TITLE: RANITIDINE—ROLE OF DOSE AND TIME EFFECT STUDY FOR PROPHYLAXIS OF PERIOPERATIVE ACID ASPIRATION

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The ambulatory surgical patient is at greater risk for perioperative acid aspiration because of increased residual acidic gastric juice (GJ).[1] Therefore, appropriate dosing of antacid medications is important. Studies have demonstrated that single doses of H_2 blockers are effective only if given 1-3 hours prior to surgery. Overnight doses are logistically difficult to administer and may need to be boosted prior to surgery. The gastrokinetic agent metoclopramide has no effect on pH, and reduction of volume to "safe" levels (<25 ml) with an oral dose is unpredictable.

The purpose of the study was to determine the oral dose of ranitidine and the minimum time needed to increase gastric pH to "safe" levels (greater than pH 2.5).

After approval by the Institutional Review Board, 50 fasting patients 18-75 years old scheduled for elective surgery were randomized into 5 groups. Exclusion criteria were GI disorders, pregnancy or interfering medication. The groups were (1) placebo control (2) oral ranitidine 150 mg, 45-65 min (3) oral ranitidine 150 mg, 66-90 min (4) oral ranitidine 300 mg, 45-65 min, and (5) oral ranitidine 300 mg, 66-90 min prior to induction of anesthesia. Immediately after intubation a Salem sump nasogastric tube was used to aspirate GJ which was measured and tested with a Cardy pH meter sensitive to 0.1 units.

Results show 90% of control patients had a pH of ≦2.5, compared to 80% 45-65 mins after 150 mg ranitidine. After 66-90 min 20%* of patients had a pH ≦2.5. The pH changes after 300 mg ranitidine were not statistically significantly different from 150 mg ranitidine for the same time intervals. There was a tendency for volume of GJ to decrease in the 66-90 minute groups; however, the difference was not statistically significant in either the 150 mg or 300 mg groups.

We concluded that if at risk patients are defined as having GJ pH of 2.5 or less, then a single dose of oral ranitidine 150 mg given 66-90 minutes prior to induction reduces that risk in 80% of patients. Doubling the dose of ranitidine did not enhance patient safety. Studies indicate that IV ranitidine 50 mg is effective in 30-45 minutes, and need be given only when insufficient time is available for the oral dose to work.[2]

It should be noted that even by these arbitrary "safe" criteria of pH >2.5 and volume <25 ml, 20% of patients are still at risk, and require prudent anesthesiological management.

Oral Ranit. (mg)		Mean pH ± S.D.	pH≤2.5	Mean Vol (ml) ± S.D.
0	Control	1.4±0.6	90%	33.0 ± 34.8
150	45-65 min	2.5±1.8	80%	21.9 ± 20.5
	66-90 min	5.7 ± 2.5**	20%*	11.6 ± 10.7
300	45-65 min	2.5 ± 1.8	70%	58.2 ± 138.2
	66-90 min	5.4 ± 2.5**	30%*	15.6 ± 10.3

**P=.0001 *P<.02

References
1. *Can Anaesth Soc J* 25:36-39, 1978
2. *Br J Anaesth* 54:1235, 1982

TITLE: ANTIEMETIC ACTION OF RANITIDINE IN OUTPATIENT LAPAROSCOPY UNDER PROPOFOL-ISOFLURANE ANESTHESIA

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Propofol is excellent for short procedures due to rapid recovery and a lower incidence of postoperative nausea and vomiting (N+V).[1,2] Ranitidine (RAN) and gastric suctioning (GS) reduce the incidence of N+V in female outpatients undergoing laparoscopy under thiopental-isoflurane anesthesia from 45% (untreated control) to 4%.[3] A prospective, randomized study was designed to evaluate the antiemetic effects of RAN and GS on propofol-isoflurane anesthetized outpatients undergoing laparoscopy.

Method

Institutional approval and informed consent was obtained. Forty-one adult female patients undergoing outpatient diagnostic laparoscopy were randomly assigned. Untreated control (N=16) patients received lactose tablets orally the night before surgery and 2-3 hours prior to surgery. Treatment group patients received 300 mg RAN orally the night before surgery and an additional 300 mg RAN 2-3 hours prior to surgery. GS was performed at the termination of surgery. The anesthesia and recovery regimen were previously reported,[3] except that patients received propofol (2 mg/kg) intravenously for induction instead of thiopental.

Results

Table 1 demonstrates that treatment with RAN and GS significantly shortened the mean discharge time from control (ANOVA). The incidence of N+V was markedly reduced from 63% to 4% (Chi square). The duration of surgery was similar for both groups (35+37 minutes).

Discussion

This study demonstrates that the antiemetic effect of RAN 300 mg given orally the night before surgery and 2-3 hours before surgery and GS, yields a reduction in incidence of N+V similar to those reported for thiopental-isoflurane anesthesia in outpatient laparoscopy.[3] However, the mean discharge time in propofol induced patients is almost 60% less than in those induced with thiopental. RAN and GS markedly reduced the incidence of N+V in patients anesthetized with propofol-isoflurane. Time to a "street fit" condition is significantly shortened in these patients when compared to thiopental-isoflurane.[3]

References
1. Anesthesiology 69(3A): A564, 1988.
2. Anesthesiology 69(3A): A578, 1988.
3. Anesthesia Analgesia 70(2S): S218, 1990.

Table 1

Group	Range	MEAN ± SEM	N	% N+V
Treated	45-85	60.6 ± 2.3*	25	4*
Control	40-150	78.8 ± 7.2	16	63

*-significantly different from Control (0.05 level)