and half year-old female that was not treated as per national or WHO guidelines. The girl reported with sudden onset of fever of two days followed by Diarrhoea. Initially home available fluids were given, but as the child started vomiting the baby was taken to a Paediatrician. Apart from legitimate Oral Rehydration solution (ORS) the child was given antibacterial, Furazolidone and Metronidazole (since banned in India) for three days that was unwarranted but not Zinc supplemented as mandated.

Indian Academy of Paediatrics guidelines do not recommend Antibiotic therapy unless there is blood in the stool. In Indian children most diarrheal episodes are caused by viruses, and therefore no antibiotics are recommended by WHO or UNICEF or Government of India, Ministry of Health and Family Welfare and IAP. WHO and GOI guidelines for acute Diarrhoea management aims at preventing dehydration, if there are no signs of dehydration treat dehydration, when it is present; prevent nutritional damage, and reduce the duration and severity of diarrhoea, and the occurrence of future episodes, by giving supplemental zinc as most of diarrhoea cases are self-limiting, regardless of causative factor.

Such practices are a challenge to the National and Provincial governments for empowering families and practitioners for the appropriate management.

**Keywords:** WHO; UNICEF; Diarrhoea

### Background

Diarrhoea is change in consistency of the stools passed. The passage liquid stools three or more times in a day or more frequent than the normal. It's normally a sign of a gastrointestinal infection, due to multiple pathogens. Spread infection is through contaminated water, food, flies, fomites or from individual to individual because of poor hand washing practices. Severe diarrhoea causes fluid and minerals loss which can be lethal, particularly in young children and those who have weakened immune systems

or malnourished. Mild dehydration causes thirst and increase the urge to fluid when offered. General irritability, discomfort that can be normally treated with oral rehydration. Death may occur when as much as 15 - 25% of the body fluids are lost.

In general, dehydration is graded as follows: a) mild: Not much of hemodynamic disturbances as only about 5% body weight in infants and 3% in adolescents is lost) b) Moderate: Increased pulse rate as about 10% of body weight in babies and 5% to 6% in ado-

lescents is lost and c) Severe: Reduction in blood pressure due to impaired perfusion as about 15% body weight in infants and 7 to 9 percent in adolescents is lost. Shift in body weight is another way to measure the degree of dehydration in children with severe dehydration. any short-term weight loss greater than 1%/day is assumed to reflect fluid deficiency.

In India, infections from rotavirus, salmonella bacteria, and, on rarely as Amoeba and Giardia parasitic infection are common [1]. Most frequent cause of diarrhoea in children is viruses. Bacterial gastroenteritis infections may also manifest as vomiting, stomach ache, fatigue, and fever, in addition to watery stools.

While treating viral gastroenteritis, that are self-limiting and lasting from 5 - 14 days, prevention of dehydration due to fluid depletion is by resorting to rehydrating as soon as possible. Water does not contain enough salt, potassium, and other nutrients to rehydrate young children safely. Offering frequent breast feeding, increased fluids or an oral rehydration solution (ORS) to infants over 6 months and young children to supplement the minerals lost is the best practice... Despite the national government [2] and Professional organization's guidelines, flouting the best practices is common. I report a case of a child of two and half year who had acute Diarrhoea and fever followed by Vomiting that was managed by unnecessary antibiotics and anti-diarrhoeal.

### Case Presentation

A two and half year-old female reported with sudden onset of fever of two days followed by Diarrhoea. Nature of the stools was watery. No blood or mucus in stools was reported on prompting. Other symptoms present were Nausea and Vomiting. Child was not able to take food or drink fluids due to vomiting and nausea.

Fever had started suddenly at night on Saturday. Initially Parents gave Paracetamol syrup and resorted to liquid foods. But when the loose stools continued parents got worried and took to Paediatrician on Sunday morning.

### Findings of the paediatrician

General lethargy, Drowsiness, Signs of Mild dehydration were present.

### Investigations

None.

