

Multimodal intraoperative monitoring: an observational case series in high risk patients undergoing major peripheral vascular surgery

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Recent guidelines from the National Institute of Health and Care Excellence (NICE) and the UK National Health Service (NHS) have stipulated that intraoperative flow monitoring should be used in high-risk patients undergoing major surgery to improve outcomes and reduce costs. Depth of anaesthesia monitoring is also recommended for patients where excessive anaesthetic depth is poorly tolerated, along with cerebral oximetry in patients with proximal femoral fractures. The aims of this descriptive case series were to evaluate the impact of a multimodal intraoperative strategy and its effect on mortality and amputation rate for patients with critical leg ischaemia. In an observational case series, 120 elderly patients undergoing major infra-inguinal bypass between 2007 and 2012 were included in this retrospective analysis of prospectively collected data. Nominal cardiac output (nCO, LiDCOrapid, LiDCO Ltd, UK), bispectral index to monitor depth of anaesthesia (BIS, Covidien, USA) and cerebral oxygenation, rSO₂ (Invos, Covidien, USA) readings were obtained before induction of general anaesthesia and throughout surgery. 30 day, 1-year

mortality and amputation rates were analysed. Demographics and physiological parameters including correlation with V-POSSUM, age, gender and other co-morbidities were statistically analysed. Thirty-day mortality rate was 0.8% (n = 1). V-POSSUM scoring indicated a predicted mortality of 9%. Amputation rate was less than 2% at one year. Only 8% of patients (10 of 120) were admitted to a high dependency unit (HDU) postoperatively. 30-day mortality in our case series was lower than predicted by V-POSSUM scoring. Use of multimodal intraoperative monitoring with the specific aim of limiting build-up of oxygen debt should be subjected to a randomised controlled study to assess the reproducibility of these results.