

Title : INTRATHECAL MORPHINE FOR POST-OPERATIVE PAIN RELIEF

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Introduction. The demonstration of opiate receptors in the spinal cord has led to several animal and clinical studies testing the efficacy of sub-arachnoid or epidural narcotic administration for the alleviation of pain in a variety of situations. Although most reports seem to support the conclusion that narcotics, so administered, do produce analgesia the authors were unable to satisfy themselves that the clinical evidence presented, to date, represented unbiased observations. A double blind study was undertaken to see if morphine injected intrathecally influenced the course of postoperative pain after a standard surgical procedure.

Methods. Thirteen patients, from whom informed consent was obtained, underwent inguinal hernia repair using spinal anesthesia. The patients were randomly assigned to either a morphine or control group, using a blind draw method. All subjects had hyperbaric spinal anesthesia with appropriate volumes of 1% Tetracaine mixed with 10% dextrose and water. The morphine group had an additional 0.5 mg (0.5cc) preservative free morphine sulfate injected with the spinal anesthetic. Evaluations began in the recovery room after sensory anesthesia had worn off and were continued periodically for the next 24 hours. The patient, who was unaware as to whether he received morphine or not, evaluated his own pain using a 10 centimeter visual analog scale (VAS) which had previously been explained to him. The scale was designed so that 0 equaled no pain and 100 equated with agonizing pain. In addition a physician observer, one of the authors who was also unaware as to the treatment the patient had, evaluated the patient's pain numerically on a scale where 0 equaled no pain, 1 equaled mild pain, 2 equaled mild pain, and 3 equaled severe pain. Pain evaluations were discontinued after the administration of parenteral narcotics or 24 hours, whichever came first. In addition the observer evaluated central nervous system responses, respiratory rate, circulatory stability, motor function and other sequelae after the block.

Results. Both subject and observer pain scores are presented in Table I. The mean VAS scores, ranging between 11 and 20, equate with a very mild degree of pain in the morphine group. This observation was corroborated by the observer scores which, in all cases, was mild or nil. In the control group the initial observation indicated moderate to severe pain both using the VAS and observer scores. Parenteral narcotics were required in five of the six control patients after the first observation. The sixth control patient was maintained with oral codeine during the 24 hour observation. None of the experimental group required any analgesics. Other observations are listed in Table II. Significant is the absence of urinary retention, defined as catheterization within the first 24 hours postanesthetic, in the control group versus the need for five of the seven patients in the morphine group to be catheterized. In addition

itching, which was absent in the control group, was a significant observation in five of the seven morphine patients. In one of the five it was a major annoyance to the patient.

Discussion. The analgesic effect of morphine when injected intrathecally in this patient population support its efficacy in treating postoperative pain. All patients had normal responses to other painful stimuli such as deep tendon pressure or pin stick. This suggests that the pain pathway modulated by morphine receptors differs from other pain pathways responding to acute stimuli. The two major untoward sequelae, urinary retention and itching, cannot easily be explained.

Conclusion. Morphine, when injected intrathecally, provided excellent postoperative analgesia in patients who had inguinal hernia operations.

TABLE I

Time PO (hrs)	Morphine		Control	
	VAS Mean ± 1SD	Observer Mean Score	VAS Mean ± 1SD	Observer Mean Score
1 - 2	17 ± 14	0.4	69* ± 12	2.2
3 - 4	20 ± 14	0		
5 - 6	17 ± 11	0		
7 - 9*	13 ± 14	0		
9 - 10	14 ± 15	0.5		
11 - 12	13 ± 15	0.5		
24	11 ± 12	0.2		

*Five of the six control patients required parenteral narcotics at this point, thus ending the pain score testing.

TABLE II

	Control	Morphine
CNS	alert	alert
Respiratory Rate	unchanged	unchanged
Motor Function	intact	intact
Pin Stick	intact	intact
Urinary Retention	absent	5 out of 7
Itching	absent	5 out of 7