SmartPilot® view-guided anaesthesia improves postoperative outcomes in hip fracture surgery: a randomized blinded controlled study

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Résumé en anglais	Background Both under-dosage and over-dosage of general anaesthetics can harm frail patients. We hypothesised that computer-assisted anaesthesia using pharmacokinetic/pharmacodynamic models guided by SmartPilot® View (SPV) software could optimise depth of anaesthesia and improve outcomes in patients undergoing hip fracture surgery. Methods This prospective, randomized, single-centre, blinded trial included patients undergoing hip fracture surgery under general anaesthesia. In the intervention group, anaesthesia was guided using SPV with predefined targets. In the control group, anaesthesia was delivered by usual practice using the same agents (propofol, sufentanil and desflurane). The primary endpoint was the time spent in the “appropriate anaesthesia zone” defined as bispectral index (BIS) (blinded to the anaesthetist during surgery) of 45–60 and systolic arterial pressure of 80–140 mm Hg. Postoperative complications were recorded for one month in a blinded manner. Results Of 100 subjects randomised, 97 were analysed (n=47 in SPV and 50 in control group). Anaesthetic drug consumption was reduced in the SPV group (for propofol and desflurane). Intraoperative duration of low BIS (<45) was similar, but cumulative time of low systolic arterial pressure (<80 mm Hg) was significantly shorter in the SPV group (median (Q1-Q3); 3 (0–40) vs 5 (0–116) min, P=0.013). SPV subjects experienced fewer moderate or major postoperative complications at 30-days (8 (17)% vs 18 (36)%, P=0.035) and shorter length of hospitalisation (8 (2–20) vs 8 (2–60) days, P=0.017). Conclusions SmartPilot® View-guided anaesthesia reduces intraoperative hypotension duration, occurrence of postoperative complications and length of stay in hip fracture surgery patients.
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