# Table of Contents

## Equipment & Technology
- Tracheal intubation with a camera embedded in the tube tip (Vivasight™) ................................................................. 3

## General
- Increased long-term mortality after a high perioperative inspiratory oxygen fraction during abdominal surgery: Follow-up of a Randomized Clinical Trial ............................................................ 5
- Risk factors for hypotension in urgently intubated burn patients .... 7

## Pharmacology
- Does low-dose droperidol increase the risk of polymorphic ventricular tachycardia or death in the surgical patient? .......... 10
- Perioperative pregabalin for acute and chronic pain after abdominal hysterectomy or myomectomy: a randomized controlled trial ........................................................................................................ 13
- Infection after urogynecologic surgery with the use of dexamethasone for nausea prophylaxis ................................. 16
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Tracheal intubation with a camera embedded in the tube tip (VivasantightM)

Anaesthesia 2013;68:74–78

Abstract

Purpose The purpose of this study was to assess the feasibility of using the camera built into the Vivasantight endotracheal tube to guide endotracheal intubation without a laryngoscope or separate fiberscope.

Background The Vivasantight endotracheal tube (ET view Ltd., Misgav, Israel) has an additional lumen inside the ETT with a fiberoptic camera built in. The camera lens is at the tip of the ETT. It is designed to provide continuous video not only during ETT placement, but throughout the procedure, for example, during the passage of a bronchial blocker. The presence of a camera built into the tip of the ETT adds an additional way to verify the placement of the ETT. It may also be possible to intubate patients without the stimulation of a laryngoscope. An ETT with integrated camera may be less expensive to use than a flexible fiberoptic scope when cleaning, maintenance, and sterilization costs are included.

Methodology Intubation with the Vivasantight ETT was first attempted in a high fidelity patient simulator programmed with a Mallampati I airway; all teeth present and normal neck range of motion. A 7 mm ETT was inserted into the lumen of a laryngeal airway (i-gel, Intersurgical Ltd., Berkshire, England). The clinician next placed the laryngeal airway normally and advanced the Vivasantight ETT into the trachea while watching video from the tip of the ETT. Simulator intubations were performed from above the head of a supine “patient” as well as from in front of a sitting patient.

Next intubation with the Vivasantight ETT was attempted in 12 ASA class I or II patients with a Mallampati I airway. All patients were scheduled for surgery with general anesthesia. Anesthesia was induced and rocuronium or mivacurium administered for paralysis and patients were ventilated by mask for three minutes. With the head and neck in neutral position, an oral airway commonly used to guide a fiberscope was placed (Berman airway). A 7.5 mm Vivasantight ETT was passed through the airway. Intubation was guided by the image from the camera at the tip of the ETT. Once the vocal cords were visible a jaw lift was performed by a second provider and the ETT was advanced into the trachea. The time from airway insertion until confirmation of tracheal intubation and ventilation was recorded as intubation time.
Within 24 hours, patients were questioned about sore throat or hoarseness. If present, complications were recorded as “mild,” “moderate,” or “severe.”

**Result**  Simulated intubations with the Vivasight were uniformly successful. Intubations in humans included seven women and five men with a median BMI of 23. All were ASA physical status I or II. All 12 intubations were successful, 10 with a jaw lift. Average intubation time was 90 seconds (range 50 seconds to 3 min and 30 seconds). The initial three patients intubated required two or three attempts but the remaining nine patients were intubated in one attempt. Postoperative complications included sore throat (5 mild, 1 moderate, 1 severe), a non-productive cough, and once complaint of difficulty swallowing. All complications resolved without treatment.

**Conclusion**  An ETT with integrated camera can be used to intubate patients with normal anatomy through a laryngeal or an oral airway in about the same amount of time as using traditional laryngoscopy.

**Comment**  I imagine most readers can perform a normal laryngoscopy and intubation in less than 90 seconds. The question is, how long does it take to intubate with a flexible fiberoptic scope or a GlideScope even in a normal airway. I’m delighted to see the continued development of new devices for intubating the difficult airway. Despite all the progress in equipment and techniques over the last 25 years airway problems are still a chief cause of anesthesia morbidity and mortality.

