

EDITORIALS

Preoperative Use of Antiemetics

THOSE who develop new drugs have assumed that an effective antiemetic would find wide use in the field of anesthesiology to control postoperative nausea and vomiting. At present five drugs are available which have been shown to decrease significantly the incidence of postoperative nausea and vomiting when administered preoperatively. These are chlorpromazine, dimenhydrinate, cyclizine, promethazine, and perphenazine. As the number of drugs offered increases, so will the pressures on the anesthesiologist to prescribe routinely a preoperative antiemetic. Before succumbing to these pressures, the anesthesiologist should examine several considerations.

First, what is the incidence of postoperative nausea and vomiting? As is the case with many problems that seem large from loosely gathered impressions, the incidence of postoperative vomiting was found on close examination to be small provided ether was not used as the primary anesthetic agent. Published studies in which a placebo trial was used indicate that only one-third of patients experience postoperative nausea or vomiting. The incidence of vomiting after placebo varied from 18 to 28 per cent of all patients; the incidence of nausea and vomiting combined was 37 to 40 per cent. When ether was used as the primary anesthetic agent, nausea and vomiting combined increased to 60 per cent.

Second, none of the drugs effectively abolish postoperative nausea and vomiting. Most studies have required observations on several hundred patients to demonstrate a statistically significant 7–21 per cent decrease in the incidence of vomiting. Six to 21 per cent of the patients continued to vomit postoperatively despite antiemetic treatment and 26–33 per cent continued to have nausea. The decreased incidence did not eliminate the need for a recovery room, nor the hazard of aspiration of vomitus during or following operation.

Third, there are good reasons why postoperative vomiting will not be completely eliminated by an antiemetic compound. It has

been amply demonstrated by Borison and Wang that the mechanisms responsible for the vomiting act are multiple. The causes of postoperative vomiting are likewise multiple. Vomiting may be due to preoperative narcotics or those used as anesthetic adjuncts, to emergence from general anesthesia, to the irritating effects of swallowed ether vapor, to postoperative ileus, to dehydration, and to hypotension. Some patients vomit because they believe it is customary to do so. Since the etiologic factors are so varied it is unlikely that all mechanisms will be blocked by a single specific drug with an antiemetic action.

Fourth, many antiemetics have undesirable side actions. Hypotension, tachycardia, drowsiness, restlessness, muscle twitching, and even a syndrome resembling decerebrate rigidity have been reported.

Approximately 80–90 per cent of patients given a preoperative antiemetic will have been treated unnecessarily because vomiting will not occur in approximately 70 per cent of these patients and another 10–20 per cent will vomit even though treated. Thus, in order to gain a 10 to 20 per cent decrease in the incidence of nausea and vomiting, 80 to 90 per cent of the patients are unnecessarily treated and exposed to the discomfort and unwanted side actions of these drugs. Furthermore, were there a specific drug without side actions, its routine use would not be justified from the point of expense, if nothing else, if so little beneficial effect can be anticipated in so few patients.

The use of antiemetics in anesthesia practice is justifiable only when retching and vomiting have occurred to a clinically significant degree. Their use is not warranted in the prophylactic treatment of postoperative nausea and vomiting.

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Respiratory Stimulants

In reviewing the history of drug usage it is not uncommon to find that a heretofore abandoned approach to a therapeutic problem is suddenly revived and pursued with renewed vigor. Its revival is often precipitated by the introduction of some modification of an older therapeutic agent or of a structurally different compound with similar pharmacological attributes. Usually there is no radical departure in the basic pharmacologic behavior of the new agent compared with the old. Often this revival is sparked by the pharmaceutical industry seeking to expand the therapeutic horizon for its products. Additional momentum is provided by the enthusiasm of clinicians who prematurely report conclusions based upon superficial observations and clinical impressions. This is the situation which has developed with the respiratory stimulants in recent years.

Anesthesiologists have little need for respiratory stimulants. Most of us rely on the old dictum that prevention is better than cure and recognize that analeptics are convulsants which neither displace the offending agent from its receptors nor hasten its elimination. If one excludes the narcotic antagonists, specific antagonists to anesthetic agents are unknown. Opinions differ concerning the usefulness of analeptics in profound drug induced depression. Claims of increased reflex activity and decreased duration of coma following their judicious use have been reported by some. Others report equally good results without analeptics. Both groups agree that stimulants are unnecessary in the milder depressed states.

The question of the use of respiratory stimulants, therefore, has remained in a semi-dormant state until the recent introduction of new stimulants, such as Bemegride, Ritalin

and Daptazole. The recommended use of these newer stimulants has been directed towards a somewhat different objective than that in the past. The emphasis now is placed upon terminating narcosis with thiopental and similar drugs with an analeptic at the conclusion of anesthesia. Those who advocate this imply that anesthesia may be "turned off" at will. There are also those who are so bold as to advocate that the reversal of narcosis by these agents is ideal for surgery in ambulatory patients. It is understandable how the occasional user of intravenous anesthetics who is not familiar with the general behavior of stimulants or depressants might be deluded into the belief that this practice is sound. It is difficult to understand, however, how anesthesiologists who are presumably better versed in the use of these drugs are equally as gullible. Admittedly these new drugs differ in chemical structure from those of the conventional stimulants. Pharmacologically, however, they are qualitatively similar. They may differ quantitatively. They are convulsants as are the conventional drugs popular in the past.

Physicians instinctively seek antidotes to counteract untoward responses to therapeutic agents. Therefore, the demand for stimulants will continue to exist. Newer neuropharmacologic agents are constantly being introduced. From this group there may some day evolve effective antagonists to hypnotics and basal narcotics. None, however, has yet been introduced which differs in the basic pharmacologic response from the conventional stimulants. Until such a new agent is developed, there is little reason to reverse the prevailing, more conservative, attitude concerning the use of stimulants in anesthesia practice.

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