

# Opioid Free Anesthesia to Prevent Post Operative Nausea/Vomiting

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## Purpose

The purpose of this DNP project is to compare the incidence of postoperative nausea and vomiting (PONV) in opioid-utilizing and opioid-free general anesthesia.

### Specific Goals

- Compare incidence of PONV in opioid-utilizing and opioid-free anesthesia (OFA).
- Compare the need for rescue antiemetics in the immediate postoperative period (up to 24 hours postop) between OFA and non-OFA
- Compare the incidence of breakthrough pain in the immediate post-operative period in OFA and non-OFA
- Determine if OFA provides adequate pain control and prevention of PONV in general anesthesia patients.

## Background

PONV is an extremely common, dangerous side effect of general anesthesia caused by:

- Volatile anesthetics & opioids

- Prolonged fasting

- Pain

- Mask Ventilation

PONV affects 80% of high-risk surgical patients who undergo general anesthesia. Risk factors include:

-Female gender

-Nonsmokers

-History of PONV

-Surgery within the past 24 hours

-Abdominal, ENT and gynecological surgery

PONV can cause life threatening post-op events such as wound dehiscence or disturbance, electrolyte disturbances, dehydration, pulmonary aspiration, hospital readmission, delayed discharge and increased healthcare costs.

## Methods

### • Eligibility Criteria

- Peer-reviewed published studies
- Must include opioid free anesthesia and opioid inclusive anesthesia groups
- Adult patient studies
- ASA Score of III or lower

### • Databases

- Discovery Search Engine
- AccessMedicine
- UpToDate

### • Data items

- Agents used in place of opioids for experiment groups
- Incidence of postoperative nausea and vomiting (PONV)
- Use of antiemetics

### Types of Studies

- Meta-analysis
- Case control study
- Prospective cohort studies (4)

## Results

The relevant charted data that was used for our results include pain scores, documented nausea and vomiting, as well as the use of opioids.

### Specific Results:

- Reduction in PONV in OFA groups
- Reduction in rescue antiemetic use in OFA group (1 study)

Author	Experiment group agent(s) used	Nausea/vomiting	Antiemetic use	Type of study
Thiruvankatarajan, et al. (2017)	Esmolol	69% reduction in N/V in OFA group (P<0.008)	N/A	Meta-analysis
Guinot, et al. (2019)	Lidocaine, dexamethasone, and ketamine	No significant reduction	N/A	Case-control study
Ziemann-Gimmel, et al. (2014)	Propofol, ketamine, and dexmedetomidine	17.3% reduction in N/V in OFA group (P=0.04)	No significant reduction	Prospective cohort study
King, et al. (2020)	Gabapentin, propofol, dexamethasone, and tylenol	N/A	No significant reduction	Prospective cohort study
Callesen, et al. (1999)	Combined epidural-spinal	Significant reduction in N/V in OFA group (P<0.002)	No significant reduction	Prospective cohort study
Bakan, et al. (2015)	Propofol, dexmedetomidine, and lidocaine	No significant reduction	15% decrease in OFA group (P=0.026)	Prospective cohort study

## Implications for Practice

### • Opioid alternatives are shown to reduce the incidence of post-operative nausea and vomiting.

Esmolol, Ketamine, Propofol and Dexmedetomidine

### • Education

-Ongoing professional development and education may be necessary to address hesitancy to change current anesthesia practice.

-The lack of professional education and hesitance to change current anesthetic practice from postoperative nausea and vomiting prevention with rescue medications with use of narcotics to opioid free anesthesia continues to be an issue.

### • Lack of an Opioid-Free Anesthetic Algorithm

Based on current best evidence, an opioid-free anesthesia algorithm may improve adherence to using opioid alternatives.

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