Application of LiDCO-Rapid in peri-operative fluid therapy for aged patients undergoing total hip replacement

Guang Han, Kun Liu, Hang Xue, Ping Zhao. Int J Clin Exp Med 2016;9(2):4473-4478

www.ijcem.com /ISSN:1940-5901/IJCEM0010819

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Objective: To explore a good strategy for fluid therapy, we observed the effect of application of LiDCO-Rapid on peri-operative hypotension and complications in aged patients undergoing total hip replacement, performed under combined spinal-epidural anesthesia (CSEA).

Methods: Forty patients were randomly divided into normal fluid therapy group (group N) and LiDCO-Rapid guiding fluid therapy group (group L). For group N, anytime mean arterial pressure (MAP) was less than 65 mmHg, a rapid intravenous infusion of 150 ml hydroxyethyl starch solution (HES, 130/0.4, 6%) was given. For group L, whenever stroke volume variation (SVV) was more than 10%, HES (130/0.4, 6%) was also given to patients until SVV returned to normal limits. After administration of HES, MAP still less than 65 mmHg called for 25-50 μg of phenylephrine to be given to maintain normal MAP in both groups. Heart rate (HR), MAP and lactate level of arterial blood (LAC) was compared between the two groups as prior to anesthesia (T0); instantly (T1), 15 min (T2), 30 min (T3), 60 min (T4), 90 min (T5) after spinal anesthesia; and at the end of surgery (T6).

Results: MAP and HR were significantly higher in group L than in group N at T4 to T6 (all $P<0.05$). LAC was significantly lower in group L than in group N at T5 and T6 (all $P<0.05$). Phenylephrine requirements and incidences of peri-operative complications were also significantly lower in group L than in group N (all $P<0.05$).

Conclusion: LiDCO-Rapid may be used in fluid therapy for aged patients undergoing total hip replacement.