TITLE: IS POST-OPERATIVE INTRA-THECAL CATHETER USE ASSOCIATED WITH CNS INFECTIONS?

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Extended use of intra-thecal catheters (ITC) for other than terminal patients has been limited by important safety concerns. Chief among these has been the possibility of infectious complications secondary to the percutaneous catheter providing (microbial) access to the central nervous system (CNS) with disastrous results. Although several studies of long term ITC use (months to years) have not reported infectious sequelae, post-operative ITC use is not widely practiced. To address this issue, culture data on nineteen patients were collected.

All patients were informed of their anesthetic options and informed consent was obtained for intra- and post-operative use of continuous spinal anesthesia/analgesia. They were scheduled for post-operative ICU admission secondary to their planned (1 thoracotomy, 17 vascular, 1 orthopedic) surgeries. 18g (nylon) catheters were used on 12 occasions and 28g micro-spinal catheters were used 7 times. ITC were used for narcotic administration (9 ITC), local anesthetic infusion (7), or a combination (1) during their ICU stay. Before being transferred out of the ICU all ITC were removed in a sterile fashion and sent for culture. These data were reviewed by the Investigational Review Board prior to being reported.

The ITC remained in use for a mean period of 42.95 hours (range 8 to 80 hours). Sixteen ITC showed no growth of organisms after initial culture (mean 39.63 hours, range 8 to 72 hours). One ITC grew <10 colonies of a Gram-positive cocci (after 75 hours).; one ITC grew <15 colonies Staphylococcus aureus (coagulase negative) (after 27 hours) , and one ITC grew one colony of Acinetobacter calcoaceticus (anitratus) (after 80 hours). All seventeen ITC showed no growth after incubation in a "thioglycolate broth" and subsequent culture. As these "positive" cultures grew <15 colonies of bacteria, and as subsequent cultures after "thioglycolate broth" incubation were negative, these results were felt to be contaminating (rather than colonizing) organisms.[1]

These findings are in keeping with those previously reported for long term epidural and ITC use. While only two of the six ITC which indwelled for more than forty-eight hours showed any growth (and this was felt to be contamination rather than colonization) the optimal time for ITC use before bacterial problems develop cannot be estimated from these data. It is of interest to note that a recent culture study of post-operative epidural catheters showed no increase in bacterial growth with prolonged use.[2] Our data seem to indicate that this will also be true for ITCs.

In conclusion, these culture data suggest that colonization and subsequent CNS infection should not represent a commonly encountered problem with post-operative ITC usage.

REFERENCES:

1. N. E. J. M., 296: 1305-1309, 1977
2. ANESTHESIOLOGY 71, A747, 1989

Title: COMPARISON OF 0.75% ROPIVACAINE AND 0.75% BUPIVACAINE FOR EPIDURAL ANESTHESIA

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Introduction: Pharmacological studies in animals indicate that Ropivacaine (R) is a new long acting amide local anesthetic which possesses anesthetic qualities similar to bupivacaine (B), but has less potential for cardiac toxicity B(1,2). Preliminary studies in humans have shown the efficacy and safety of R for epidural anesthesia(3). The purpose of this study was to compare the anesthetic properties of 0.75% R to those of 0.75% B for epidural anesthesia.

Methods: This double blind study was approved by our human subjects committee. Informed consent was obtained from 44 patients, ASA I-II, between the ages of 18-70, scheduled for orthopedic surgery of the lower limbs. Patients were randomly assigned to receive 20 ml (150 mg) of either 0.75% R or 0.75% B. Premedication consisted of diazepam 5-10 mg orally or midozolam 1-3 mg IV. After identification of the epidural space, 3 ml of the designated drug were injected. Two min after the test dose, 17 ml of the drug were injected in incremental doses over a period of 4 min. Sensory anesthesia to pinprick was evaluated every 5 min for 30 min then every 15 min to complete resolution of the block. Motor blockade was determined by the Bromage scale at the same time intervals. Heart rate (HR) and blood pressure (BP) were determined prior to epidural placement. BP and EKG were continuously monitored intraoperatively. Data was analyzed using an unpaired t test $P < 0.05$ was considered significant. Values are mean ± S.D.

Results: Patients in both groups were similar in terms of age, weight and height. There was no difference in onset of sensory anesthesia, maximal level, regression to T_{12}, or complete regression of anesthesia. The adequacy of motor block was greater (90%) with B than with R (77%). Duration of motor block was significantly longer with B(Tables). Changes in BP and HR were the same with both drugs. No complications occurred in either group.

Discussion: These results suggest that the sensory anesthesia produced by R is similar to that of B. R produces less intense and a shorter duration of motor block than B. These findings plus the potential for less cardiac toxicity of R warrant further clinical investigation, particularly in the areas of obstetric anesthesia and post operative pain.

SENSORY ANESTHESIA

Drug	Onset to T_{12} (min)	Regression to T_{12} (min)	Complete Duration (min)
R	3.54 ± 3.7	302.78 ± 51.55	353.64 ± 76.00
B	3.34 ± 2.42	284.78 ± 74.17	394.57 ± 105.33

MOTOR BLOCK

	Adequacy of Motor Block	Duration Motor Block (min)	
R	77%	263.57 ± 49.42	
B	90%	313.04 ± 93.05*	*p< 0.05

References: 1. Feldman et al. Anesth Analg 67: 1047, 1988
2. Feldman et al. Anesth Analg 69: 794, 1989
3. Concepcion et al. Anesth Analg 70: 80, 1990