

EVALUATION OF MAREZINE® AND BONAMINE® IN LOWERING THE INCIDENCE OF POSTOPERATIVE NAUSEA AND VOMITING

W. W. TILLMAN, JR., M.D., GORDON F. WISE, M.D.
ORAL B. CRAWFORD, M.D.

NAUSEA and vomiting following anesthesia and surgery is a problem that continues to face the surgeon and the anesthesiologist despite the use of modern drugs, balanced anesthesia, and refined techniques. The preoperative visit by the anesthesiologist is often punctuated by a query from the patient regarding his prospect of experiencing postoperative nausea and vomiting in respect to the proposed anesthetic. This ever possible sequela has prompted the surgeon and the anesthesiologist to search for a drug to reduce its incidence. Among the recent drugs (1-4) utilized for the purpose are the antihistaminic drugs which have been specifically effective in motion sickness. The methods of investigation and the results reported have been variable though on the whole favorable.

Though nausea may be regarded as only a psychic response, it is nevertheless just as unpleasant as the more evident vomiting of 10, 50, or 100 cc. of gastric contents. Retching in the absence of gastric contents sufficient to produce vomiting is an even more unpleasant sensation. For the purpose of this investigation, therefore, the history of any sensation of nausea, retching, or vomiting was regarded as a positive finding and was so recorded if it occurred in the twenty-four hour period following anesthesia. There was no attempt to record or differentiate between these three, thus eliminating to a large extent the necessity of evaluating what constituted nausea, retching, or vomiting by the individual members of our investigational team.

Two drugs, Bonamine®* and Marezine®,* having been reported as having favorable results in the treatment of motion sickness, prompted us to investigate their use in the prevention of postoperative nausea and vomiting. Bonamine, an antihistaminic compound, is a white, microcrystalline substance stated to be characterized by an extremely prolonged duration of action, probably due to its insolubility. Marezine is a fairly potent antihistaminic with low toxicity; it is soluble in water and in physiological salt solution and is reported to be characterized by its rapidity of action. Both drugs are credited with having low toxicity and few side effects. In order that we might have a con-

Accepted for publication July 5, 1955.

* The Bonamine (a brand of meclizine hydrochloride) for this study was kindly supplied by Dr. Michael Carozzi of Charles Pfizer Laboratories, Brooklyn, N. Y. The Marezine (cyclizine hydrochloride) was supplied by Dr. Marcia Fite of Burroughs-Wellcome and Co., Tuckahoe, N. Y.

trol series, ampules of sterile saline were provided for use in the investigation. Three groups of unmarked ampules were provided, and were labeled antiemetics "A", "D", and "E". Only one of us had knowledge prior to the conclusion of this investigation as to the exact nature of each agent.

METHOD

Following the induction of anesthesia, the patients received a parenteral injection of an antiemetic drug. Antiemetic "A" was given toward the end of induction; antiemetics "D" and "E" were given as nearly as we could approximate thirty minutes prior to conclusion of anesthesia. Antiemetic "D" was administered in 250 consecutive anesthetics. Antiemetic "E" was then administered in 250 anesthetics, followed by antiemetic "A" in 260 anesthetics. Before the completion of a second series of anesthetics using antiemetic "D", the investigation was discontinued. Twenty-six records were discarded, either because of lack of adequate information or because other antiemetic drugs were ordered by the surgeon, which would alter the results. Thus, 852 records were used for this comparative study. Bonamine (antiemetic "A") was administered to 251 patients; Marezine (antiemetic "D") was administered to 355 patients, and sterile saline solution (antiemetic "E") was given to 246 patients. Analysis of our antiemetic records demonstrated that the similarity between the control series and the two antiemetic series was similar enough in respect to all factors, including age, sex, premedication, duration of anesthesia, surgical procedure, anesthetic drugs administered, and so forth, so that it would warrant comparison relative to the nausea and vomiting present.

RESULTS

Because of our acceptance of any sensation of nausea or evidence of vomiting or retching, or both, as a positive finding, it was to be expected that our incidence would be somewhat higher than usually reported (3, 4). This proved to be the case. It will be seen in table 1 that of the 246 patients who received antiemetic "E" or sterile saline solution (our control group) 37.4 per cent were nauseated or vomited following anesthesia. Using exactly the same criteria, of the 251 patients who received Bonamine, or antiemetic "A", 41.4 per cent were either nauseated or vomited, while in the series of 355 patients who received Marezine, or antiemetic "D", 33.5 per cent either had nausea or vomiting or both. We do not consider that 4 per cent variation, plus or minus, as being appreciable. As may be seen, for the total series of 852 patients nausea or vomiting was noted in 37 per cent.

