Should all day-case anaesthesia patients be given prophylactic antiemetics?

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INTRODUCTION

As the safety of anaesthesia has improved, anaesthetists are judged increasingly by quality indicators, such as management of postoperative pain or postoperative nausea and vomiting (PONV). While it would be reassuring to believe that the use of prophylactic antiemetics would eliminate PONV, this is not true. The decision whether to give prophylactic antiemetics to prevent PONV must be based on risk–benefit analysis and cost effectiveness.

THE ARGUMENT AGAINST

Is the treatment effective?

The incidence of PONV in day-surgery patients is around 30–40%, but is highly variable, and depends on patient, surgical and anaesthetic factors. Apfel et al (1999) developed a PONV risk score based upon risk factors of female gender, non-smoking status, previous PONV or motion sickness, and long-acting opioids. The risk of PONV for those with 0, 1, 2, 3 or 4 risk factors is 10%, 21%, 39%, 61% and 79% respectively. Although these figures may vary with different anaesthetic techniques, it is still possible to identify patient groups at greater or lesser risk of PONV.

Reported efficacy of antiemetic drugs is variable, but a typical reduction rate of 50% for 5-HT_3 antagonists is seen (Figueredo and Canosa, 1999). Dexamethasone and cyclizine alone are probably slightly less effective. A PONV rate of 40% gives a number needed to treat (NNT) for ondansetron in preventing PONV of 5. However, if a group has an underlying PONV incidence of 10%, the NNT increases to 20.

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Are there adverse consequences to the treatment?

Adverse consequences of the indiscriminate use of antiemetics include cost (ondansetron 4 mg/2 ml ≈ £5) and side effects including sedation and headache.

Is there an alternative strategy?

Patients at the greatest risk of PONV can be identified and targeted with multimodal therapy to reduce PONV. Alternative strategies include:

- Avoidance of nitrous oxide and volatile agents. This reduces PONV when compared to conventional anaesthesia (Tramer et al, 1997)
- Avoidance of emetogenic drugs, in particular opioids. This reduces the incidence of PONV, as long as postoperative analgesia is ensured by the use of an alternative technique (non-steroidal anti-inflammatory drugs and/or local anaesthetics)
- Rescue antiemetic therapy (ondansetron) is effective.

THE ARGUMENT FOR

While most anaesthetists would agree that not all patients should receive routine antiemetic prophylaxis, an editorial by White and Watcha (1999) says that once the risk of PONV exceeds 10% there are measurable benefits in patient satisfaction, and the risk–benefit argument swings in favour of its use. In particular, they referred to studies where routine use of antiemetic prophylaxis improved patient satisfaction in susceptible women undergoing highly emetogenic procedures. Using Apfel's score, many patients have >10% likelihood of PONV (Apfel et al, 1999).

It is important to remember that PONV is one of the leading causes of complaints from parents and leading cause of readmission in children.

Watcha and Smith (1994) used a decision-analysis model to show that prophylaxis with ondansetron is associated with reduced overall treatment costs compared with not giving prophylaxis, if the estimated PONV risk exceeds 30%.

CONCLUSION

Targeted antiemetic prophylaxis offers the most rational approach to PONV management in those undergoing day-case anaesthesia. For optimum patient satisfaction, the evidence supports the use of prophylactic antiemetics when the PONV risk is more than 10%. According to the Apfel score this includes the majority of patients undergoing day-case anaesthesia. However, alternative anaesthetic strategies to lessen PONV risk may allow reduced use of prophylactic antiemetics without worsening patient outcome. HM

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