

ASA ABSTRACTS

A759

TITLE: ARE ANESTHESIA RESIDENCY PROGRAMS STILL FAILING TO TEACH REGIONAL ANESTHESIA ?

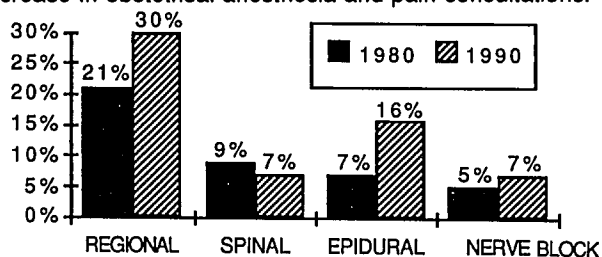
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Purpose: Anesthesia residents reported utilizing a regional anesthetic in approximately 21% of surgical cases in a 1979-80 survey.¹ However, large discrepancies between training programs were noted, and Bridenbaugh concluded that at least some anesthesiology training programs were failing to adequately teach regional anesthesia. In the intervening ten years, numerous educational changes have occurred in anesthesiology which prompted us to determine if any significant gain has been made over the past ten years in teaching regional anesthesia to residents.

Methods: Letters were sent to 157 directors of anesthesiology residency programs requesting blinded copies of their residents' 1989-1990 "pink sheets" which are submitted to the American Board of Anesthesiology each year. These sheets break down a resident's total number of administered anesthetics by both region and by technique (general, spinal, epidural, nerve block, etc.), and have changed little in ten years. Results were analyzed with respect to year-in-training, residency program size, and geographic location; then compared the 1980 survey. The influence of exposure to OB anesthesia and pain consultations were separately analyzed.

Results: 120 residency programs (76%), representing 3615 residents responded. Residents yearly deliver 442 ± 132 (SD) anesthetics, of which 13% are obstetrical. Use of regional anesthesia has increased significantly to 29.8%, due primarily to a large increase in epidural anesthesia (Fig.1), but wide disparities between individual residents and programs remain. No differences were detected in the percentage of regional anesthetics performed when analyzed by program size or geography. However, regional anesthesia does increase at each level of residency training, associated with a concurrent increase in obstetrical anesthesia and pain consultations.



Conclusions: While the average resident in training today is utilizing a regional anesthetic technique in 29% of cases, an increase from 21% in 1980, wide discrepancies between training programs remain and some residents may be completing their education deficient in valuable regional anesthetic techniques. Are we still failing to teach regional anesthesia.

References: Bridenbaugh LD: Are Anesthesia Resident Programs Failing Regional Anesthesia? *Reg Anesth* 1982; 7(1):26-28.

A760

TITLE: ANTINOCICEPTIVE INTERACTIONS BETWEEN MORPHINE AND BUPIVACAINE GIVEN EPIDURALLY

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The epidural administration of opioids practiced to control labor pain has been associated with many side effects. In order to reduce opioid dosage, combination with a local anesthetic agent, such as bupivacaine, is employed¹. However, the paucity of information exists on the most suitable combination and dose of morphine and bupivacaine in producing spinal antinociception. In addition, there is absolutely no information whether spinal opioid receptors are involved in the modulation of morphine induced antinociception by bupivacaine.

Male Sprague-Dawley rats (300-350 g) were anesthetized with ketamine (80 mg/kg, im) and xylazine (8 mg/kg, im) and placed into a stereotaxic apparatus. A polyethylene tube (PE10) was inserted through a slit in the cisternal membrane about 8.5 cm down the spinal subarachnoid space to the rostral aspect of the lumbar enlargement according to the method described earlier². The catheter was fixed to the skull by cranioplastic cement and animals were allowed to recover for at least a week. Antinociception was measured by using the graded stimulus tail-flick test. A maximum stimulus of 10 sec was used to avoid skin damage. Rats were injected with drugs in a volume of 10 μ l followed by 5 μ l of saline to flush the catheter. Data were expressed as (i) maximum possible effect (MPE) and (ii) area under the curve (AUC). Statistical analysis were performed by Newman Keuls 't' test.

Morphine (5-20 μ g) and bupivacaine (20-100 μ g) independently produced a dose-dependent increase in antinociception as reflected by an increase in the tail flick latency following epidural injection of these drugs. Bupivacaine (5-50 μ g) increased the AUC (intensity x duration) of morphine (10 μ g) induced antinociception by 10-15 fold. This synergistic action between bupivacaine and morphine was greatly diminished at higher concentration of morphine (20 μ g). Antinociception produced by bupivacaine or bupivacaine and morphine together was by naloxone, suggesting an interaction of this local anesthetic with spinal opioid receptors. Direct binding studies done in the presence of [³H]-opioid ligands specific for kappa and delta receptors indicated that bupivacaine promotes the binding of opioids specific for these receptors in the spinal cord. In conclusion, for the first time we have demonstrated that synergistic action between local anesthetics and opiates in producing greater antinociception may be due to an increase in the binding of opiates to spinal opioid receptors in the presence of local anesthetics.

References

1. *Anesthesia* 46:169-173, 1991.
2. *Anesthesia and Analgesia* (in press).