British consensus guidelines on intravenous fluid therapy for adult surgical patients (GIFTASUP) – Cassandra’s view

Not enough fluid and too much fluid are both bad. That is the one great irrefutable truth in fluid management in anaesthesia and in the critically ill. For almost every other question in fluid therapy there is ‘current opinion’.

The big questions are when, where, which and why but of greater moment than all of these is ‘how much’. The current drift towards the use of smaller volumes of fluid in major surgery suggests that the right amount at the right time is probably the way to go, so volume and timing are seemingly linked. This ties in neatly with the rediscovery of the notion that early fluid resuscitation in the emergency room is better than late and dovetails with the concept that adequate resuscitation, or optimisation, improves outcome in high risk surgery. New gadgets that help to achieve this end abound since the pulmonary artery catheter fell from grace. The recent discovery of hyperchloraemic acidosis as a new iatrogenic disease entity has focused attention on the importance of the fundamental constituents of the fluids that are given [1]. The meta-analytical cloud that the Cochrane collaboration placed over albumin was dissipated by the SAFE study only to be replaced by a different evidential cloud drifting over the world of starches [2]. This has reawakened interest in the potentially malevolent nature of synthetic molecules. As the dynamics of the questions and current answers change, it is easy to become confused.

The publication of the British Consensus Guidelines on Intravenous Fluid Therapy for Adult Surgical Patients could therefore not be more timely [3]. The authors have asked a very large number of relevant questions, assessed a vast array of available information and measured it with an evidence-based score to produce recommendations bundled into guidelines. There are no less than 28 evidence-scored recommendations to assist in fluid management. This major work should be mandatory reading for anyone involved in fluid management for a range of reasons that will come clear.

The recommendations, all 28 of them, each has an evidence level of between 1 and 5, although some have several evidence levels for different parts of the same question. In brief; level 1 is very good, 1a – a systematic review or 1b a randomised control trial, while level 4 is a case series and level 5 is expert opinion without critical appraisal, so ‘1 – good and 5 – bad’.

The first recommendation dismisses normal saline from routine use because it causes hyperchloraemic acidosis, and advocates balanced solutions. The evidence level is 1b and appears to be very good using no fewer than seven papers. On closer scrutiny some of these are small randomised controlled trials which demonstrate mild acidosis [4–9]. Saline and hyperchloraemic acidosis are associated and by implication this is harmful, although any evidence for harm is circumstantial and inconsequential [10]. The recommendation, supportive of balanced solutions, is inappropriate given the limited evidence (this author’s opinion – level 5). Sensible maybe, but evidence-based?

To be fair, many of the recommendations have been standard practice for years and, paradoxically, several of these are level 5. The pre-operative recommendations may raise eyebrows. Most anaesthetists know that fluids can be given orally up to 2 h pre-operatively but how many actively encourage it despite the evidence level of 1a? The implication is there should be a general and active move to 2–h fluid fasting. These guidelines are based on three references, two of which are themselves guidelines and one being a Cochrane review. The fact that fluids make patients feel better is supported by trials and rates an evidence level of 2a. Curiously, the guidelines contain useful tips on the current position of bowel preparation, graded level 1a, while the predicted fluid and electrolyte disturbance which it causes only achieves level 5. Mind you, using a parachute when jumping out of an aircraft presumably only gets a score of 4 [11].

The recommendations move on to the diagnosis of hypovolaemia and the use of incremental 200-ml boluses of either crystalloid or colloid. This is level 1b evidence based on two small trials [12, 13]. While one must question whether this constitutes substantial evidence, it does make sense.

Orthopaedic and abdominal surgery are singled out to recommend stroke volume measurement to guide fluid management peri-operatively (level 1b). In orthopaedic surgery this is based on two well known studies, each of which can be interpreted either to indicate that the intervention reduced hospital stay or that the control group could have been better managed. The former is more widely accepted.

In non-elective surgery, in the same specialties, this management should continue for 8 h and, in these circumstances, low dose doxepamine, which performed well in a meta-analysis, is
also advocated [14]. There is no mention of the slight but perceptible tension between the Doppler studies, which increased overall fluid administration, and the new vogue in colorectal surgery of limiting fluid, and both approaches appear to achieve similar goals in terms of hospital stay. As there is no discussion of other types of surgery it is a rather narrow view. Optimisation, by any other name, is heavily advocated in many of the peri- and postoperative recommendations, supported by the references that one would expect. The evidence is almost convincing, but the recommendations do not provide guidelines as to when these interventions are beneficial, thereby implying that they should be universal, although this is not stated.

