THE EFFECTIVENESS OF AROMATHERAPY COMPARED TO STANDARD CARE FOR THE RELIEF OF PONV/PDNV IN AMBULATORY SURGICAL PATIENTS

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Introduction: Postoperative nausea and vomiting (PONV) is an inadvertent complication of anesthesia following ambulatory surgery. PONV occurs in 30% of patients (~ 37% in post discharge patients, i.e. PDNV) and up to 70%-80% in patients with high-risk factors.

Identification of the problem: PONV is an unplanned clinical complication that increases resource requirements, length of stay, and thereby healthcare costs. Pharmacological measures reduce the risk of PONV by 12-26%; however, some patients want to avoid taking medications.

Purpose of the Study: In ambulatory surgical patients, we compared the effectiveness of aromatherapy (AT) to standard care (SC) for PONV/PDNV.

Methodology: A research team approach (i.e., nurse researchers, a local university nursing professor, perianesthesia leadership and clinical nurses, librarian, a medical research scientist) was utilized to develop the study. A convenience sample of ambulatory surgical patients (n = 254) were randomized to the intervention group (AT) or control group (SC). Randomization was conducted after a power analysis determined 254 subjects were needed to indicate a significant difference between the intervention and control groups. Subsequently and prior to the study, blue pocket-folders were prepared with an outside sticker containing a sequential study ID number (i.e.1-254) and an inside sticker labeled with the computer-generated randomized group assignment. Post discharge, patients were surveyed to assess effectiveness of treatment. Machine learning methods were used to evaluate whether literature-based risk factors and/or other pre and intraoperative variables classified patients at greater for PONV. Treatment for PONV in the SC group was defined as anesthesia provider-specific pharmacologic choices individualized to each patient. Treatment for PDNV in the SC group, as defined by the individual patient, was their preferred home-treatment or remedy.

Results: 28% of patients (n=221) experienced PONV, of which, the majority were satisfied with treatment in both SC and AT equally (timely, P = 0.60; effectiveness, P = 0.86). AT was 100% effective in patients with PDNV, whereas SC was only 67% effective. Gender, age, history of smoking, and history of motion sickness and/or PONV were identified as the most important predictors (0.69 AUC) of PONV.

Discussion: In our study, patients with PONV indicated that AT and SC was equally effective. Patients with PDNV in the AT group felt treatment was more effective than those in the SC group. Machine learning enabled easy pattern recognition of multiple factors that classify patients at risk for PONV.

Conclusion: Aromatherapy is an effective way to manage PONV/PDNV. Machine learning methods identified the most important predictive factors for PONV. Given more data, such methods may identify novel predictors that improve the overall accuracy of the model.

Implications for perianesthesia nurses and future research: Identifying patients at greater risk for PONV and communicating that with clinicians early on, could better plan treatment strategies that include the use of AT, and ultimately, reduce health care costs and improve patient outcomes.