I’m not making predictions for this particular brand of device, but it seems to me that if manufacturers can get the price down, an ETT with a built in camera could be the single most effective foundation of a difficult intubation technique. Whether I use an LMA, some sort of intubating oral airway, a laryngoscope, or even a GlideScope-like device, being able to see the airway from the viewpoint of the tip of the ETT should be a huge advantage. If they can integrate some way to control what direction the tip of the tube is pointed, like an Endotrol ETT, this concept could become the best thing out there for any intubation.

**Michael A. Fiedler, PhD, CRNA**

**Endotrol endotracheal tubes:**
http://www.nellcor.com/prod/Product.aspx?S1=AIR&S2=&id=133
General

**Increased Long-term Mortality after a High Perioperative Inspiratory Oxygen Fraction during Abdominal Surgery: Follow-up of a Randomized Clinical Trial**

Meyhoff C, Jorgensen L, Wetterslev J, Christensen K, Rasmussen L and PROXI Trial Group

**Abstract**

**Purpose** The purpose of this post hoc follow-up study of the PROXI trial was to determine if a relationship existed between a high perioperative oxygen fraction and long-term mortality in individuals undergoing laparotomy procedures.

**Background** Current evidence is strongly suggestive that in certain scenarios anesthesia has an effect, good or bad, on patient outcomes. Past research has focused on optimizing wound oxygen tension intra-anesthetically for the purpose of promoting wound healing. Administering high levels of oxygen is a component of care we control that may improve outcomes. Administering high inspiratory oxygen fractions (FiO₂) may increase wound oxygenation in adequately perfused tissue and reduce bacterial growth, as well as promote neovascularization, collagen formation, and epithelialization. The PROXI trial, however, reported an insignificant effect on surgical site infections when high levels of oxygen were administered (80% FiO₂ versus 30% FiO₂). Additionally, analysis of PROXI trial data noted 30 day mortality was higher in the 80% oxygen group; 4.4% versus 2.9% in the 30% oxygen group but this difference was not statistically significant (P = 0.13). Adverse effects associated with higher FiO₂s exist and should not be ignored. These include airway inflammation, atelectasis formation, arterial vasoconstriction, and even reduced coronary blood flow in some clinical situations. Evidence is inconclusive concerning how, or even if, a high FiO₂ impacts immune function.

**Methodology** This retrospective study was conducted as a follow up using PROXI trial data. PROXI trial patients were followed up to obtain mortality data over an extended period of time. The PROXI trial included individuals who were:

- aged 18 years and older
- scheduled for elective or emergency laparotomy in 14 Danish hospitals

Individuals were randomized to one of two groups: 80% oxygen or 30% oxygen. Stratification occurred by trial site, whether or not the patient had diabetes mellitus, whether the surgery was elective or urgent vs. emergent, and BMI.

The perioperative care was standardized including: prophylactic antibiotic administration, epidural analgesia, temperature and glucose control, absence of preoperative oral bowel preparation, perioperative fluid administration including blood product transfusion, and anesthetic technique. This follow up study used data from the original PROXI trial and included time from anesthesia to death or final follow-up. The primary outcome for this study was all-cause mortality.
Results  The original PROXI trial included 1,386 patients and additional follow up was successful in 1,382 patients for a median of 2.3 years (range 1.3 to 3.4 years). Demographic data was similar between groups. The following results were significant:

1. **Unadjusted Results** – 23% of patients in the 80% oxygen group died in ensuing years (159 of 685) compared to 18% of patients in the 30% oxygen group (128 of 701), (P = 0.03)

2. **In those undergoing cancer surgery** – 34% died in the 80% oxygen group (118 of 352) compared to 25% in the 30% oxygen group (89 of 362), (P = 0.009)

3. **Adjusted Results** – when cancer surgery patients were removed from the analysis; increasing age, blood transfusion, emergency surgery, and ASA physical status III and IV did not affect long term mortality

No other significant findings were discovered.

Conclusion  This follow-up study of the original PROXI trial identified statistically significant increases in long term mortality when a higher FiO₂ of 80% was used during abdominal surgery in cancer patients compared to those who received 30% FiO₂. The difference in mortality was only statistically significant in those undergoing cancer surgery, not in those having any other abdominal, non-cancer, surgery.

