

Audit, Development and Implementation of an Evidence Based Post-Operative Nausea and Vomiting Management Algorithm

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Objective: To develop evidence based guidelines for the pharmacological management of postoperative nausea and vomiting (PONV) in adults based on current literature. The effectiveness of these guidelines was evaluated through the process of a retrospective, observational audit. *Methods:* All literature on the management of PONV through Medline, Pub Med, Cochrane Database and Google Scholar from 1995-2008 was reviewed to develop an algorithm for treatment. An initial retrospective three-month audit of PONV treatment of all patients undergoing gynaecological surgery was undertaken. Six months after implementation of the algorithm the same population of patients was restudied. *Literature review:* A number of large randomised controlled trials showed that prevention of PONV is possible. Appropriate risk stratification of patients is pivotal. Apfel described four independent risk factors found to be highly predictive in the development of PONV: female, non-smoker, a history of PONV or motion sickness and the use of postoperative opioids. A patient with only one risk factor had a less than 21% chance of developing PONV, having two risk factors gave up to 40% risk, three carries a 61% risk and having four risk factors patients have more than 79% chance of developing PONV. Matching treatment to risk reduces the over all cost of treatment and allows effective therapy. Evidence suggested no intra operative prophylaxis for low risk patients. Moderate risk patients should receive mono therapy prophylaxis with high-risk and very high-risk patients dual and triple prophylaxis respectively using antiemetics with different mechanisms, followed by a stepwise approach to rescue therapies. The choice of and timing of antiemetics in the developed algorithm was based on numbers needed to treat, numbers needed to harm and cost of antiemetics. *Audit:* The use of an evidence based approach to the pharmacological management of PONV based on risk classification of patients and an easy to follow algorithm resulted in a 41% risk reduction in PONV. Although the cost of treatment per person was found to increase from \$4.30 to \$5.90, the number needed to treat was found to be 2.4 and resulted in an overall rate of PONV of 25% compared to 66% found previously. *Conclusion:* The use of an evidence-based algorithm to guide decision on the pharmacological management of PONV was found to be both clinically and cost effective.

References: 1. Gan TJ 2003, 2. Gan TJ 2002, 3. Apfel CC 2004, 4. Gan TJ 2005, 5. White PF 2008, 6. Gan TJ 2006, 7. Apfel 1999