LOCAL ANESTHETICS AND PAIN

TITLE: COMPARISON OF BUPIVACAINE (MARCAINE) WITH TETRACAINE (PONTCAINE) FOR SPINAL BLOCK FOR INTRA-ABDOMINAL PELVIC SURGERY

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Purpose. To compare bupivacaine with tetracaine with and without epinephrine for intra-abdominal surgery of the female genital system (corpus uteri, oviducts, and ovaries) and other pelvic female surgery (laparotomy and appendectomy) using: (1) the double-blind method; (2) the same milligram dose; (3) spinal block; (4) the second lumbar interspace for injection; and (5) after injection, the supine position with no tilt of the operating room table.

Method. Under the control of the Human Rights Committee of our Hospital and using a randomized double-blind technique, 1.6 ml of 0.75 percent solution (12 mg) of either bupivacaine or tetracaine was injected subarachnoidally into 100 patients for each drug (n = 200). The first group of 100 patients was divided in half so that 50 received a plain solution of bupivacaine and the other 50 a plain solution of tetracaine. The other 100 patients, divided similarly, received the local anesthetic drugs with 0.2 mg of epinephrine.

Data was collected as it occurred on a computer oriented anesthetic record and tally sheet and analyzed by the computer. Statistical significance was determined by the Student's t and chi square tests.

Results.

PLAIN SOLUTIONS OF THE LOCAL ANESTHETIC SOLUTION.

- Onset occurred with bupivacaine in 42 ± 15 seconds and with tetracaine in 42 ± 15 seconds (no significance).
- Operating analgesia was established with bupivacaine in 10 ± 3.6 minutes and with tetracaine in 8.3 ± 2.4 minutes (p < 0.02). Complete return of sensation in the operative site occurred with bupivacaine in 163 ± 42 minutes and with tetracaine in 171 ± 65 minutes (no significance).
- Motor blockade of the lower extremities was complete with both drugs. It occurred with bupivacaine in 13 ± 8 minutes and with tetracaine in 8.4 ± 4.2 minutes (p < 0.01). Its duration with bupivacaine was 202 ± 49 minutes and with tetracaine 234 ± 51 minutes (p < 0.01).
- Unsatisfactory analgesia at the start of surgery occurred in 13 patients with bupivacaine in 5 and with tetracaine in 5 as follows: (1) abdominal hysterectomy, bupivacaine (n = 39) = 4 unsatisfactory blocks and with tetracaine (n = 36) = 6; (2) oviducts and ovaries, bupivacaine (n = 6) = 0 and tetracaine (n = 11) = 2; (3) appendix, bupivacaine (n = 3) = 1 and tetracaine (n = 0) = 0; and (4) laparotomy, bupivacaine (n = 2) = 0 and tetracaine (n = 3) = 0. No significance.

Inadequate durations of the effectiveness of these drugs to complete the surgical procedure occurred in 14 patients. In 9 of these bupivacaine was satisfactory for 136 ± 30 minutes and in 5 with tetracaine it was satisfactory for 113 ± 37 minutes (no significance). After these times elapsed, supplementary general anesthesia was required to complete the surgery.

Complications were those expected from spinal block. Hypotension occurred in 25 patients and 3 had a spinal headache. No other complications occurred.

Conclusions.

Bupivacaine injected subarachnoidally is a safe and effective drug for spinal block. The addition of epinephrine significantly prolonged the motor and sensory blockade of both bupivacaine and tetracaine. With the exception of motor and sensory blockade, which is significantly prolonged with tetracaine plus epinephrine, little difference between the two drugs resulted.