TITLE: PROPHYLACTIC TRANSDERMAL SCOPOLAMINE REDUCES NAUSEA IN POSTOPERATIVE PATIENTS RECEIVING EPIDURAL MORPHINE

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Introduction. Epidural morphine provides excellent analgesia in the management of postoperative pain. Unfortunately, nausea is commonly reported with an incidence of up to 60%.[1] Scopolamine, a belladona alkaloid, is an effective antiemetic when nausea is induced by morphine.[2] Bolus administration of scopolamine, however, is associated with a high incidence of dose related adverse effects and has the disadvantage of a short duration of action.

Transdermal scopolamine reduces these problems by delivering a constant, low dosage of drug (5 μg/hr) over a prolonged period.[3] The patch is a laminated structure comprised of a backing layer, a drug reservoir containing scopolamine, a rate controlling membrane, and an adhesive layer which contains a priming dose of scopolamine.

This study evaluates the effectiveness of prophylactic transdermal scopolamine in reducing the incidence of nausea in patients receiving epidural morphine following major gynecologic surgery.

Methods. Following informed consent and institutional approval, thirty-two healthy women were randomized in a double blind fashion to one of two study groups each containing sixteen subjects. One group received a transdermal scopolamine patch, while the other group received a visually identical placebo patch.

Prior to surgery, a patch was placed on the right mastoid process. A T4-6 epidural block was established with lidocaine via a lumbar catheter. If required for the surgical procedure, general anesthesia was then induced with thiopental, 4-6 mg/kg, and maintained with isoflurane, 0.4-0.9%. Nitrous oxide, atropine and droperidol were not used. Preservative-free morphine in doses ranging from 3-5 mg was initially administered during surgery, and every 6-12 hours postoperatively as needed for analgesia. No other narcotics or benzodiazepines were administered. Patients who experienced nausea following surgery were treated with metoclopromide, 10 mg IV every two hours for up to 4 doses. If the nausea persisted the patients were treated with droperidol, 0.625 mg IV every two hours for up to 3 doses.

The number of antiemetic treatments administered during the initial 24 hours after surgery was recorded. On the first postoperative day the sensation of nausea was documented as the Nausea Score using a 100 mm visual analogue scale, where zero was "No upset stomach" and 100 was "Extremely upset stomach."

Statistical analysis of parametric data was performed utilizing the chi-squared test. The Mann-Whitney Test was used for nonparametric data. Significance as assigned at $p < 0.05$.

Results. Comparing the scopolamine and placebo groups, there were no statistical differences with respect to age, weight, anesthesia technique, duration of surgery or epidural morphine dosage. Nor did any of these factors bear a significant correlation to the Nausea Score.

There was a significant difference between the scopolamine and placebo groups in both the incidence and severity of nausea (Table I). Further, there was a significant difference in the number of antiemetic treatments administered to the two groups (Table II).

Conclusion. It was found that in patients receiving epidural morphine following major gynecologic surgery, prophylactic transdermal scopolamine significantly reduces the incidence and severity of nausea.

References.

1. Bromage PR, Camporesi E, Durant PAC, et al: Nonrespiratory side-effects of epidural morphine. Anesth Analg 61:490-495, 1982
2. Clarke RSJ, Dundee JW, Love WJ: Studies of drugs given before anaesthesia. Br J Anaesth 37:772-777, 1965
3. McCauley ME, Royal JW, Shaw JE, et al: Effect of transdermally administered scololamine in preventing motion sickness. Aviat Space Environ Med 50:1108-1111, 1979

TABLE I: Nausea Score--Distribution of Responses

Patients Reporting	Placebo	Scopolamine
Zero	1	13*
1-30	5	3
31-70	2	0
71-100	8	0*

* $p < 0.01$

TABLE II: Indices of Patient Nausea (Mean ± S.D.)

	Placebo	Scopolamine
Nausea Score	51 ± 42	1 ± 2*
Antiemetics per Patient	2.8 ± 2.6	0.2 ± 0.4*

* $p < 0.05$