Intra-Operative Fluid Monitoring Practices

Presenting Author: Dr Su Cheen Ng, MB BCh BAO, FCARCSI, University College Hospital, London

Co-Authors: Mark Foulger, BSc (Hons). Business Unit Manager Edwards Lifesciences, Tim Collins, MSc, EdD, William Harvey Hospital, East Kent , Dr Kirstie McPherson, MB ChB BSc, FRCA, University College Hospital, London Professor Michael Mythen, MB BS, MD FRCA, University College Hospital London

Background/Introduction: In the past, administration of intraoperative fluid therapy was guided by changes in blood pressure, heart rate, arterial waveform and central venous pressure. However these methods of measurements are neither sensitive nor specific. Now newer technologies are available to optimize haemodynamic status such as the esophageal Doppler, pulse pressure waveform analysis and changes in bioimpedance.

In the United Kingdom, many guidelines (GIFTASUP[1], NICE[2]) recommend the use of intraoperative fluid monitoring for surgical patients to achieve optimized perioperative fluid therapy. It forms an important element of goal directed therapy to tailor an individual's fluid requirements to achieve central normovolaemia.

Methods: Two educational workshops were carried out for cardiac output (CO) monitoring during a perioperative medicine meeting. Participants were then asked 4 questions on their IOFM practices. A set of answers was listed and an audience participation system using keypad was used to sample the participants.

Results: The majority of participants (55%, n=40) would utilize CO monitoring during major risk cases or major surgery cases to guide their intra operative practice. Fifty five percent (n= 21) also stated they would attempt to incorporate IOFM into their routine practice.

Among the participants (n= 26) who were not sure or unlikely to implement IOFM, the main reason was due to participants not being convinced with evidence for carrying out intraoperative monitoring (38%) followed by the lack of agreement among peers (20%). Only 12% blamed lack of funding from their hospital or lack of equipment to carry out the practice. 22% would adopt the practice if more education were provided (Figure 1)

Conclusion: We have shown from the small cohort sampled that there are only a small proportion of anaesthetists that would not utilize CO optimization for moderate to high-risk surgical cases. Most clinicians therefore see the advantages of employing such practice. Education seems to be an important driving factor for the uptake of IOFM among the sampled cohort.

IOFM (and protocols) can lead to decreased variability of intraoperative fluid practices. The ultimate aim is to avoid excessive fluid restriction or overload in surgical patients, which has been associated with poorer outcomes[3].

References:

1) Powell-Tuck J, Gosling P, Lobo DN, Allison SP, Carlson GL, Gore M, et al. British Consensus Guidelines on Intravenous Fluid Therapy for Adult Surgical Patients - GIFTASUP. 2008
2) National Institute for Health and Clinical Excellence. NICE medical technology guidance 3. (2011) Cardio-Q-ODM Oesophageal Doppler monitor
3) Perioperative Fluid Utilization Variability and Association With Outcomes: Considerations for Enhanced Recovery Efforts in Sample US Surgical Populations. Annals of Surgery, 263(3), pp 502–510

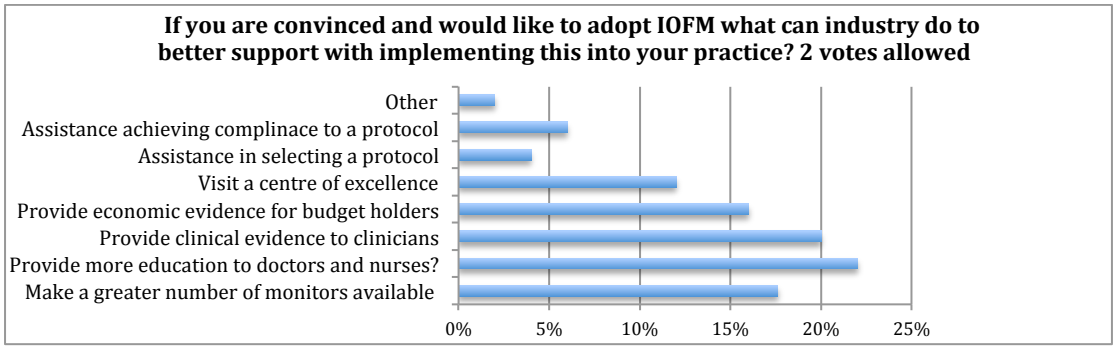

Figure 1