Comment  The authors of this study did a good job of articulating some of the more important strengths of this study; almost complete follow-up of PROXI trial patients. They also identified key limitations. They brought up a good point, while this is the first study to assess long term mortality > 30 days for those who received a higher oxygen concentration for abdominal surgery, it is difficult to ascertain a true cause and effect relationship. For example, it was surprising to find a significant increase in mortality after 2.3 years given that any negative effect of an 80% FiO₂ would be expected to present itself sooner. Typically, pulmonary atelectasis and some type of respiratory failure are more likely to occur in the short term following the anesthetic and surgery. Was there any true relationship at all after such an long time postoperatively, especially with all the other pathophysiologic processes in someone with cancer? Cancer patients may have had a physiologic response different from the non-cancer patients. Does anesthesia itself have effects on someone diagnosed with cancer that we simply do not know enough about? For example, to what extent does anesthesia influence neovascularization and immunosuppression? Evidence to date remains inconclusive. And while I typically do not advocate changing practice based on a single study, I myself will be less likely to administer 80% or even 100% FiO₂ (as I have typically done in the past), to someone having surgery for cancer if they can tolerate a lower FiO₂ without desaturating; at least until we see more evidence.

Mary Golinski, PhD, CRNA

The original PROXI trial research was published in the Journal of the American Medical Association: Effect of high perioperative oxygen fraction on surgical site infection and pulmonary complications after abdominal surgery: The PROXI randomized clinical trial. JAMA 2009;302:1543-1550
RISK FACTORS FOR HYPOTENSION IN URGENTLY INTUBATED BURN PATIENTS

Burns 2012;38:1181-1185
Dennis C, Chung K, Holland S, Yoon B, Milligan D, et al

Abstract

Purpose  The purpose of this study was to identify risk factors associated with an acute hypotensive episode in burn patients who require urgent intubation after admission to the burn intensive care unit.

Background  Depending on the extent and nature of a burn, those admitted to a burn intensive care unit (BICU) often do not require an artificial airway to ensure adequate ventilation and oxygenation. It is not rare, however, to identify a state of respiratory decompensation necessitating immediate placement of an endotracheal tube, sometimes after a period of time following admission into the BICU. Induction drugs including benzodiazepines, opioids, sedative/hypnotics, ketamine, and other agents, are given to facilitate endotracheal intubation in the burn victim just as in the non-burn patient. Their associated side effects may be somewhat different. While it is well established that drugs such as propofol decrease cardiac output as a result of myocardial depression, this patient population presents with unique pathophysiology that causes an exaggerated response to such medications. The response can be catastrophic in nature. For example, past research has demonstrated that burn victims exhibited an extensive and sustained release of inflammatory mediators, most often in the post-burn period. Additionally, fluid shifts occur for a variety of obvious reasons as does the development of presumed sepsis. Together these pathophysiologic responses may result in profound hemodynamic compromise and unfavorable outcomes.

Methodology  This study was a retrospective chart review. Data was collected on all patients admitted from January 1, 2003 to August 2010 who required urgent or emergent intubation while in the BICU. Children and those admitted to the BICU already intubated were excluded. The following information was extracted from medical records:

1. Demographic Data
2. Burn information
   2.1. % total body surface area burned
   2.2. Presence of inhalation injury
   2.3. Burn thickness
   2.4. Injury type
3. Intubation data
   3.1. Date and time of intubation
   3.2. Induction agent
   3.3. Hypotension (see notes)
   3.4. Vasopressor required following intubation (including increasing dose of existing infusion)
   3.5. Crystalloid and colloid fluid bolus data to correct hypotension
4. Presumed Sepsis (those already on antibiotics excluding those receiving surgical prophylaxis)
The primary outcome variable was evidence of hypotension within one hour of intubation. Secondary outcome measures included:

1. Death from any cause
2. ICU days and ventilator days

**Result** Of the 1,516 patients admitted to the BICU, 279 met the criteria for inclusion in the study. Propofol was the most common induction agent. Non-depolarizing muscle relaxants were most often used for paralysis.

In those who received propofol as the only agent for induction (n = 124), the average MAP decreased from 94 mmHg prior to intubation to 89 mmHg after intubation (P = 0.04). Clinically significant hypotension was observed in 42% (n = 117) of the total 279 intubations. Among all patients studied, 168 had a diagnosis of presumed sepsis and 49% of those (n = 82) exhibited significant hypotension whereas those who did not have presumed sepsis (111 intubations) did not have hypotension.

