

Enteral resuscitation of burn shock: A quantitative review

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Introduction: Intravenous fluid is the mainstay of treatment of burn shock. However, mass casualty events can result in multiple victims with burn shock, but an inadequate number of skilled burn caregivers with limited IV fluids and supplies. Enteral burn resuscitation (EBR) via drinking or gastric infusions may be a viable alternative when IV therapy is delayed. The physiologic background for EBR is that the GI tract is capable of substantial absorption of water and electrolytes (9 litres/day normally and up to 20 litres/day if challenged).

Methods: We have reviewed the clinical and research literature for EBR from 1940 to present. Search terms were 'burns or thermal injury' and 'oral fluids or oral rehydration or enteral resuscitation'. In addition, journal articles were back referenced to the older pre-Medline literature.

Results and Discussion: Thirteen clinical studies were identified with 709 patients receiving successful EBR. There were eight studies reporting on EBR for TBSA >40%. Early studies were of electrolyte only, but beginning in 1975 most studies used a buffered glucose-sodium-electrolyte formulation. Solutions studied had a range of osmolalities from 160 to 600 mOsm and sodium concentration from 48 to 300 mEq. Buffers included citrate, lactate and bicarbonate. There were twenty-two animal studies identified (1943 to 2015) demonstrating some level of effectiveness with a recent focus on the value of promotility agents and parasympathomimetics.

Conclusion: Efficacy, safety and limitations of EBR and the optimal formulation remains to be defined.

Key Words

burn resuscitation, oral rehydration. enteral resuscitation

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