TITLE: MENSTRUATION INCREASES RISK OF POST-OPERATIVE EMESIS

AUTHORS: T. Lindblad, MD, W.S. Beattie, MD, PhD, D.N. Buckley, MD, J.B. Forrest, MD, PhD

AFFILIATION: Anaes. Dept., McMaster University, Hamilton, Ontario, CANADA L8N 3Z5

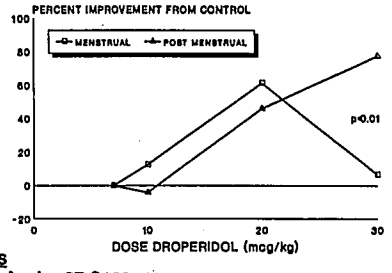
Post-operative nausea and vomiting is common in women of childbearing age. The incidence after laparoscopy has been reported to be 35%.[1] A retrospective review found a higher incidence of nausea and vomiting after laparoscopy when performed during the menses.[2] In this prospective randomized double-blind trial, we evaluated risk factors for nausea and vomiting after laparoscopic tubal ligation, including time of the menstrual cycle, age, weight, height, duration of anaesthesia, and previous history of post-operative nausea and vomiting. We also examined the efficacy of three doses of droperidol in preventing nausea and vomiting.

After institutional review board approval, informed consent was obtained from 84 ASA I & II patients presenting for laparoscopic tubal ligation. Patients were excluded if they were taking oral contraceptives, breast feeding or recently post-partum. Patients were assessed preoperatively and stratified to either (a) menstruating or (b) non-menstruating. After stratification, patients were randomized to receive placebo or droperidol 10, 20, or 30 μg/kg at induction of anaesthesia. Randomization was in blocks of 4 patients for each stratum. These study agents were administered in a blinded fashion. No preanaesthetic medication was given. All patients received fentanyl up to 2 μg/kg, thiopental 3-5 mg/kg, succinylcholine 1 mg/kg or atracurium 0.5 mg/kg or vecuronium 0.1 mg/kg and were maintained with N_2O-70% O_2-30% and isoflurane 0-1.5%.

The incidences of nausea and vomiting were assessed by blinded observers in the recovery room, short stay unit and by telephone at 24 hours post-operatively. Statistics were non-parametric Wilcoxon's rank sum and chi square where appropriate ($P<0.05$).

There were 22 patients in the menses group and 62 patients in the non-menses group. There was no difference in age, weight, height or duration of anaesthesia between groups. Overall, there was a higher incidence of nausea and vomiting in menstruating women (76% - 47%) ($P<0.05$). In non-menstruating women, there was a marked reduction in the incidence of nausea and vomiting in patients who received 20 or 30 μg/kg of droperidol (Fig 1). This did not occur in menstruating women. The presence of other risk factors did not alter this finding.

The results of this study confirm that menstruation is the major risk factor for nausea and vomiting after laparoscopic tubal ligation. In non-menstruating women there is a threshold dose at which droperidol reduces the incidence of post-operative nausea and vomiting. This occurs at 20 μg/kg with a further reduction at 30 μg/kg. This does not occur in menstruating women. We feel surgery should not be scheduled during menstruation if possible in order to decrease the incidence of post-operative nausea and vomiting after laparoscopic tubal ligation. The relationship between menstruation and nausea and vomiting after surgery warrants further investigation.



References
1. Anesth Analg, 67:S163, 1988
2. CASJ 36:S78, 1989

TITLE: ONDANSETRON IS AN EFFECTIVE NEW ANTIEMETIC AFTER OUTPATIENT ANESTHESIA

AUTHORS: S. M. Poler, M.D., M. Bodner, M.D., P. F. White, Ph.D, M.D.

AFFILIATION: Department of Anesthesiology, Washington University School of Medicine, St. Louis, MO 63110

Postoperative nausea and vomiting contributes to delayed discharge and unanticipated hospital transfers after ambulatory surgery. Most of the commonly used antiemetic drugs produce side effects which can adversely effect recovery. In a randomized, double-blind placebo-controlled study, we examined the effects of ondansetron (8mg iv) on recovery following outpatient laparoscopy.

71 healthy, consenting female patients undergoing elective laparoscopic procedures with a standardized anesthetic technique were treated according to an IRB-approved protocol. Only those patients with nausea or vomiting postoperatively were treated. The number of vomiting episodes after treatment was recorded. Subjective effects of treatment were reported by marking 100 mm analog scales or a 10-point nominal scale.

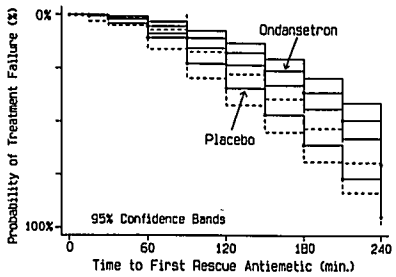


Figure 1: Kaplan-Meier curves for therapeutic failures.

Statistical analysis employed parametric, non-parametric, and survival methods. Tests applied are noted in the tables and figures. Statistical significance was attached to $P \leq 0.05$.

Height, weight, ethnic origin, alcohol consumption, and predisposition to nausea with previous general anesthetics were not different between groups. There were no differences in vital signs (HR, BP, respiratory rate, body temperature) in the first 30 minutes after ondansetron or placebo.

Table I.	First Antiemetic Rescue (M+H)		Second Antiemetic Rescue (D)
Rx	Rx'd Failures	Median Time to Rx	Rx'd Failures
OND	15/35	210	1/15
PBO	31/36	180	13/31
P	<0.000 (chi²)	<0.000 (MHT)	0.015 (chi²)

OND = Ondansetron; PBO = Placebo; MHT = Mantel-Haenszel; chi² = chi-square

Therapeutic failures treated after 20 minutes of persistent nausea or vomiting are reported in Figure 1 and Table I. Vomiting was more effectively suppressed by Ondansetron (OND) than Placebo (PBO) treatment groups in the recovery room and after discharge to home (Table II). When all patients are considered together, a reduction in vomiting incidence is seen in the initial 4 hour period. In patients treated only with ondansetron (no rescue), there was also a reduced incidence of vomiting after discharge compared to placebo. However, after rescue treatment there was no additional benefit from initial treatment with ondansetron (data not shown).

Ondansetron is an effective antiemetic for treatment of nausea and vomiting in outpatients after general anesthesia. Ondansetron-treated patients requiring supplementary "rescue" antiemetic drugs had fewer subsequent emetic episodes than the placebo group in the 4 hour recovery room period studied. Ondansetron was also effective in reducing the incidence of vomiting during the first day after discharge from the ambulatory surgery unit.

Table II: Vomiting Incidence after Treatment

	All Patients			OND Rx Only		
TIME	OND	PBO	P	OND	PBO	P
0-2h	16/35	28/35	0.005	11/27	15/21	0.034
2-4h	5/35	15/36	0.010	4/27	12/21	0.002
4-24	3/32	8/32	0.123	1/24	7/20	0.008

OND=Ondansetron, PBO=Placebo. Exact chi-square probabilities are given as (P).