Multiple logistic regression identified presumed sepsis as the chief predictor of hypotension following induction and intubation in the BICU (odds ratio 1.8, P = 0.02). Total body surface area burned was also a statistically significant predictor of hypotension but the effect was clinically quite small (odds ratio 1.016, P < 0.001). Death was the only secondary outcome noted to occur significantly more frequently in the hypotensive group (P = 0.04).

**Conclusion** Induction agents used to intubate BICU patients urgently or emergently, including propofol, were not a significant independent risk factor for the development of clinically significant hypotension. Presumed Sepsis and the percent body surface area burned were the only significant predictors of hypotension.

**Comment**

I thought the researchers did as rigorous a job as possible, given the limitations one faces when doing a retrospective chart review. Not atypically, key information could not be extrapolated that may have helped to identify a more rigorous cause and effect relationship when looking at the risk factors for hypotension in this select group of individuals. One example of this occurred when inconsistencies in charting of drugs and doses was noted. This simply reinforces the importance of a complete and thorough patient record. Other limitations faced which may have muddied the water included how they defined hypotension and presumed sepsis (see notes following). Knowing some more about patients’ fluid status would have been most helpful and offered the reader a greater understanding of clinical outcomes as it relates to fluid management.

*What was identified and particularly important,* was that for every 1% increase in the percent of total body surface area burn there was a 1.6% increase in the odds of developing hypotension. *And, if* hypotension did occur after intubation, there was nearly a two fold increase in the odds of death. For all of us practicing anesthesia, this is a significant statement! This is one
scenario where hypotension post induction should be avoided at all costs. These individuals simply cannot tolerate it. Careful thought and consideration must be given when choosing an induction agent. Often propofol is NOT an appropriate choice, even in reduced doses. There should be consideration given to all interventions, including concomitant administration of fluids, vasopressors, and inotropes, to prevent decreases in blood pressure.

Communication with key members of the health care team is imperative regarding the presumed sepsis status of the individual needing the intubation.

Mary Golinski, PhD, CRNA

**Clinically Significant Hypotension** was defined as hypotension requiring intervention in the form of starting a new vasopressor, increasing the dose of a current vasopressor, or given a fluid bolus of at least 500 ml of crystalloid or 250 ml of colloid any time within 1 hour following intubation.

**Definition of Presumed Sepsis:** those on empiric antibiotics (excluding surgical prophylaxis) in the time frame of 4 hours before or after intubation.
DOES LOW-DOSE DROPERIDOL INCREASE THE RISK OF POLYMORPHIC VENTRICULAR TACHYCARDIA OR DEATH IN THE SURGICAL PATIENT?

Anesthesiology 2012;118:382-6
Nuttall GA, Malone AM, Michels CA, Trudell LC, Renk TD, Shirk Marienau ME, Oliver WC, Ackerman MJ

Abstract

Purpose The purpose of this retrospective study was to determine if 0.625 mg of droperidol was associated with polymorphic ventricular tachycardia or death in surgical patients.

Background Low-dose droperidol (0.625 - 1.25 mg) has been used for over 30 years to treat postoperative nausea and vomiting (PONV). Unfortunately, in 2001 the Food and Drug Administration (FDA) issued a black-box warning stating that, “Cases of QT prolongation and/or Torsades de pointes have been reported in patients receiving droperidol at doses at or below recommended doses” (manufacturer recommended starting dose is 2.5 mg). The FDA has clarified that the black-box warning is NOT about doses <2.5 mg because these lower doses are considered off-label uses. The FDA does not have any safety or efficacy data submitted by a manufacturer of droperidol to make a determination on the safety and efficacy of doses <2.5 mg. Unfortunately, this black-box warning caused droperidol to fall out of favor and to be eliminated from many anesthesia department formularies.

In a previous study these investigators reviewed over 16,000 cases at their institution and found that low dose droperidol was not associated with QTc prolongation or death. As a result of that study, the Mayo Clinic in Rochester, MN placed low-dose droperidol (0.625 mg) back on its formulary. This study sought to examine the safety of low-dose droperidol in surgical patients since its return to clinical use at this institution. Specifically, the investigators were interested in learning if 0.625 mg droperidol increased the incidence of Torsades de pointes or death. Secondarily they wanted to know if any patients with baseline QTc prolongation received droperidol, and if so, what were their outcomes.

