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Postoperative Nausea and Vomiting Risk Assessment Tool for Proactive Intervention

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Clinical Problem
Postoperative nausea and vomiting (PONV) is one of the most common issues after surgery. PONV is distressing for surgical patients, with many describing it as more distressing than postoperative pain. The incidence of PONV is about 30% in the general population and can be as high as 80% in people who display certain risk factors. Significant cost associated with PONV is projected to be in the millions per year.

Background
Research shows there are certain independent risk factors for PONV including female gender, history of PONV or motion sickness, non-smoking status, and postoperative opioids. PONV can lead to patient distress, unintended hospital admission, increased length and cost of hospital stay, dehydration, electrolyte imbalances, aspiration, bleeding, and even wound dehiscence. Current research supports using a simplified risk assessment tool to predict and more effectively treat PONV in surgical patients. These tools can be easily implemented by the bedside nurse to assess for PONV and advocate for the patient accordingly.

Assessment
PONV is a common and distressing issue for surgical patients that often leads to prolonged hospital stay, yet there is a knowledge deficit among nursing staff that there are certain risk factors that may predict PONV and allow them to be more proactive in treating it.

PICO Question
Does a simple risk factor prediction scale accurately predict post operative nausea and vomiting on a 40 bed surgical unit.

Evidence
Research validates the recommendation of a risk assessment tool for PONV. The use of a PONV risk assessment tool has been shown to significantly reduce the rate of PONV in facilities that implement it. The Apfel Risk Assessment tool has been published as being valid and widely used in predicting PONV.

Research shows that Female Gender is the strongest independent predictor of PONV, followed by history of PONV/motion sickness, non-smoking status, and the use of postoperative opioids. According to the Consensus Guidelines for the Management of PONV (2014) while this scale cannot completely predict that patients will have PONV, patients with 1.23 & 4 risk factors are 10%, 40%, 60% & 80% (respectively) more likely to experience PONV than patients who have none.

Studies show that the practice of over or under treating patients for PONV may lead to poor outcomes. Research shows effectiveness of interventions based on risk level, such as medications, fluids and complementary modalities, make a difference in patient outcomes.

Intervention
A survey was created and disbursed to RNs on a 40 bed surgical unit. This survey included the Apfel risk assessment tool for predicting risk of PONV in surgical patients. RNs were educated via email and during staff huddle on how to use the tool to assess risk. Data was collected during a one month period and analyzed using an odds ratio analysis of independent risk factors and number of risk factors a patient has.

Findings
The strongest independent predictors of nausea were female gender, with an odds ratio of 15.046 (p<0.001, CI=3.08-71.48), and history of PONV/motion sickness, with an odds ratio of 5.066 (p=0.025, CI=1.24-21.57). Due to the small sample size and the majority of patients being non-smokers and receiving postoperative opioids, statistical significance was not reached on either of these independent predictors of nausea.

In patients who have risk factors for PONV, each additional risk factor a patient has increases the odds of that patient experiencing post operative nausea by 5 fold (p=0.001, CI=2.46-10.61), and the odds of that patient experiencing post operative vomiting increases by 3 fold (p<0.009, CI=1.39-7.22). (Note: 26 individuals had missing data on PONV/motion sickness).

Next Steps
Risk for PONV will be identified for proactive prevention and management by the bedside RN and by preadmission clinics so that the patient, family, and provider are educated accordingly.

References

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