Since our incidence in all three series of cases appeared to be unusually high, we decided to review our records and see if we could evaluate our results on the basis of vomiting or retching alone, thus

TABLE 1
RESULTS OF ANTIEMETICS ON POSTOPERATIVE NAUSEA AND/OR VOMITING

Drug	Number of Patients	Nausea-Vomiting, %
Saline, Anti "E"	246	37.4
Bonamine, Anti "A"	251	41.4
Marezine, Anti "D"	355	33.5
Totals	852	37.0

eliminating the so-called psychic response of nausea. Comments on the records proved to be adequate, and when this study was made it was found that there was an incidence of vomiting in our control series with saline as an antiemetic of 22.7 per cent. The Bonamine series showed an incidence of vomiting of 27.9 per cent, and the Marezine series had 21.9 per cent with either vomiting or retching (table 2).

TABLE 2
RESULTS OF ANTIEMETICS ON POSTOPERATIVE VOMITING OR RETCHING
(NAUSEA ALONE DISREGARDED)

Drug	Number of Patients	Vomiting-Retching, %
Saline, Anti "E"	246	22.7
Bonamine, Anti "A"	251	27.9
Marezine, Anti "D"	355	21.9
Totals	852	23.9

Because one antiemetic was alleged to have prolonged action while the other was characterized as having rapidly acting properties, the records were broken down as to whether or not nausea or vomiting, or both, had occurred in the recovery room (usually three to four hours or less postoperatively) or was reported as having occurred in the patient's room. When this was studied it was found that in our control series, those who had received saline and who had been reported as having had nausea and vomiting, 57.6 per cent were reported as having experienced it in the recovery room whereas in the Bonamine series

TABLE 3
RESULTS OF ANTIEMETICS ON POSTOPERATIVE NAUSEA, VOMITING, AND
RETCHING OCCURRING IN RECOVERY ROOM

Drug	Number of Patients with Nausea and Vomiting	% Occurring in Recovery Room		
		Nausea	Vomiting and Retching	Nausea, Vomiting and Retching
Saline, Anti "E"	92	8.7	48.9	57.6
Bonamine, Anti "A"	104	13.4	35.6	49.0
Marezine, Anti "D"	119	12.6	41.1	53.7
Totals	315	11.7	41.6	53.3

49 per cent had nausea or vomiting in the recovery room; the group of patients given Marezine had nausea or vomiting in the recovery room in 53.7 per cent of the cases. Thus it is seen that an average of 53.3 per cent of the nausea and vomiting occurred soon after discontinuance of the anesthesia (table 3).

It may be stated only, therefore, that of 606 patients who received parenteral injections of antiemetic drugs in an attempt to lower the incidence of nausea and vomiting postoperatively there was no appreciable difference between Bonamine and Marezine, and there was no appreciable difference between these drugs and the control series of 246 patients who received normal saline solution.

SUMMARY

Bonamine and Marezine, two new antihistaminic drugs, were studied and compared to a control series of patients who received only normal saline solution in an attempt to evaluate the effect of these two antiemetics in lowering the incidence of postoperative nausea or vomiting.

The presence of any sensation of nausea, vomiting, or retching, whether psychic or demonstrable, was accepted as a positive finding. The incidence of demonstrable vomiting alone was also compared. There was no apparent advantage in the use of Marezine or Bonamine elicited by this investigation.

REFERENCES

1. Hill, F. W.: Pyridoxine in Treatment of Postanesthetic Nausea and Vomiting, *Anesthesia* 6: 52 (Jan.) 1951.
2. Hume, R. H., and Wilner, W. K., Jr.: Use of Dramamine in Control of Postoperative Nausea and Vomiting, *Anesthesiology* 13: 302 (May) 1952.
3. Moore, D. C., Anderson, L., Wheeler, G., and Scheidt, J.: Use of Parenteral Dramamine to Control Postoperative Vomiting: Report of 1192 Cases, *Anesthesiology* 13: 354 (July) 1952.
4. Albert, S. N., and Coakley, C. S.: Use of Chlorpromazine to Control Postanesthetic Vomiting, *Anesth. & Analg.* 33: 285 (July-Aug.) 1954.