Methodology This was a retrospective study that examined 20,122 surgical patients who received 35,536 doses of low-dose droperidol (0.625 mg) between March 2007 and February 2011. All patients who received low-dose droperidol were included in the analysis. An extensive database query was conducted by the investigators to identify patients who received droperidol and/or had a history of QTc prolongation. The databases were also examined to identify adverse outcomes and death in patients who received droperidol. Statistical analysis was appropriate.

Result Of 20,122 surgical patients, 12 patients experienced Ventricular Tachycardia (VT) or death (VT: n = 4; death: n = 8). None of these patients...
developed polymorphic VT or died as a direct result of low-dose (0.625 mg) droperidol administration. The 8 patients who died were on palliative care and died of their disease. The 4 who experienced VT all underwent cardiac procedures and had previous cardiac conditions or an internal cardiac defibrillator.

There were 523 patients who had a documented history of QTc prolongation (>440 ms) prior to receiving droperidol. None of these patients developed VT or died after low-dose droperidol administration. Interestingly, one patient with a history of QTc prolongation received 66 doses of droperidol over a 27 day period and did not experience polymorphic VT or death.

Conclusion The use of 0.625 mg droperidol for PONV prevention and treatment is not associated with increased risk of polymorphic VT or death. Therefore, 0.625 mg of droperidol can be safely administered to treat or prevent PONV. Anesthesia providers should consider the patients history, medications, and comorbidities when deciding to administer low-dose droperidol.

Comment The FDA is charged with protecting and promoting public health through the regulation and supervision of many pharmaceutical and non-pharmaceutical products (i.e. medications, vaccines, devices). The approval process for a new drug or a change in drug labeling is an extensive and highly scrutinized process which requires a new drug application. The manufacturer can only market the drug and provide drug labeling that is approved by the FDA. However, providers may, using their clinical judgment, choose to use drugs for an “off-label” indication. That is, providers may choose to administer a different dose than recommended by the manufacturer or administer the drug for an off label indication. The FDA also reviews reports of adverse drug experience submitted through the MedWatch program. Based on the reports and evidence presented, the FDA can require a change in the label that reflects increased safety concerns and require the package insert to include a “black box” warning, indicating that a drug carries significant risk of serious or even life-threatening adverse events.

This is what happened with droperidol back in 2001. The FDA placed the black box warning on droperidol and recommended preoperative EKG and postoperative EKG monitoring for at least 2-3 hours in any patient receiving droperidol. The report was based on 65 individual cases, with only 2 describing possible polymorphic ventricular tachycardia caused by low-dose droperidol (0.625-1.25 mg). The FDA also based its opinion on 2 reports from Europe which showed similar complications, but with doses 50 to 100 times higher than those commonly used in the United States. More recent clinical trials have found droperidol in doses of 0.625 and 1.25 mg were not associated with significant increases in the QTc interval, whereas other studies comparing 0.75 mg droperidol with 4 mg ondansetron found both of these drugs produced similar increases in the QTc interval. However, this current study and a previous large retrospective study failed to find any case of
polymorphic ventricular tachycardia or death
associated with droperidol administration.

So, what does this all mean? Well, first, QTc
prolongation can potentially occur after
administration of droperidol and many of the 5HT-3
antagonists. However, the actual occurrences of
serious adverse cardiac events are extremely rare or
nonexistent with the droperidol dosing commonly
used (0.625 mg). I agree with these study findings that
low-dose droperidol is safe (0.625 mg); however, as
with any drug, I would consider the patient’s history,
other medications, and comorbidities before
administering the drug.

Dennis Spence PhD, CRNA

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Department of the Navy, the Department of Defense, the
Uniformed Services University of the Health Sciences, or
the United States Government.
Pharmacology

**Perioperative pregabalin for acute and chronic pain after abdominal hysterectomy or myomectomy: a randomized controlled trial**

Eur J Anaesthesiol 2012;29:531-6

Fassoulaki A, Melemeni A, Tsaroucha A, Paraskeva A

**Abstract**

**Purpose** The purpose of this study was to determine if perioperative treatment with pregabalin (Lyrica) decreased postoperative morphine consumption and the incidence and severity of acute and chronic pain in patients undergoing abdominal hysterectomy or myomectomy.

