

BURN CENTER  
USE OF ORAL REHYDRATION SOLUTION (ORS) IN FLUID RESUSCITATION

1. **PURPOSE:** To establish a process for the administration of enteral resuscitation fluids through a nasogastric tube (NGT) in burn patients.
  
2. **OVERVIEW:** Patients with severe burns require high initial fluid resuscitation volumes. This is partially due to the large amount of the intravenous fluids (IVF) that are lost into the interstitial space. The resulting edema from the high volume IVF resuscitation can take months to reverse. Enteral resuscitation has been found to be safe<sup>1</sup> and was found to reduce IVF requirements.<sup>2</sup> Reduction in IVF requirements may prevent the co-morbidities associated with fluid overload.
  
3. **PROCEDURES:** ORS administration
  - 3.1 Per physician discretion, Oral Rehydration Solution (ORS) is administered via an NGT or orally as part of the initial fluid resuscitation.
  
  - 3.2 When the patient does not have an NGT, the flavored version of ORS will be given for oral consumption as tolerated, with a goal of 8-16 ounces (240-480 mL) each hour, with the head of the bed at 70-90 degrees during oral intake.
    - 3.2.1 When the patient has an NGT, the placement of the NGT must be confirmed by x-ray prior to use. ORS via the NGT should be initiated with the head of bed at least 30 degrees, preferably 45 degrees or greater. The gastric motility agent naloxone (Narcan) can be given enterally prior to initiation of ORS to aid in GI tolerance if narcotics have been administered. When the patient has an NGT, gastric residuals should be checked prior to initiation of ORS. If over 300cc, ORS is contraindicated.
  
  - 3.3 ORS is mixed with water according to the package directions. When reconstituted the date and time should be written on the enteral bag, and can be used up to 24 hours after reconstitution and then must be discarded.
  
  - 3.4 When the patient has an NGT, ORS is placed in the enteral bag (rather than the flush bag) for the eKangaroo™ pump. If enteral nutrition is initiated during ORS use, the enteral nutrition formula is then placed in the flush bag and started at 20 mL flushes each hour, increasing per usual practice, as a bolus rather than continuous drip until ORS fluid resuscitation is completed.
  
  - 3.5 ORS is initiated through the NGT at 250 mL/hour and increased by 100 mL/hour up to 550 mL/hour.
  
  - 3.6 Gastric residuals are initially checked hourly, and then extended to every other hour per physician discretion based on tolerance (i.e., low residuals and lack of vomiting). If the residuals are over 300 mL or if vomiting occurs, ORS administration is stopped.

3.7 The usual computerized decision support for the initial fluid resuscitation is continued to adjust the IVF rate, as the fluid absorption via the GI tract is inter- and intra-patient dependent. Additionally, this decision support system will be used to document enteral fluids.

4. EXCLUSIONS: Do not use high volume ORS in any of the following situations:

4.1 GI tract not appropriate for enteral fluid resuscitation (i.e., prior gastric bypass surgery).

4.2 More than one vasopressor.

4.3 Admission of the patient more than 8 hours post-injury.

5. EXPECTED OUTCOMES:

5.1 Safe administration of ORS, monitoring with reasonably low gastric residual checks.

5.2 Reversal of shock by realizing adequate resuscitation.

5.3 ORS will result in lower IVF requirements during the initial fluid resuscitation.

5.4 ORS will result in decreased third space and pulmonary edema.

6. References:

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7. Additional Reading

7.1. SALINE solution in treatment of burn shock. *Public Health Rep.* 1950;65(41):1317-20.

7.2. Baker BL, Powell D, Riesberg J, Keenan S. Prolonged Field Care Working Group Fluid Therapy Recommendations. *J Spec Oper Med.* 2016;16(1):112-7.

7.3. Cancio LC, Kramer GC, Hoskins SL. Gastrointestinal fluid resuscitation of thermally injured patients. *J Burn Care Res.* 2006;27(5):561-9.

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