

Early goal-directed therapy after major surgery reduces complications and duration of hospital stay. A randomised, controlled trial

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Introduction

Goal-directed therapy (GDT) has been shown to improve outcome when commenced before surgery. This requires pre-operative admission to the intensive care unit (ICU). In cardiac surgery, GDT has proved effective when commenced after surgery. The aim of this study was to evaluate the effect of post-operative GDT on the incidence of complications and duration of hospital stay in patients undergoing general surgery.

Methods

This was a randomised controlled trial with concealed allocation. High-risk general surgical patients were allocated to post-operative GDT to attain an oxygen delivery index of 600 ml min⁻¹ m⁻² or to conventional management. Cardiac output was measured by lithium indicator dilution and pulse power analysis. Patients were followed up for 60 days.

Results

Sixty-two patients were randomised to GDT and 60 patients to control treatment. The GDT group received more intravenous colloid (1,907 SD ± 878 ml versus 1,204 SD ± 898 ml; $p < 0.0001$) and dopexamine (55 patients (89%) versus 1 patient (2%); $p < 0.0001$). Fewer GDT patients developed complications (27 patients (44%) versus 41 patients (68%); $p = 0.003$, relative risk 0.63; 95% confidence intervals 0.46 to 0.87). The number of complications per patient was also reduced (0.7 SD ± 0.9 per patient versus 1.5 SD ± 1.5 per patient; $p = 0.002$). The median duration of hospital stay in the GDT group was significantly reduced (11 days (IQR 7 to 15) versus 14 days (IQR 11 to 27); $p = 0.001$). There was no significant difference in mortality (seven patients (11.3%) versus nine patients (15%); $p = 0.59$).

Conclusion

Post-operative GDT is associated with reductions in post-operative complications and duration of hospital stay. The beneficial effects of GDT may be achieved while avoiding the difficulties of pre-operative ICU admission.