NAUSEA AND VOMITING AFTER TERMINATION OF PREGNANCY AS DAY SURGERY CASES : COMPARISON OF 3 DIFFERENT DOSES OF DROPERIDOL AND METOCLOPRAMIDE AS ANTI-EMETIC PROPHYLAXIS

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ABSTRACT

Frequency of nausea and vomiting following day case termination of pregnancy was found to be rather high (42%) without anti-emetic prophylaxis. Droperidol in doses of 2.5 mg, 1.25 mg and 0.25 mg were found to be equally effective as prophylactic anti-emetic, but not metoclopramide 10 mg. This study confirms that low dose droperidol 0.25 mg is effective as a prophylactic anti-emetic, without any delay in immediate recovery and hence suitable for day surgery cases.

Keywords: Vomiting, nausea, anti-emetics, anaesthetics, droperidol

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INTRODUCTION

Day case surgery is convenient and cost-effective for the patient. However, the post-operative morbidity should be minimal. Nausea and vomiting are common problems which can be distressing for outpatients.

Droperidol is an effective anti-emetic with few side effects when a dose of 2.5 mg is given before surgery[1]. However in doses of 1.0 - 2.5 mg intravenously preoperatively, it increases recovery time[2].

Low dose droperidol (0.25 mg and 0.5 mg) has been used as an anti-emetic with promising reports of its effectiveness coupled with a lack of post-operative sedation, which make it suitable for day surgery[3,4].

Metoclopramide was found in some studies to be effective in decreasing post-operative vomiting following minor gynaecological surgery[5], although other workers believed that metoclopramide was ineffective in this situation[6,7].

This study was undertaken to estimate the frequency of post-operative nausea and vomiting after day case surgery, and to evaluate the effectiveness of different doses of droperidol and metoclopramide as prophylactic anti-emetic agents.

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PATIENTS AND METHODS

The study involved 325 women (ASA 1 or 2) undergoing termination of pregnancy as day cases. ASA refers to the American Society of Anaesthesiologists' method of grading patients preoperatively into five groups, based on their medical condition. ASA 1 are those patients without any medical problem, while ASA 2 are those patients with a mild medical condition. Patients excluded were those who received medication with anti-emetic properties, or ergometrine during the procedure and those who had pre-existing nausea and vomiting.

Immediately before the induction of anaesthesia, each patient received intravenously in random one of the studied drugs. The drugs were droperidol 2.5 mg, droperidol 1.25 mg, droperidol 0.25 mg, metoclopramide 10 mg or placebo.

Fentanyl was given intravenously (0.05 mg if less than 50 kg and 0.1 mg if greater than 50 kg), and anaesthesia was induced with thiopentone up to a dose of 4 mg/kg. The patients breathed a mixture of 33% oxygen and 66% nitrous oxide via a face mask, and this was supplemented with increments of thiopentone intravenously as necessary.

After operation, the patients were assessed by trained members of the nursing staff in the ward 12, Alexandra Hospital. They were observed for 4-6 hours and questioned directly for the occurrence of nausea, vomiting and sedation. The sedation scale used is as follows: Grade 1 - wide awake, alert, fully orientated, Grade 2 - drowsiness observable. Prochloperazine 12.5 mg was given intramuscularly to treat nausea and vomiting, paracetamol 1 gm orally was given when necessary.

Chi-square tests was used for statistical analysis.

RESULTS

Four hundred and twenty-two consecutive patients were involved in the study initially. Ninety-seven were excluded because they had preoperative nausea and vomiting or they were given syntometrine preoperatively.

Patients in the five groups were comparable with respect to age, weight and weeks of gestation (Table I).

The frequency of nausea and vomiting in the untreated group was 42.3% (30 out of 71). They were significantly reduced in patients receiving droperidol 2.5 mg ($p < 0.01$), or droperidol 1.25 mg ($p < 0.05$), or droperidol 0.25 mg ($p < 0.05$) as compared with placebo. Metoclopramide was found to have no anti-emetic effect. Post-operative sedation at 2 h was found to be significantly more with droperidol 2.5 mg than the other groups when compared to the placebo (Table II).

Table I
Characteristics of subjects

	Mean (+sd)			Race		
	Age (yrs)	Wt (kg)	Gestation (wks)	C	M	I
Droperidol						
0.25 mg grp (n = 86)	28.8+6.6	54.1+9.4	8.0+1.3	28	47	11
1.25 mg grp (n = 59)	29.0+5.0	52.6+9.4	8.3+1.3	29	26	4
2.5 mg grp (n = 51)	27.4+5.7	54.6+11.9	8.2+1.3	22	28	1
Metoclopramide 10 mg (n = 58)	28.7+7.3	56.8+13.3	8.7+1.8	24	30	4
Placebo (n = 71)	29.2+5.6	54.8+11.6	8.5+1.3	34	31	6

C = Chinese, M = Malay, I = Indian
p = ns (not significant) with respect to age, weight and gestation

Table II
Frequency of post-operative nausea ± vomiting and sedation

	Nausea ± vomiting	Sedation at 2h
Droperidol 0.25 mg (n = 86)	22 (p < 0.05)	10 (p = ns)
Droperidol 1.25 mg (n = 59)	14 (p < 0.05)	9 (p = ns)
Droperidol 2.5 mg (n = 51)	8 (p < 0.01)	14 (p < 0.05)
Metoclopramide 10 mg (n = 58)	22 (p = ns)	10 (p = ns)
Placebo (n = 71)	30	11

p value in brackets are compared with placebo

There were no other unwanted side effects observed in the treated groups apart from sedation.

DISCUSSION

A two to threefold greater incidence of nausea and vomiting postoperatively has been reported in women compared with men in most studies[8]. In addition, it has been suggested that early mobilisation is another factor which increases post-operative emesis. Gynaecological day cases as a group would, therefore, be expected to show a high incidence of emetic problems.

Nausea and vomiting were experienced by 30 of the 71 patients (42.3%) in the placebo group. The frequency of emesis of 42.3% is unacceptably high. It is uncomfortable for the patient and may pose a risk of aspiration of gastric contents when protective reflexes are depressed.

The anti-emetic effect of low dose droperidol (0.25 mg and 0.5 mg) in patients who had received prostaglandin for day case termination of pregnancy has been shown by Millar and Hall[9]. They concluded that droperidol 0.25 mg was as effective as 0.5 mg in reducing post-operative nausea and vomiting without any delay in immediate recovery or discharge home.

In doses of 1.0 - 2.5 mg intravenously pre-operatively, droperidol increases recovery time. Valanne and Kortilla[2] found that droperidol 1 mg slowed perceptual speed and recovery of walking ability, and larger doses have been shown to increase sedation. Despite this, it has been found to be compatible with same day discharge, but most anaesthetists would prefer not to give optional prophylactic drugs which might adversely affect post-operative recovery.

Shelley and Brown[10] reasoned that as chlopromazine 25 mg is effective as an anti-emetic, and as the anti-emetic efficacy of droperidol is 100 times as great as that of chlopromazine, ultra low dose droperidol 0.25 mg ought to be sufficient. This has been confirmed in two studies[3,4] but was not corroborated by Cohen et al[11]. Our study has shown that droperidol 0.25 mg reduced the frequency of post-operative emesis from 42.3% to 25.6%. This confirms O'Donovan and Shaw's[3] findings that droperidol 0.25 mg was as effective as droperidol 1.25 mg, while it provided faster recovery.

Metoclopramide 10 mg was found to be ineffective as a prophylactic anti-emetic in our study and this concurred with the findings of Chan, Lo and Wong[7].

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