### Treatment

- Domstal- Suspension - It blocks the substance on the brain that triggers nausea and vomiting-5ml two times -morning and evening for 3 days.
- Pacimol DS- containing Paracetamol an antipyretic 250 mg/5 ml -5ml each time, twice a day for 3 days.
- Entaromax Suspension- An antibacterial suspension (containing Furazolidone and Metronidazole)- 2.5 ml each time for two times a day for 3 days-currently banned in India.
- Syp.Zenflox (an anti-bacterial) 2.5ml each time, two times for three day.
- Electral Powder 21.8g oral powder in a sachet (WHO Formula) by FDC Ltd., frequent feedings/day, especially after reach loose motions.

### Outcome and follow-up tip

Followed up after three days. Fever was reduced but Diarrhoea had subsided only a bit. Anti-Diarrhoeal medication was continued. After five days' loose stools stopped completely, and patient recovered fully.

The child was given a total of one antibacterial, Furazolidone and Metronidazole for three days that was unwarranted. The paediatrician did not give Zinc supplementation at all.

### Discussion and Conclusion

Diarrheal diseases are a leading cause of preventable death in developing countries, especially among children under the age of five. National and State Governments, health programs and facilities continue to consider diarrheal diseases to be the most challenging health problem, particularly in developing countries, since it has been difficult to educate mothers and child care providers to obey national/WHO/and IAP guidelines [3].

There has been considerable development in India over the last 50 years, particularly following the discovery of scientific basis in glucose-related sodium absorption in diarrhoea, in the understanding of aetiology, pathogenesis, and diarrhoea management. Present case management strategies are based on the WHO Guidelines [4], which concentrate mostly on ORT including continued feeding/increased breastfeeding, using low osmolarity ORS, zinc supplementation and the effective use of antibiotics (in cholera, dysentery, severe malnutrition, and associated infections). The In-

dian Pediatrics Academy (IAP) has also prescribed low osmolarity ORS for preventing and treating dehydration and zinc supplementation (10 to 20mg elemental zinc) for a period of 14 days, following a comprehensive review by the WHO Acute Diarrhoea management task force [5]. Other potentially successful measures taken in India to minimise the frequency and seriousness of diarrhoea in children include the introduction of Rotavirus vaccination in the immunisation programme as well as an improvement of measles vaccine coverage [6]. The current management protocols help in lowering mortality and to a smaller extent helps in lowering stool volume during an acute diarrhoea episode. However, ORS has no identifiable effect on the number or frequency of loose stools. As a result, the quest for a 'antidiarrheal drug' continues [5].

The aim of diarrhoea treatment is to restore fluid and electrolyte losses caused by diarrhoea and vomiting. A hypotonic oral rehydration solution (ORS) is recommended to treat imminent dehydration or mild to severe dehydration that has already occurred. Oral rehydration with ORS in minimal daily doses over 3 - 4 hours is effective in more than 90% of cases. Following that, regular feeding should begin. Blood or stool examination in a laboratory is normally unnecessary. Intravenous fluids should not be given to children who can be rehydrated orally [7].

As per Kátia Galeão Brandt, *et al.* study Hydration and Nutrition are two interventions which have a great impact in the management of Diarrhoea [8]. According to Cooke M L, latest advances in the prevention of acute diarrheal disease include zinc supplementation, low-osmolarity oral solution (ORS), and rotavirus rehydration vaccine [9]. Pathak, *et al.* also point out that the low use of zinc and the heavy use of antibiotics in prescriptions by both specialist paediatricians and physicians from other medical systems and informal health-care professionals has become a major public health issue [10]. Indian Academy of Paediatrics guidelines do not recommend Antibiotic therapy unless there is blood in the stool [11]. Though it is a single case study but there are chances of unnecessary use of antibiotics in the system. A study of Anita, *et al.* clearly showed the unreasonable use of antibiotics in the management acute diarrhoea in children [12]. Further studies with larger sample sizes and longer follow-up periods are required to confirm the findings of this preliminary study.

### Learning Points/Take Home Messages

- Diarrhoea and fever in children most commonly due to viral and bacterial infections.

- Fluid replacement and other management plays a vital role in recovery.
- ORS and basic and nutrition help relieve initial conditions.
- Antibiotics and antipyretics are recommended only if there are bacterial infections as indicated by blood in stools, but most practitioners continue to prescribe them.
- Zinc supplementation for 14 days help in reducing frequency and severity of future episodes, but this practitioner did not prescribe.
- National and Provincial governments need to empower families and practitioner for the appropriate management.

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