

Which evidence-based strategies reduce perioperative morbidity and mortality?

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Introduction

Evidence-based medicine (EBM) depends on well-designed studies with reliable results. Good-quality evidence from large randomised trials and systematic reviews is available, and their uptake into anaesthetic practice can work, and should be adopted to reduce serious complications after surgery.

There is good evidence for the following:¹

- Chlorhexidine should be used for antisepsis when inserting intravascular (and probably major regional block) catheters.²
- The prevention of postoperative nausea and vomiting prophylaxis should target at-risk patients only, and include a multimodal regimen of dexamethasone, droperidol and a 5-hydroxytryptamine-3 antagonist.³
- Epidural analgesia is superior to a parenteral opioid in relieving postoperative pain after major surgery.
- Epidural analgesia reduces the risk of pneumonia after major surgery.
- The risk of a stroke is comparable for both local anaesthesia and general anaesthesia in carotid surgery.
- Clonidine increases regional block duration (approximately two hours), but has side-effects of increased hypotension, bradycardia and sedation.
- Intraoperative hypothermia reduces thermal comfort and increases bleeding and transfusion requirements, as well as myocardial ischaemia (MI). Avoiding intraoperative hypothermia reduces wound infection.
- Perioperative beta blockade can reduce MI, but may increase the risk of a stroke and death.
- Prophylactic antibiotics reduce sepsis complications after major abdominal surgery, and should be given before skin incision.
- Volatile agents reduce the risk of MI and death after coronary artery surgery, when compared with intravenous anaesthetic techniques.
- Early enteral feeding reduces postoperative infection and hospital stay after abdominal surgery.

- There is no evidence that nasogastric drainage speeds the return of bowel function, or reduces the risk of wound infection or an anastomotic leak after abdominal surgery.
- There is no evidence that intraoperative tight glucose control improves outcomes after major surgery, but the risk of hypoglycaemia is increased.
- Protective lung ventilation reduces the risk of respiratory failure in patients undergoing major abdominal surgery.
- Hydroxyethyl starch (6%, 130/0.4) increases the risk of renal failure in critically ill patients.
- Alpha 2-receptor agonists do not reduce perioperative cardiac events in non-cardiac surgery.
- It is unclear whether or not supplemental oxygen therapy improves outcomes after abdominal surgery.
- Nitrous oxide does not increase the risk of cardiovascular events after major surgery.

Does EBM work? One simple example is the use of chlorhexidine for skin preparation for intravascular cannulation. It has been traditional for the anaesthetist to use an iodine-based solution (e.g. Betadine[®]) for central venous cannulation in many places. A series of randomised trials, and subsequent meta-analyses demonstrated the superior efficacy of chlorhexidine, at least in critical care populations. Eggimann et al² incorporated the routine use of 2% chlorhexidine and other proven strategies, and found a threefold reduction in infection. Thus, they also addressed a far greater issue: evidence-based practice improves patient outcome.

References

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