Nutrition features in the guidelines and, on this topic, they provide some sensible advice. It is curious that the NICE guideline recommending that surgical patients are screened for nutritional status only scores level 5 despite papers showing poor outcome in malnourished surgical patients dating back almost 100 years, and anecdotal reports for millennia.

There is a section on renal failure in which the recommendations are more conservative. High molecular weight starches (> 200 kDa) appeared to cause renal dysfunction in three papers, but not in a fourth, so they should be avoided [15–18]. This seems a fair recommendation but it is irrelevant as no-one knows whether this applies to the newer lower molecular weight starches that have replaced them. Most other questions relating to fluid and the management of oedema produce recommendations from level 5 evidence, apart from the ubiquitous support for balanced crystalloid, level 1b, although this required some fancy wording to get around the issue that they contain potassium, even if it is usually irrelevant [4].

Overall, the guidelines are extensive, informative, have an excellent bibliography of references, some useful tables and provide several important lessons. The authors have identified a large number of unanswered questions with relation to fluids and the evidence-based approach paradoxically highlights, on close scrutiny, just how little useful evidence actually exists.

The document illustrates the problem with guidelines and evidence-based scores. It does for guidelines what the Cochrane paper on albumin did for meta-analysis [19]. That meta-analysis showed that the technique is only of use if done properly, which is impossible if the available information is inadequate. In that particular case it became ‘garbage in, garbage out’. The current guidelines identify questions and seek supporting evidence, but finding a randomised controlled trial that is word associated to the question and giving it a score is not enough. The study needs to have addressed the specific question being asked. Therein lies the problem, as the questions asked here tend to be general in both circumstance and population so it is highly unlikely that a trial will have asked the right question in the right population to provide a direct answer; in these circumstances, ‘close’ will not do. The result is the obvious dissociation between the recommendations and the evidence.

The evidence-based scoring system compounds the problem. It is only useful for clearly identified narrow questions and is therefore useless in many of the areas of clinical practice which it is commonly used to assess. Hence, a score of 1b might suggest good quality information but of what value is that if the trial did not directly address the question? Level 1b implies the presence of relevance, quality and quantity which is not necessarily the case, without poetic license, and thereby frequently provides inappropriate authority for the recommendations. In current jargon it is a tool not fit for purpose. Using an evidence score inappropriately is disingenuous as it implies quality and authority where none exists, producing opinion-based guidelines with a ‘fact’ veneer. It is a sleight of hand and frankly it is dangerous. NICE try!

Does it matter as these are only guidelines? In a litigious world, guidelines, good practice and the definition of breach of duty are easy bed-fellows and, even if legally incompatible, demand that guidelines must be robust. This is an era infatuated with guidelines which are used as a substitute for real evidence. Once printed they instantly acquire a credibility disproportionate to the opinion that formed them. Maybe it is the wording that is wrong. Call it ‘current opinion’ and as such it can be respected in an appropriate context. These guidelines are educated consensus opinion, where some of the available information has been weighed, measured and assimilated but they are still only opinion. Current opinion is expected to change, but guidelines have the potential not only to resist change but also to impede research that might negate the opinions expressed in those guidelines.

These guidelines should therefore be read as an object lesson in the perils of writing guidelines. They illustrate the point that evidence-based scores used inappropriately allow opinion to masquerade as fact. The guideline provides an illusion of knowledge and certainty where little exists. On the positive side they contain a wealth of selected information, and an abundance of current opinion. Take the recommendations as suggestions and treat the evidence scores with the disrespect which they deserve and the document becomes informative.

This editorial is, of course, level 5 and leaves one further question. Is the view that of Cassandra of Troy or of ‘Only Fools and Horses’?*

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*In Homer’s Iliad, Cassandra of Troy shunned Apollo and was doomed by the offended god to always tell the truth but never to be believed. She told the Trojans not to bring the Trojan Horse into Troy. ‘Only Fools and Horses’ was a popular British comedy with Cassandra as the straight, if not too bright, foil to the clowns Del and Rodney.
References