Effectiveness of Apfel Simplified Risk Score in Predicting Postoperative Nausea and Vomiting in Day Surgery Unit

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One of the most common and distressing side effects following anesthesia and surgery is postoperative nausea and vomiting (PONV) (Gan, et al. 2014). Unresolved PONV leads to increased overall healthcare cost due to longer stay in post anesthesia care unit (PACU) and unanticipated hospital admission (Gan, et al., 2014). In the Day Surgery Unit (DSU) of Covenant Medical Center (CMC), the high incidence of PONV cases has resulted to patient’s delayed discharge and nurses working longer hours. To prevent and manage PONV effectively, the Society for Ambulatory Anesthesia (SAMBA) has updated its guidelines to include a scoring system to assess PONV risk of a patient. Nurses can help in PONV prevention by preoperative identification of patients at risk for PONV and communication of risk to the anesthesia and surgical team (Hooper, 2015). Hooper (2015) also summarized the nurses’ other roles in preventing PONV including minimizing of intra and postoperative opioids by advocating for multi-modal pain management regimens and ensuring adequate IV fluid hydration of patients among others. Apfel simplified risk score (SRS) is one of the most commonly-used risk assessment tools consisting of four important patient-specific independent predictors for PONV risk, namely gender, history of PONV/motion sickness, non-smoker, and use of post-operative opioids (Gan et al., 2014). Apfel SRS is very simple (with only 4 risk factors), feasible and the most accurate tool for assessing patient’s risk of PONV (Obrink, Jildenstal, Oddby & Jakobsson, 2014).

**Background**

- One of the most common and distressing side effects following anesthesia and surgery is postoperative nausea and vomiting (PONV) (Gan, et al. 2014).
- Unresolved PONV leads to increased overall healthcare cost due to longer stay in post anesthesia care unit (PACU) and unanticipated hospital admission (Gan, et al., 2014).
- In the Day Surgery Unit (DSU) of Covenant Medical Center (CMC), the high incidence of PONV cases has resulted to patient’s delayed discharge and nurses working longer hours.
- To prevent and manage PONV effectively, the Society for Ambulatory Anesthesia (SAMBA) has updated its guidelines to include a scoring system to assess PONV risk of a patient.
- Nurses can help in PONV prevention by preoperative identification of patients at risk for PONV and communication of risk to the anesthesia and surgical team (Hooper, 2015).
- Hooper (2015) also summarized the nurses’ other roles in preventing PONV including minimizing of intra and postoperative opioids by advocating for multi-modal pain management regimens and ensuring adequate IV fluid hydration of patients among others.
- Apfel simplified risk score (SRS) is one of the most commonly-used risk assessment tools consisting of four important patient-specific independent predictors for PONV risk, namely gender, history of PONV/motion sickness, non-smoker, and use of post-operative opioids (Gan et al., 2014).
- Apfel SRS is very simple (with only 4 risk factors), feasible and the most accurate tool for assessing patient’s risk of PONV (Obrink, Jildenstal, Oddby & Jakobsson, 2014).

**Purpose**

Since DSU-CMC presently does not have any PONV risk assessment tool, Apfel SRS tool will be tested and evaluated if it will effectively predict the PONV risk of a patient.

- To review current practices of the perianesthesia team on preventing PONV in surgical patients.

**Methods**

- A modified form with APFEL Risk Assessment Scores, medications given during surgery and recovery (PACU/DSU), and experience of PONV (PACU/DSU/24-hour post op discharge) was developed for the study.
- The study was done from May 7 to August 6, 2019 in DSU-CMC. All patients who had been given general anesthesia and would go home the same day were included in the study.
- DSU prep nurses assessed the patients’ Apfel Risk Score prior to the procedure.
- DSU postop nurses recorded the medications given during surgery, PACU and postop area stay as well as experience of PONV in PACU, postop area and 24-hours post discharge.

**Results**

- There was a total of 627 patients in DSU during the period of the study but only 474 were included because of incomplete information on the forms.
- Out of 474 patients, 28% or 116 experienced PONV.
- Most of the patients had Apfel scores of 2 & 3 which has been considered moderate and high-risk for developing PONV.
- Figure 2 showed that the PONV rate rose from 18% to 49% as Apfel scores went up.
- Use of PONV prophylaxis medications like Zofran and dexamethasone had gone up with increasing Apfel Scores.
- There’s an increased utilization of opioids in patients with Apfel scores of 3 and 4.
- Use of total intravenous anesthesia (TIVA) was pretty much constant at 50% on Apfel 2,3 & 4.

**Discussion/Implications**

- The data gathered supported the effectiveness of Apfel SRS as a risk assessment tool in predicting PONV.
- Awareness of patient’s Apfel SRS can guide the whole perianesthesia team in decreasing incidence of PONV.
- Nurses are in a position to help lower the incidence of PONV and increase patient satisfaction.
- Addition of APFEL SRS in computer charting will help the perianesthesia team become aware of patient’s risk for PONV.
- Nurses can advocate for the incorporation of multimodal preventive PONV strategies by using APFEL SRS as a guide to anesthesia doctors.
- More education to perianesthesia nurses on medications/non-pharmacological practices that are evidence-based in reducing experience of PONV in patients.

**References**

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