

Cholera Treatment Workshop: Case Study (Answers)

Case #1 (Video 03:03, Case Conclusion 05:00): weight 7 kg

Assessment

1. What signs of dehydration are present, if any?

- Sunken eyes
- Absent tears
- Irritability
- Depressed fontanelles (when palpating head)
- Dry mouth
- Drinks Eagerly
- Moderate skin tenting

2. What is the degree of dehydration: none, some, or severe?

SOME, because the child is awake but irritable, has moderate skin tenting, and is able to drink.
(Note that the scenes repeat once)

Treatment

3. Outline your treatment plan for the first four hours.

Because the child has SOME dehydration and is able to drink, he can be treated with oral rehydration solution. He needs observation and can be monitored in the observation area.

The child weighs 7 kg. Based on the guidelines table, he should receive 400 to 600 ml of ORS in the first four hours. The volume of ORS to be given in the first four hours can also be calculated by multiplying 7 kg by 75, which equals 525 ml. He should be reassessed after 1 hour of therapy, and then every 1-2 hours until rehydration is complete. Remember that these ORS amounts are guidelines, and that the quantity of ORS given can vary based on patient's situation.

The child should also receive zinc supplementation (10-20 mg zinc per day by mouth) if available. This can reduce the severity and duration of diarrhea.

If he has been breast-fed, he should continue to receive breast-feeding.

4. What would you do if this child started vomiting?

As soon as the vomiting pauses, he should continue to receive oral rehydration solution. If the child continues to vomit and cannot drink sufficient ORS, he will need intravenous fluids.

5. What evidence would you look for that this child was adequately hydrated?

- Less irritability
- Eyes no longer sunken
- Drinks less eagerly, or is less thirsty
- Strong radial pulse
- Urine has been passed
- Skin pinch goes back quickly
- Mouth is moist

6. When would you feed this child? What would you give?

Feed the patient when vomiting has stopped. If he has been breast-fed, he should continue to receive breast-feeding.

7. What antibiotic would you use? When would you give it?

- Because the child has moderate dehydration, antibiotics should be considered if he is still passing large volumes of stool or if he is hospitalized.
- See the antibiotic table in the CDC/PAHO guidelines to choose an antibiotic.
 - First choices in children <12 months old are Azithromycin, Erythromycin, and Doxycycline oral suspensions.
 - A second choice is tetracycline oral suspension.

8. What would you do once the child has adequate hydration?

- After each loose stool, give 100 ml of ORS (for children less than 24 months old), though this amount can vary based on the amount of stool.
- Continue to reassess the patient for signs of dehydration at least every 4 hours to ensure that ORS solution is being taken appropriately, and to detect patients with profuse ongoing diarrhea who will require closer monitoring.
- Urine output decreases as dehydration develops, and may cease. It usually resumes within 6-8 hours after starting rehydration. Regular urinary output (every 3-4 hours) is a good sign that enough fluid is being given.
- Keep the patient under observation, if possible, until diarrhea stops, or is infrequent and little in volume. This is especially important for any patient who presented with severe dehydration.
- If a patient must be discharged before diarrhea has stopped, show the caretaker how to prepare and give ORS solution, and instruct the caretaker to continue to give ORS solution, as above. Also instruct the caretaker to bring the patient back if any signs of dehydration develop.

9. How would you make a diagnosis of cholera in this child?

Assume that any patient with acute watery diarrhea has cholera *in an area where there is an outbreak of cholera*. If in an area here cholera has not been confirmed, can seek microbiological diagnosis with rapid diagnostic kit and culture.

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Case #2 (Video 05:00, Case Conclusion 6:38): weight 60 kg

Assessment

1. What signs of dehydration are present, if any?

- Severe lethargy, near unconscious
- Weak radial pulse (though note the nurse is checking the brachial pulse)
- Low blood pressure
- Very sunken eyes
- Skin pinch goes back very slowly (>3 seconds)
- Rapid breathing (from acidosis)
- Shriveled “washerwoman” hands

2. What is the degree of dehydration: none, some, or severe?

SEVERE, because of the severe lethargy, weak pulse, inability to drink.

Treatment

3. Outline your treatment plan for the first four hours.

- The patient needs immediate intravenous (IV) hydration. Use Ringer’s lactate if available. Use Normal Saline if no Ringer’s Lactate available (though this will not help the acidosis)
- If he is able to drink, give ORS solution by mouth while the IV drip is set up
- Start with 1800 ml (30 ml/kg) IV fluid in the first 30 minutes. Repeat this step if the patient’s radial pulse is still weak
- Then give 4200 ml (70 ml/kg) IV fluids over the next 2.5 hours.
- Reassess the patient at least every 1-2 hours
- The patient may need 12,000 ml (200 ml/kg) or more in the first 24 hours of treatment
- Also give the patient ORS solution (5 ml/kg per hour) as soon as the patient can drink
- Perform a full reassessment at 3 hours. Switch to ORS solution if hydration is improved and the patient can drink

4. What evidence would you look for that this man was adequately hydrated?

- Becomes more alert
- Eyes no longer sunken
- Strong radial pulse
- Drinks normally
- Skin pinch goes back quickly
- Urine has been passed

5. When would you stop IV therapy?

When the patient is adequately hydrated and can drink ORS.

6. What antibiotic would you use? When would you give it?

Because he has severe dehydration, he should receive an antibiotic.

See antibiotic table from CDC/PAHO. For adults:

- First choice is Doxycycline 300mg by mouth in one dose.
- Second choices are azithromycin, tetracycline, and erythromycin.

Give it after rehydration has begun, when able to take fluids by mouth

7. What complications do you need to watch for in patients like this?

Hypoglycemia: This can occur after severe diarrhea. The best way to prevent this is to start feeding the patient as soon as possible.

Renal Failure (anuria): This rare complication occurs when shock is not rapidly corrected. Urine output normally resumes within 6 to 8 hours after starting rehydration. All patients should be urinating before discharge from a CTC.

Pulmonary Edema: Fluid in the lungs from overhydration due to excessive IV fluids. Young children, the elderly, and severely anemic patients are at highest risk. Signs of pulmonary edema include shortness of breath, dry cough, and crackles on auscultation. Reduce the IV fluid rate, and sit the patient up.

Hypokalemia (low potassium): Suspect low potassium if repeated episodes of painful cramps occur. This may happen after the first 24 hours of IV rehydration if patients do not eat or drink ORS (ORS provides enough potassium).