



日本麻酔科学会第58回学術集会

共催セミナー L05

Perioperative Fluid - a review of current perspectives Management

日時

2011年5月19日(木)
12:00~13:00

会場

神戸ポートピアホテル 南館地下1階
第5会場

座長

山田 芳嗣 先生

東京大学大学院医学系研究科 外科学専攻生体管理医学講座 麻酔学 教授

演者

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日本麻酔科学会 / フレゼニウス カービ ジャパン株式会社



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Seminar L05

Perioperative Fluid Management

- a review of current perspectives

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Fluid therapy during anesthesia and surgery is mandatory. The eternal questions seem to be what fluid to give, how much in relation to timing and monitoring. Originally, at the beginning of the 20th century, clinicians were well aware of that, during surgery, patients preserved sodium and fluid during trauma and surgery. Consequently, there was a careful attitude to replace fluid during these circumstances. However, during major conflicts in the mid part of the 20th century there was a move towards more liberal fluid replacement to treat hemorrhagic shock[1]. Clinicians tend to infuse fluids to replace not only actual losses, but also to prevent anesthesia induced hypotension due to an enlarged vascular costume replacement of supposedly inevitable shifts towards an ill-defined "third space" [2, 3]. Admittedly, the kidney is vulnerable to reduced perfusion. However, there is not evidence that kidney function deteriorates postoperatively in normovolemia when urinary output is moderately reduced perioperatively.

In the recent decade, however, researchers and clinicians, have been more aware of that overzealous fluid replacement can cause considerable complications [4] [5, 6]. Recently, a large randomized clinical trial for septic patients with acute lung injury in the US has again pointed to the interest of giving fluids according to a more balanced fluid regimen [7]. Recently, researchers and clinicians have been focusing on two main, partly competing but also overlapping, efforts to update traditional perioperative infusion strategies: fluid substitution with a fixed regimen, either liberal or restrictive (conservative) or fluid optimisation according to secondary circulatory variables (goal-directed).

This lecture will focus on some background of traditional fluid therapy and some of the physiologic theory behind the distribution and kinetics of fluids in the body. It will also scrutinize the theories behind and differences between the liberal vs restrictive and the goal-directed theories. Furthermore, it will discuss the esophageal doppler theory and also give some clinical examples on how to use that device. Although this will not be a lecture on the pros and cons of crystalloids and colloids, a few words will be mentioned about different fluids available.

1. Shires, G.T., J. Williams, and F. Brown, *Acute changes in extracellular fluid associated with major surgical procedures*. Ann Surg, 1961. **154**: 803-10.
2. Shires, G.T., F.T. Brown, and P.C. Caniza ro, *Distributional changes in extracellular fluid during acute hemorrhagic shock*. Surg Forum, 1960. **11**: 115.
3. Brandstrup, B., C. Svensen, and A. Engquist, *Hemorrhage and surgery cause a contraction of the extracellular space needing replacement ? evidence and implications*. Surgery, 2006. **139**: 419-32.
4. Bennett-Guerrero, E., et al., *The use of a post-operative morbidity survey to evaluate patients with prolonged hospitalization after routine-risk, elective surgery*. Anesth Analg, 1999. **89**: 514-19.
5. Lobo, D.N., et al., *Effect of salt and water balance on recovery of gastrointestinal function after elective colonic resection: a randomized controlled trial*. Lancet, 2002. **359**: 1812-18.
6. Brandstrup, B., et al., *Effects of intravenous fluid restriction on postoperative complications: comparison of two perioperative fluid regimens*. Annals of Surgery, 2003. **238**(5): 641-48.
7. Wiedemann, et al., *The National Heart, Lung, and Blood Institute Acute Respiratory Distress Syndrome (ARDS) Clinical Trials Network*. N Eng J Med, 2006. **354**: 2564-75.