Perioperative goal-directed fluid therapy related reduction in postoperative epidural 0.1% Bupivacaine consumption using PCEA infusion in total hip arthroplasty patients

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Background and Goal of Study: Impact of perioperative goal-directed fluid administration on postoperative consumption of analgesics is not clear. Study protocol was part of a bigger RCT*.

Materials and Methods: Intervention group patients (n=39) undergoing THA received perioperative goal directed fluid management guided by haemodynamic and microcirculation related parameters using mVLT method*. Controls (n=40) received non-goal-directed fluid management. All subjects received 24 h postoperative patient controlled epidural analgesia (PCEA) with 0.1% Bupivacaine. Basal infusion was 5 ml/h and 5 ml rescue boluses were followed by 30 min refractory period.

Results and Discussion: Pain scores and patient satisfaction were similar in both groups, but mean hourly and total 24-h consumption of bupivacaine (mg) in intervention group was lower than in controls: 6.637 ± 1.51 vs. 7.591 ± 1.64 ($p=0.01$), and 133.811 ± 33.13 vs. 151.661 ± 32.03 ($p=0.02$), respectively. We speculate that optimised fluid status may have reduced the stress response to surgery and therefore pain was less pronounced in the intervention group.

Conclusion(s): Postoperative pain management in patients who received goal-directed fluid administration was achieved with lesser dose of epidural bupivacaine.

References: * Markevicius et al. Revised Evaluation of Hemodilution Response in the Semi-Closed Loop Infusion System. ELEKTRONIKA IR ELEKTROTECHNIKA (Electronics and Electrical Engineering) **2016**. DOI: <http://dx.doi.org/10.5755/j01.eee.22.1.12826>