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Does Chloroprocaine (Nesacaine MPF) for Epidural Anesthesia Increase the Incidence of Backache?

To the Editor:—In December 1988, Astra Pharmaceuticals sent a "Dear Doctor" letter to physicians stating they had received a "number" of reports of severe backache following epidural anesthesia with their formulation of chloroprocaine, Nesacaine MPF. Astra suggested that larger volumes of Nesacaine (more than 20–25 ml) for epidural injection and its use for skin and needle track infiltration are the causes of this higher incidence of backache. They arbitrarily recommended avoidance of these two practices.

We would like to submit data on 54 cases of epidural anesthesia used for adult outpatients undergoing knee arthroscopy. This study was approved by our Institutional Review Board and informed consent was obtained from each patient. In a randomized, double-blind fashion, patients were assigned to one of four groups: chloroprocaine, (Nesacaine MPF, Astra) 3% plain (C); chloroprocaine, (Nesacaine MPF, Astra) 3% with fresh epinephrine 1:200,000 (C/E); lidocaine 2% plain, (Xylocaine, Astra) (L); or lidocaine 2% (Xylocaine, Astra) with fresh epinephrine 1:200,000 (L/E). In all patients, skin and needle tracks were infiltrated with 1–2 cc of lidocaine 1% using a 26-G needle. All epidurals were performed by one of two staff anesthesiologists using an 18-G Tuohy needle and a loss of resistance technique. After insertion of the epidural catheter, each patient received a 3-ml test dose of lidocaine 1.5% with epinephrine 1:200,000 (Xylocaine, Astra), followed by incremental doses of the local anesthetic agent (labelled by the random number) up to a preselected initial volume according to the patient's height. Supplemental doses were used later if needed. The patients were questioned in the recovery room and at 24 h postoperatively regarding the presence or absence of backache and, if present, the patients were asked to grade the backache as either mild, moderate, or severe and describe its location and character. Normally, if an otherwise healthy patient had a recent history of back pain, radicular symptoms or signs of nerve damage, they would not receive a spinal or epidural anesthetic at our institution. However, patients who have undergone laminectomies are not automatically excluded from receiving a regional technique.

There were no differences between the groups in terms of age, sex, ASA classification, or initial volume of anesthetic given. Our results are shown in table 1. Significant differences were found among the four groups, both in terms of presence or absence of backache (contingency table), and also for the severity of backache (Kruskal-Wallis corrected for ties). However, a significant intergroup difference was found only between the chloroprocaine with epinephrine *versus* lidocaine-plain groups (Bonferoni correction for six possible multiple comparisons). Because of the small sample size, further comparisons using chi-square analysis were made after combining patients in the two chloroprocaine groups and those in the two lidocaine groups, and then combining the plain *versus* the epinephrine-containing groups. The incidence of overall backache was not significantly different between the two pooled groups (C + C/E *vs.* L + L/E); however, there were significantly more combined moderate and severe backaches in the chloroprocaine-containing groups ($P = 0.018$). When comparing the epinephrine-containing *versus* the plain groups (C/E + L/E *vs.* C + L), the presence of overall backache was significantly higher in the epinephrine-containing groups ($P = 0.01$); however, there was no difference in the number of moderate or severe backaches ($P = 0.2$). There was only a trend relating severity of backache to total volume of anesthetic used. The average total volume (± SD) of local anesthetic used was as follows: no backache—24.4 ± 4.4 ml; mild backache—25.6 ± 4.7 ml; moderate backache—26.1 ± 7.1 ml; and severe backache—31.7 ± 7.6 ml ($P = 0.28$, ANOVA). No patients reported any radicular or neurologic symptoms. Likewise, none of the patients had pain severe enough to require treatment with iv narcotics or hospital admission. One patient complained of a moderate to severe backache prior to discharge from the hospital, but most patients had an onset either during transport home or during their first few hours at home. On the morning following surgery all patients stated that their symptoms were dissipating.

TABLE 1. Local Anesthetics *versus* Presence and Severity of Backache after Epidural Anesthesia

Backache	Chloro	Chloro + epi	Lido	Lido + epi
Present	9 (69.2%)	13 (92.8%)*	6 (46.2%)*	11 (84.6%)
Absent	4 (30.8%)	1 (7.2%)	7 (53.8%)	2 (15.4%)
None	4 (30.8%)	1 (7.2%)	7 (53.8%)	2 (15.4%)
Mild	2 (15.4%)	4 (28.6%)	4 (30.8%)	6 (46.2%)
Moderate	6 (46.2%)	8 (57.1%)	1 (7.7%)	5 (38.5%)
Severe	1 (7.7%)	1 (7.1%)	1 (7.7%)	0 (0.0%)

Statistical notes: Presence or absence of backache, $P = 0.034$ (Contingency Table). Severity of backache, $P = 0.046$ (Kruskal-Wallis corrected for ties).

* Inter-group differences, $P = 0.0078$ (significant at the 95% level after Bonferroni Correction for multiple comparisons).

Our results confirm that epidural anesthesia following chloroprocaine (Nesacaine MPF 3%) compared with that following lidocaine 2% containing solutions is associated with an increased incidence of backache only when we considered moderate and severe backaches. The addition of epinephrine to either local anesthetic seems to increase the number of backaches. We did not use chloroprocaine for local infiltration, thus its role in causing backache is unclear. The relationship between backache and initial or total volume of anesthetic given was not statistically significant. As no patients reported pain consistent with a neurogenic origin, the mechanism of these post epidural backaches remains a curiosity. Perhaps it is related to the low *p*H of Nesacaine and/or the leakage of local anesthetic agents (and/or epinephrine) in the paravertebral space causing soft tissue and muscle irritation or ischemia. Because short-acting chloroprocaine is an important drug in outpatient anesthesia practice, a full investigation of this problem is warranted.

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