'Fluid-wise route-foolish': intravenous *vs* enteral fluid administration

Sir,

Choice of intravenous fluid remains a popular debate among clinicians, but route of administration is an equally important consideration. Martin (vol 75(1), 2014, p. 4) highlights the importance of the physiology surrounding the administration of different intravenous fluids. The authors believe an equal, and often neglected, consideration is the route of administration.

Oral rehydration has been shown to be an equal, or more effective, method of rehydration compared to intravenous fluid administration in a number of clinical scenarios (Vesikari et al, 1987; Spandorfer, 2005). Compared to intravenous administration, pre-procedural enteral fluid administration is associated with lower post-procedural infection rates (Srivastava et al, 2013). Indeed, enteral nutrition has been shown to stimulate the enteric immune system, providing better immunity against enteral pathogens (Wildhaber et al, 2005).

Enteral fluid absorption allows for improved volume distribution and avoids fluid overloading the patient. In addition, absorption via the enteral route results in better ion ratios in comparison to intravenous administration (Srivastava et al, 2013), without complications associated with cannula use, such as phlebitis.

While enteral fluid resuscitation may be unsuitable in certain clinical situations, such as septic shock, it remains the safest and most physiological route of fluid administration.

The authors conclude by reminding physicians to review the British Consensus Guidelines on Intravenous Fluid Therapy for Adult Surgical Patients (GIFTASUP) guidelines (Powell-Tuck et al, 2011) regarding enteral fluids (*Table 1*) and always first consider the oral route of fluid administration, including potential fluid administration via a nasogastric tube, before the intravenous route in order to provide the safest care for patients. Teaching on and distribution of GIFTASUP guidelines have been shown to improve fluid and electrolyte prescribing (Powell and Paterson-Brown, 2011), and other institutions are encouraged to do the same where possible.

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Table 1. GIFTASUP guidelines on enteral fluids

For maintenance, enteral fluids should contain the appropriate electrolytes needed – 50–100 mmol/day of sodium and 40–80 mmol/day of potassium in 1.5–2.5 litres of water
Postoperatively, haemodynamically stable patients should receive enteral fluids wherever possible
In a nutritionally depleted patient, rehydration should be cautiously started via the oral, enteral or parenteral route to reduce the risk of refeeding syndrome and to encourage physiological electrolyte redistribution

From Powell-Tuck et al (2011)

Powell AGMT, Paterson-Brown S (2011) FY1 doctors still poor in prescribing intravenous fluids. *BMJ* **342**: d2741

Powell-Tuck J, Gosling P, Lobo DN et al (2011) British Consensus Guidelines on Intravenous Fluid Therapy for Adult Surgical Patients. GIFTASUP. www.bapen.org.uk/pdfs/bapen_pubs/giftasup.pdf (accessed 25 February 2014)

Spandorfer PR (2005) Oral versus intravenous rehydration of moderately dehydrated children: a randomized, controlled trial. *Pediatrics* **115**: 295–301

Srivastava R, Baghel K, Raj S, Awasthi I, Gupta V, Chandra A (2013) A comparative analysis of nasogastric and intravenous fluid resuscitation in patients with malignant obstructive jaundice prior to endoscopic biliary drainage. *N Am J Med Sci* **5**: 523

Vesikari T, Isolauri E, Baer M (1987) A comparative trial of rapid oral and intravenous rehydration in acute diarrhoea. *Acta Paediatr* **76**: 300–5

Wildhaber BE, Yang H, Spencer AU, Drongowski RA, Teitelbaum DH (2005) Lack of enteral nutrition—effects on the intestinal immune system. *J Surg Res* **123**: 8–16