

JOINT EVENT

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Time to stop chaos and confusion about perioperative fluid infusion: Current conceptions need correction

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Perioperative fluid management is a key component in the care of surgical patients, and each additional litre given in the operating room would cause a 32% increase in the risk of postoperative complications, length of hospital stay, and costs. Thus the anesthesiologist's practice can make the difference. Current practice of fluid infusion should be re-evaluated, as major abdominal surgery with minimal blood loss can be given any amount of fluid from (700 ml–5400 ml) in four hours, simply because it's according to an individual provider habits that are hard to justify and continuous apathy is unaccepted. After prolonged preoperative fasting, healthy patients remain euvoletic, and insensible perspiration is shown to be 0.5–1 ml/kg/hour. Even during large abdominal surgery, excessive volumes are infused to compensate loss to the third space, which does not exist. Currently taught methods of intraoperative management in which intravenous fluids are given, based on generalized formula relying on body weight per unit time and modified by perceived magnitude of surgical trauma are not supported by physiological principals. The heart is an endocrine gland that secretes atrial natriuretic peptide (ANP) and the circulating blood volume is only 25–30% of total blood volume as well as 0.8–1.2 of the plasma volume is lining the blood vessels and forms the endothelial glycocalyx that can be distorted by ANP released by hypervolemia. Urine output should not be the driving force of fluid administration. During induction of anesthesia, a starting bolus volume is necessary to compensate for both hypovolemia of the fasting patient and vasodilatation. This has been considered as a good practice for years, but may be inappropriate and the foundation to postoperative complication even before surgery starts. Increased mortality and morbidity was associated with the most commonly used normal saline due to hyperchloraemic acidosis. There is no rationale to replace 1 ml blood loss by 3–4 ml of crystalloid infusion. Our aim is to discuss the current conceptions that need urgent correction so that fluid infusion can support the patients' physiological parameters and improve patients' outcome.

Recent Publications

1. R Gupta and T J Gan (2016) Peri-operative fluid management to enhance recovery. *Anesthesia* 71(1):40–45.
2. S Magder (2016) Volume and its relationships to cardiac output and venous return. *Critical Care* 20:271.
3. P Marik¹ and R Bellomo (2015) A rational approach to fluid therapy in sepsis. *British Journal of Anesthesia* 116(3):339–49.
4. Tsuneo Ogawa and Adolfo J de bold (2014) The heart as an endocrine organ. *Endocrine Connections* 3(2):R31–R44.
5. Holliday MA, Segar WE (1957) The maintenance need for water in parenteral fluid therapy. *Pediatrics* (5):823–832.

Biography

Muhammad Saleh Bahadeg has completed his MBBS, King Saud University, Riyadh, Saudi Arabia from Saudi Board of Anesthesiology, Prince Sultan Military Medical City. He is interested in Anesthesia for Transplant Surgeries and Regional Anesthesia.

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