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EMA

LETTER TO THE EDITOR

Beer as a burns resuscitation fluid

Dear Editor,

We present the case of an unusual fluid resuscitation regime in a 65-year-old man with 40% burns. He fell into a garden fire, but believing the hospital to be closed, waited at home drinking six cans (2 L) of 'San Miguel' beer, with no other fluid intake, before attending the ED the next morning, 17 h after injury. His burn was assessed as mixed partial thickness, involving upper limbs, torso and face. He received 3 L i.v. crystalloid in the next 7 h, and urine output averaged 1.6 mL/kg/h over the first day's admission. Initial laboratory tests showed evidence of mild dehydration, which fully resolved within 24 h; and subsequent recovery was unremarkable.

Burns greater than 20% of body surface area (BSA) require fluid resuscitation. Emergency Management of Severe Burns course[1] (3–4 mL/kg/%BSA) and American Burn Association (2–4 mL/kg/%BSA) guidelines[2] are based on the Parkland (4 mL/kg/%BSA) and modified Brooke (2 mL/kg/%BSA) formulae. There is no clear evidence that the larger volumes of the Parkland formula are beneficial; and a tendency to administer excess fluid is known as 'fluid creep'. Under-resuscitation can lead to decreased organ perfusion, acute renal failure and death, but over-resuscitation can worsen oedema and elevate limb and abdominal compartment pressures. ARDS (acute respiratory distress syndrome) and multi-organ failure can follow. Whatever regime is used, it should be titrated to response, determined clinically and by urine output.

Our patient received only 2 L of oral fluid in the first 17 h following the injury, rather than the 7 L i.v. of the Parkland formula. In the first 24 h, his total fluid intake was similar to the modified Brooke formula.

Severe burns impair gastrointestinal function, particularly by causing ileus. However, oral fluids have been used in the past, and might be appropriate in situations of dire scarcity (such as in the developing world, hostile environments or mass casualty scenarios). The haemodynamic equivalence of enterally administered WHO oral rehydration solution (ORS) with i.v. resuscitation (Parkland formula), has been demonstrated in experimental pigs with 40% BSA burns.[3]

But no one recommends resuscitation with beer. A Medline and Embase search found no papers relating to the use of beer as a resuscitation fluid in burns. However, alcoholic beverages have been advised for ongoing fluid requirements following burn injury. Fauntleroy described a continuous rectal infusion of 'normal salt, sodii bicarbonas and 4 per cent to 8 per cent glucose', supplemented by large quantities of oral fluids every 2 h 'with the addition of small amounts of whiskey during the night'.[4] Beer as an oral rehydration fluid has recently been shown to be as effective as water following athletic exercise, with no adverse effects.[5] In some parts of the world, it might be safer to attempt to rehydrate with bottled cola or beer, than to make up ORS with potentially contaminated local water. However, colas and beers have very different electrolyte content from ORS. Both are much lower in sodium and potassium; and beer has a much higher osmolality (Table 1).

To our knowledge, this is the first report of burns resuscitation with beer. We do not advocate its routine use; and a randomized controlled trial of beer versus conventional i.v. fluids is unlikely to be approved. Excess alcohol consumption is associated with a higher incidence of burns, and a worse prognosis from burn injury. However, the case does remind us that the large volumes of the Parkland formula might not be necessary, and that in the absence of facilities for i.v. fluid administration, oral fluid may be acceptable. Alternatively, our patient may just have been fortunate

Table 1. Biochemical analysis of ORS, Coca Cola and San Miguel lager

	Sodium (mmol/L)	Potassium (mmol/L)	Osmolality (mOsm/kg)
WHO-recommended ORS	90	20	333
Coca Cola	4.24	0.06	590
San Miguel lager	7.3	7.8	1047

ORS, oral rehydration solution.

in his choice of beer. 'San Miguel' (St Michael) is the patron saint of paramedics.

Competing interests

None declared.

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Giles N Cattermole,[1,2] Dexter YS Chan,[3] Colin A Graham[1,2] and Timothy H Rainer[1,2]

[1]Accident and Emergency Medicine Academic Unit, Chinese University of Hong Kong and [2]Department of Emergency Medicine, Prince of Wales Hospital, Shatin, Hong Kong; and [3]Faculty of Medicine, University of Melbourne, Melbourne, Victoria, Australia