Fluid management of children with severe acute malnutrition with cholera

WHO recommendations (1)

Fluid management in children with severe malnutrition and dehydration without shock

1. Children with severe acute malnutrition who present with some dehydration or severe dehydration but who are not shocked should be rehydrated slowly, either orally or by nasogastric tube, using oral rehydration solution ORS (5–10 mL/kg/h up to a maximum of 12 h).

2. ReSoMal (or locally prepared ReSoMal using standard WHO low-osmolality oral rehydration solution) should not be given if children are suspected of having cholera or have profuse watery diarrhea (*Three or more loose or watery stools in a day, for more than 14 days*). Such children should be given standard WHO low-osmolality oral rehydration solution that is normally made, i.e. not further diluted.

3. Any Child with acute diarrhea should go to the oral rehydration center (ORC), in which MUAC screening is ensured, if the child is malnourished, he should be shifted to Dirrhea treatment center (DTC) to be rehydrated, once rehydrated and diarrhea & vomiting improved, he should be referred to OTP or TFC/SC as per his malnutrition condition

4. Child with severe acute malnutrition should be rehydrated by using ORS in the diarrhea treatment centers as per WHO guidelines till he becomes rehydrated, (no use for IV fluids unless it is required as per the guidelines), once rehydrated, the child with SAM should be referred to TFC/SC.

Additionally (2-6):

- Children with severe acute malnutrition and who have some or severe dehydration but no shock should receive 5 mL/kg ORS every 30 min for the first 2 h. Then, if the child is

still dehydrated, 5–10 mL/kg/h ORS should be given in alternate hours with F-75, up to a maximum of 10 h;
- Signs of improved hydration status and over hydration should be checked every half hour for the first 2 h, then hourly;
- ORS can either be prepared from a ready-to-dilute sachet (as per supplier's instructions).
- Zinc (10–20 mg per day) should be given to all children as soon as the duration and severity of the episodes of diarrhea start to reduce, thereby reducing the risk of dehydration. By continuing supplemental zinc for 10–14 days, this will also reduce the risk of new episodes of diarrhea in the following 2–3 months. (Note, WHO-recommended therapeutic foods already contain adequate zinc, and children with severe acute malnutrition receiving F-75, F-100 or ready-to-use therapeutic food should not therefore receive additional zinc).

Fluid management of children with severe acute malnutrition and shock

4. Children with severe acute malnutrition and signs of shock or severe dehydration and who cannot be rehydrated orally or by nasogastric tube should be treated with intravenous fluids, either:

- half-strength Darrow's solution with 5% dextrose, or
- Ringer's lactate solution with 5% dextrose.

If neither is available, 0.45% saline + 5% dextrose should be used.

Additionally (2-6):

- the general principles of resuscitation, in particular providing oxygen and improving breathing, similarly apply to children with severe acute malnutrition;
- the only indication for intravenous infusion in a child with severe acute malnutrition is circulatory collapse caused by severe dehydration or septic shock when the child is lethargic or unconscious (excluding cardiogenic shock);
- in case of shock with lethargy or unconsciousness, intravenous rehydration should begin immediately, using 15 mL/kg/h of one of the recommended fluids;
- it is important that the child is carefully monitored every 5–10 min for signs of over hydration and signs of congestive heart failure. If signs of over hydration and congestive heart failure develop, intravenous therapy should be stopped immediately;
- if a child with severe acute malnutrition presenting with shock does not improve after 1 h of intravenous therapy, a blood transfusion (10 mL/kg slowly over at least 3 h) should be given;
- children with severe acute malnutrition should be given blood if they present with severe anemia, i.e. Hb <4 g/dL or <6 g/dL if with signs of respiratory distress;
- Blood transfusions should only be given to children with severe acute malnutrition within the first 24 h of admission.

* This is an extract from relevant guidelines and guidance documents as listed in 'References'. Additional guidance information can be found in these documents.

** A specific electrolyte–micronutrient product formulated according to WHO specifications for use in the management of children with severe acute malnutrition. *** ReSoMal is a powder for the preparation of an oral rehydration solution exclusively for oral or nasogastric rehydration of people suffering from severe acute malnutrition. It must be used exclusively under medical supervision in inpatient care, and must not be given for free use to the mother or caregiver. **** Three or more loose or watery stools in a day, for more than 14 days.