

CHAPTER 4

APPROACH TO DEHYDRATION IN CHILDREN

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Introduction

Dehydration due to gastroenteritis in children is a common condition. Paediatricians can assess the extent of dehydration through a history and physical examination. The severity of electrolyte imbalances and dehydration may be assessed using the results of laboratory tests conducted on a sample of severe cases. The first choice should be oral rehydration solution when a child can be fed orally and has just mild dehydration. Severe dehydration in infants can be deadly or very morbid. In order to restore the whole fluid deficit in severe situations, it should be treated straight soon via parenteral route. Dehydration in children has a good prognosis when properly treated.

Definition

Dehydration is a condition characterized by a significant loss of body water (1). As for volume depletion or hypovolemia, it refers to a decrease in circulating volume. However, they are often used interchangeably. While dehydration accompanies hypernatremia, water and salt loss may occur in hypovolemia (2).

Etiology

The most typical cause of dehydration in children is diarrheal disease. Dehydration is linked to several other paediatric diseases. Dehydration can also result from the flu, gingivitis, urinary tract infections, and certain bacterial infections (2-4). Water deficiency (i.e., diabetes insipidus), increased insensible losses, inadequate fluid intake, and water and salt deficiencies are other causes of dehydration (1, 3, 5).

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At the end of the rehydration period, both hypernatremia and hyponatremia have usually resolved.

When the hydration status is re-evaluated at the end of 4 hours, if there are signs of dehydration, the volume deficit is completed and then the maintenance phase is started. Replacement of losses with continued stool and vomiting can be achieved with an ORS. Oral ondansetron (0.15 mg/kg) can be administered to reduce vomiting (39). During this phase, ORS or breast milk, undiluted lactose-free formula and other appropriate nutrients can be given (3, 5).

Intravenous Rehydration

Intravenous fluid therapy is required for patients who are unresponsive, unable to swallow, suffering from paralytic ileus, severe hypovolemia, or abnormal electrolytes (8). Most dehydrated children can be properly rehydrated without resorting to intravenous therapy. Severe cases should first be treated with parenteral fluids via intravenous route or, if indicated, via intraosseous route (40). While seeking the parenteral route, a nasogastric infusion of ORS (30 mL/kg/hr) can be managed provided airway protective reflexes are not impaired. Patients treated via parenteral route should be given rapid boluses of 0.9% sodium chloride (20 mL/kg) for not more than 20 minutes. In particularly severe cases, it is not uncommon for patients to require 60 to 100 mL/kg before restoration of circulatory volume becomes apparent. If the child is conscious and has good respiratory protective reflexes, enteral fluid therapy with an oral or nasogastric tube can be started immediately (35, 38). Use of hypotonic fluids during the maintenance phase of intravenous replacement may cause iatrogenic hyponatremia (3, 41).

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