**Background** Pregabalin is an antiepileptic agent that has been used perioperatively as an adjuvant to reduce opioid requirements and pain. The older agent, gabapentin, has been found to reduce opioid related side effects such as vomiting. Pregabalin has also been found to reduce opioid consumption. Patients undergoing surgeries that are associated with acute neuropathic pain are expected to benefit the most from pregabalin perioperative administration. Thus, it is possible that pregabalin may prevent the development of chronic postsurgical pain; however research is needed to confirm this hypothesis.

**Methodology** This was a double-blind, placebo controlled, randomized study. Women undergoing abdominal hysterectomy or myomectomy were enrolled. A standardized anesthetic and postoperative pain management plan were used. Patients received 150 mg pregabalin every 8 hours starting at 2 pm on the day before surgery and continuing for 5 days. Patients in the control group received placebos.

The primary outcome was morphine consumption over 48 hours. Secondary outcomes included pain scores at rest and with coughing measured at 2, 4, 8, and 48 hours, as well as on postoperative days 3, 4 and 5. Late pain at 1 month and chronic pain at 3 months was evaluated by a phone call to patients. The incidence of the most common side effects were also evaluated (dizziness, sedation, ataxia, diplopia, and blurred vision).

**Result** A total of 64 patients completed the study. No significant differences were noted in demographic or surgical characteristics. Cumulative morphine consumption at 48 hours was 36% less in the pregabalin group (pregabalin: 79 mg vs. control: 123 mg, \( P = 0.0001 \); Figure 1). Consumption of oral pain tablets between postoperative days 3 and 5 did not significantly differ between groups, although patients in the pregabalin group did consume fewer tablets (29 vs. 58). No significant difference was found in pain scores at rest or with coughing at any of the time points. Sedation scores did not differ between groups.
Side effects were significantly higher in the pregabalin group (dizziness, ataxia, blurred vision, and diplopia; \(P < 0.02\); Figure 2). There were no differences in late or chronic pain or analgesic consumption one and three months postoperatively. Patients in the pregabalin group reported consuming fewer analgesic tablets at 1 month (28% vs. 43%) and reported less pain at 3 months (18% vs. 28%); however, neither of these differences were significant.

**Conclusion** In women undergoing abdominal hysterectomy or myomectomy, pregabalin decreased morphine consumption during the first 48 hours but had no effect on pain scores or the incidence of late or chronic pain.

**Comment**

There has been a lot of interest in finding analgesic adjuvants to help decrease opioid consumption and pain scores. Numerous studies have been published on gabapentin, and they have consistently found gabapentin decreased acute opioid consumption and postoperative pain (see reviews of previous gabapentin studies in *Anesthesia Abstracts* issues from May 2007, March 2010, and November 2010). But the evidence is weak supporting any effect on chronic pain.

In this study, the investigators examined the long acting drug pregabalin, a prodrug of gabapentin which has a better absorption, faster onset, and longer duration of action. Their findings for pregabalin are consistent with previous studies on gabapentin showing it decreases opioid consumption and has a similarly high side effect profile with larger doses. It had no effect on pain scores or in late or chronic pain incidence. However, the study was underpowered to evaluate chronic pain incidence.

The biggest thing that stood out to me was the high incidence of side effects in patients who were in the pregabalin group. Between 16% and 58% of patients experienced side effects such as dizziness, ataxia, or visual
disturbances. The investigators used a fairly high dose (150 mg every 8 hours), and this probably contributed to the high incidence of side effects. I question whether the risk of side effects outweighs the benefits given the pain scores were no different. If I were to use pregabalin, I would probably use a much lower dose and only in patients I felt were at risk for neuropathic pain (e.g. inguinal hernia repair).

Dennis Spence, PhD, CRNA

The views expressed in this article are those of the author and do not reflect official policy or position of the Department of the Navy, the Department of Defense, the Uniformed Services University of the Health Sciences, or the United States Government.
Pharmacology

INFECTION AFTER UROGYNECOLOGIC SURGERY WITH THE USE OF DEXAMETHASONE FOR NAUSEA PROPHYLAXIS

J Clin Anesth 2012;24:549–554
Gali B, Burkle CM, Klingele CJ, Schroeder D, Jankowski CJ

Abstract

Purpose The purpose of this study was to investigate the effects of a single dose of dexamethasone on the incidence of postoperative infection in women undergoing urogynecologic surgery.

