Original Article

**Droperidol and Metoclopramide in the Prevention of Postoperative Nausea and Vomiting**

M.R. Afhami, P. Hasanzadeh Salmasi, J.Rahimiye Panahi

From Department of Anesthesiology, Medical Faculty, Tabriz University of Medical Sciences, Tabriz, IRAN.

Correspondence: P.Hasanzadeh Salmasi Instructor of Anesthesiology, Paramedical Faculty, Tabriz University of Medical Sciences, Tabriz, IRAN. Email: hasanzadehs@gmail.com

Received: April 9, 2007 Accepted: July 5, 2007

**ABSTRACT**

**Objective:** To assess the efficacy of droperidol and metoclopramide for prevention of postoperative nausea and vomiting (PONV) in patients undergoing ophthalmic surgery under general anesthesia.

**Materials and Methods:** This is a double blind, placebo controlled randomized study performed at Tabriz University of Medical Sciences, Tabriz, Iran on one hundred and fifty ASA physical status 1 or 2 (classification of physical status by American Society of Anesthesiologists) adult patients undergoing elective ophthalmic surgery (cataract). All the patients were anesthetized with endotracheal intubation and received either metoclopramide 0.15mg/kg, droperidol 0.02mg/kg or placebo approximately 10-15 minutes before extubation. Direct observation of the vomiting by the nurse in the Post Anesthesia Care Unit (PACU) for at least 2 hours and in the ward for 24 hours was made. Chi-square test with descriptive statistical method was employed for data analysis.

**Results:** There significant difference between groups received pharmacological intervention and placebo group (P<0.01). However, droperidol in comparison to metoclopramide significantly decreased incidence of PONV (P<0.02).

**Conclusion:** Droperidol 0.02mg/kg seems to be suitable for the prevention of PONV without significant sedative effects. (Rawal Med J 2007;32:125-127).

**Key Words:** Vomiting, nausea, antiemetics, droperidol, metoclopramide, post operative.

**INTRODUCTION**

Nausea and vomiting are among the most common postoperative complications. They are the second most frequent causes of anesthesia-related hospital admissions after certain surgeries. PONV can lead to serious complications such as aspiration, dehydration, electrolyte disturbances, and disruption of the incision site. It is also associated with an increase in direct and indirect costs. The incidence of PONV is highly variable and depends on several risk factors but the overall frequency defined by large-scale clinical trials has been estimated at 20% to 30%.1 Prophylactic droperidol has been shown to reduce PONV significantly in the patients undergoing ophthalmic surgery.2-6 The aim of this study was to compare the efficacy of metoclopramide with that of droperidol in order to present a simple and complication free approach to prevent PONV.

**MATERIALS AND METHODS**

One hundred and fifty ASA physical status 1 or 2 adult patients, who were scheduled for elective cataract surgery under general anesthesia, were studied over a period of 12 months. The study was carried out at Tabriz University of Medical Sciences, Tabriz, Iran and the protocol was approved by the ethics committee. Patients who had been taking medications which could affect gastrointestinal motility or cause vomiting, patients with a history of motion sickness, previous eye surgery or prior PONV were excluded from the
study. The sample size was based on the assumption that the active drugs will reduce PONV about 75% and that occurrence of nausea and vomiting is 42% in the placebo group. The data collection was done using the questionnaire which consisted of patients' demographic information, type of surgery, medical history, previous surgeries and subsequent PONV related to the surgery. Anesthesia duration and hospital stay were also taken into the consideration. Patients were randomized to receive one of three treatments: normal saline (control) group, metoclopramide 0.15mg/kg, droperidol 0.02mg/kg, administered intravenously, 10-15 minutes before extubation. Both the investigators and observers were blinded to the agent given. Patients did not receive any premedication especially morphine or pithidine.

Anesthesia was induced with fentanyl (1µg/kg), lidocaine 1mg/kg, sodium thiopental (3-5mg/kg) and succinylcholine (1mg/kg). Maintenance of anesthesia was with a mixture of O2/N2O and a volatile anesthetic such as halothane. Anesthesia was completed with non depolarizing muscle relaxant (pavulon 1-3mg/kg), considering age of the patients and also type and duration of the surgery. All patients received a minimum of 10ml/kg intravenous fluid, and monitored with noninvasive cardiac and respiratory monitors. An orogastric tube was passed and gastric contents were emptied, as gastric distention as a result of mask ventilation could cause PONV immediately after extubation of the trachea or after admission of the patient to PACU. Patients were monitored for 2h in PACU and for 24h in the ward for PONV. Data analysis was done using chi-squared tests for comparison of intergroup differences. Descriptive statistical methods were also employed. A p value of less than 0.05 was considered significant.

RESULTS

The average age of the patients was 65±2 yr. and average body weight estimated to be 67.42±3 kg. Fort-seven percent of the cases were female and 53% were male. Only 3% of the patients had a history of previous PONV. PONV was greater in the patients who were overweight (6%) than the patients with normal body weight (94%) with P<0.01. Incidence of PONV was greater in the ward than in PACU, 69% and 31% respectively. In control group incidence of PONV was 57%. Droperidol and metoclopramide decreased PONV 77% and 46% respectively and droperidol was more effective (P<0.02). There were no cardiac and serious drug-related adverse effects with regard to sedation and dyskinesia. Overall hospital stay was shorter in those patients receiving medications compared to control group (12hours versus 24 hours). No significant difference in hospital stay was noted between droperidol and metoclopramide groups.

DISCUSSION

Despite new technology and pharmacological agents, postoperative nausea and vomiting continues to have a 20% to 30% occurrence rate. New antiemetic drugs and improved anesthetic techniques have decreased the incidence of anesthesia–induced PONV. Patient characteristics and surgical factors are now largely responsible for post operative emesis. Postoperative nausea and vomiting can lead to serious complications such as aspiration, dehydration, electrolyte disturbances and disruption of the incision site. Postoperative nausea and vomiting may be associated with patients' dissatisfaction with the surgical experiences.¹ There are many published studies about prevention and treatment of PONV, although most of them are about the pediatrics and strabismus surgery.²⁻⁹ Efficacy of propofol, droperidol and metoclopramide for treatment of PONV in PACU showed that recurrence of retching or vomiting was higher with propofol (58%) that with droperidol (4%) or metoclopramide (42%) (P<0.001).³ Use of tropisetron and metoclopramide showed no significant difference in 120 patients undergoing elective ophthalmic surgery.⁴⁻¹⁰ Droperidol has been reported to be more effective in gynecological laparoscopy,⁵ laparoscopic choleystectomy⁶ and breast surgery.¹¹ In the present study, in the control or placebo group the incidence of PONV was 57% and it showed that metoclopramide and droperidol decreased the incidence of PONV 46% and 77% respectively (P<0.02). None of the demographic and risk factors increased PONV except
body weight (P<0.01). We noticed a higher incidence of PONV in the ward in comparison to PACU. It is possible that the administration of antiemetics 10-15 minutes before extubation has caused it. In this study, as the other studies, the degree of sedation was not significant in droperidol group in comparison to metoclopramide (P= NS). In our study, Tardive dyskinesia, supraventricular tachycardia, and agitation, which are some adverse effects of metoclopramide were not seen, in contrast to other reports. Both drugs shortened recovery room time and overall hospital stay from 24 hours at least to 12 hours. It is concluded that in comparison to control group medication efficacy was significant (P<0.01) and droperidol with significantly better than metoclopramide for prevention of PONV.

ACKNOWLEDGMENTS

We thank our hospital anesthesia and surgical team members for their inspiration, guidance, and support during this study.

REFERENCES