going "major hepatobiliary or pancreatic surgery" averaging approximately 3.5 h in duration, whereas Scheingraber *et al.*[3] enrolled patients undergoing "lower abdominal gynecologic surgery" averaging approximately 2.25 h. Despite the somewhat shorter duration of surgery, the gynecologic patients randomized to the saline group received a slightly greater total volume[3] (71 ± 14 ml/kg during the first 120 min of infusion) than the patients receiving saline in the study by McFarlane *et al.*[4] (14.6 ± 41 ml · kg^{-1} · h^{-1} during an interval of 219 ± 77 min). As a consequence, the increase in plasma chloride and the decrease in plasma bicarbonate were greater in the gynecologic patients. Together, the reports suggest that hyperchloremic acidosis is a dose-dependent consequence of saline administration. Whether this acid-base abnormality is in fact harmful remains unclear, although we[5] were unable to cite any compelling evidence of adverse effects. We are skeptical that differences in outcome, if any, related to the choice of saline or balanced salt solution would justify the cost of a randomized clinical trial.

However, one noteworthy characteristic of Plasmalyte 148, the balanced salt solution used by McFarlane and Lee,[4] is that the sodium concentration is 140 mEq/l. Consequently, in contrast to lactated Ringer's solution, infusion of substantial volumes does not decrease serum sodium and serum osmolality, and does not raise the same theoretical concerns about increases in brain water.[5]

We agree with Story *et al.*[2] that the Stewart approach[6,7] offers interesting insights into acid-base chemistry; however, we disagree that the relative merits of the Stewart approach *versus* the conventional Henderson-Hasselbalch approach constitute a "central issue." Regardless of its attractive biochemical features, the Stewart approach has not yet become popular for routine clinical use, perhaps because it is less simple to quantify at the bedside and because it prompts no important differences in treatment.

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Dynamic Response to Volatile Anesthetics Has Been Examined Before

To the Editor:—Olsen and Dahan describe an analysis of the dynamic electroencephalographic (EEG) response to step changes in end-tidal concentration of isoflurane or sevoflurane. Understanding the dynamic and steady state responses of a system to a changing input is a prerequisite to designing a robust automatic control system. Unfortunately, the use of a single, fixed-size step change in concentration is suboptimal as a "forcing" function for several technical reasons, including (1) the absence within this function of many frequencies in the range of interest, and (2) the possible blinding to nonlinearities. The discipline of control systems engineering provides many better alternatives to the development of a dynamic response measurement of a complex "black box" system similar to an EEG response in a patient. We reported the use of one such technique (pseudorandom binary sequence testing) to measure the dynamic (impulse) response of canine EEG (spectral edge frequency) to volatile anesthetics.[1] This work was later reported in a Ph.D. thesis.[2] Historians of our specialty will also appreciate that Dr. N. T. Smith was administering sine-wave concentrations of agents at various frequencies to human volunteers and measuring EEG response in 1976.[3]

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