Background PONV is, perhaps, the most common complication associated with anesthesia; occurring in up to 80% of some patient populations. Dexamethasone is commonly administered to reduce the incidence of PONV, reducing the risk by about 26%. But chronic corticosteroid administration is associated with a reported 13% increased risk of postoperative infections. Some studies of single dose dexamethasone have also showed an increase in postoperative infection. Corticosteroids are known to increase blood glucose levels, and excessive blood glucose is associated with a higher incidence of postoperative infection. Even an acute, single dose of dexamethasone has been associated with hyperglycemia in some patient populations, notably obese patients with glucose intolerance.

Methodology This was a retrospective chart review of patients who had urogynecologic surgery (e.g. prolapse repair or sling procedures). These procedures were chosen because they historically have a 12% overall rate of postoperative urinary tract infection; 35% in elderly women. Regional, general, and combined regional / general anesthetics were administered. Antiemetic prophylaxis and treatment, including the use or nonuse of dexamethasone, was selected by the attending anesthesiologist and not randomized. A host of demographic and patient care variables were recorded including the dexamethasone dose, frequency of postoperative urinary tract infections, wound infections, pneumonia, sepsis, antibiotic use. Statistical analysis was appropriate.

Result All told, 574 patients were included in the study; 112 who received a single dose of dexamethasone (20%) and 462 who did not receive dexamethasone (80%). All patients had a suprapubic catheter placed before the end of the procedure.

While in general the groups were comparable, they differed significantly in that dexamethasone patients:

1. were younger (56 years old vs. 62 years old)
2. more often had noninhaled steroids in previous year (12% vs. 2%)
3. more often received general anesthesia (87% vs. 68%)

There was no difference in complications between those who received dexamethasone and those who did not. Postoperative urinary tract infection occurred in 31% of patients who received dexamethasone and 27% of those who did not (P=0.49). Urinary tract...
infection was associated with vaginal vs. abdominal surgeries (P=0.01) and a longer duration of surgery (P<0.001). Wound infections occurred in 3.6% of patients who received dexamethasone and 3.0% of those who did not (P=0.76).

PACU stay duration averaged 12 minutes longer in the dexamethasone group (P=0.03). This may have been related to the fact that dexamethasone administration was more common in patients that had general anesthesia rather than a direct effect of the dexamethasone. Rehospitalization for any reason was recorded in 8% of patients who received dexamethasone and 2% of those who did not (P=0.005). No reason for this difference was apparent.

**Conclusion** This retrospective chart review showed no association between a single dose of dexamethasone and postoperative urinary tract infection, wound infection, pneumonia, or sepsis.

**Comment** Like many retrospective studies, this one only helps us a little bit. Health Affairs has identified postoperative infections as the most costly problem in healthcare.1 (This study was included in the June 2011 issue of Anesthesia Abstracts.) From my perspective, this study gives us reason for a little peace about the decision to administer dexamethasone. While it does not show that dexamethasone never raises blood glucose enough to increase the risk of a wound infection, it does show that postoperative infections were not higher in this particular group of patients. Better than nothing, but it would have been nice to see the blood glucose values. And, lest you think the rate of urinary tract infections were trending higher in the dexamethasone group, that was due to a vaginal operative approach and the longer duration of surgery.

One of the differences between the dexamethasone and no dexamethasone groups deserves comment. The dexamethasone group was also more likely to have had other steroids during the previous year. Not inhaled steroids (e.g. for asthma) which are not systemically absorbed to any extent, but oral and parenteral steroids that take them closer to “chronic” steroid use. Chronic steroid users are much more likely to have postoperative infections. This would tend to bias the study towards a higher incidence of infection in the dexamethasone group. Since this didn’t happen, the results of the study are even stronger.

While there are some other studies that suggest even single dose dexamethasone may increase the risk of postoperative wound infections, this study helps reduce my worry about wound infections at least in patients who likely have normal blood glucose at the start of surgery.

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