

TITLE: CONTROL OF POST-ORCHIOPEXY PAIN IN PEDIATRIC OUTPATIENTS: COMPARISON OF TWO REGIONAL TECHNIQUES.

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Orchiopexy is performed on an outpatient basis in many centers. The procedure, however, is associated with significant post-operative pain and a high incidence of nausea and vomiting. Treatment of this pain with long acting narcotics may further increase the incidence of emesis and prolong the recovery period. The purpose of this study was to evaluate and compare the effectiveness of caudal analgesia and ilio-inguinal/ilio-hypogastric nerve blocks in producing effective postoperative analgesia without delaying discharge from the hospital.

Methods: Forty-four ASA Class I or II children, 1 1/2 years or older, scheduled for elective repair of unilateral undescended testicle as outpatients were the subjects of the study. The protocol was approved by the institutional review board, and informed consent was obtained for each child. Neither preoperative medication nor operative narcotics were administered to any patient. Anesthesia was induced and maintained with N₂O/O₂/halothane. At the termination of surgery patients were randomly assigned to one of three groups. Group I patients received a caudal injection of 0.25% bupivacaine solution in a dose of 2.5 ml/year of age. (This dose has been shown to provide analgesia to the T₁₀ level in previous studies). Group II patients received ilio-inguinal/ilio-hypogastric nerve blocks using 0.25% bupivacaine solution. Group III patients received no block. All patients had a dressing applied over the sacral hiatus and groin to conceal possible block markings, and the anesthetic record was sealed to remove observer bias. Patients were watched in the recovery room (PARR) for 30-45 minutes and later in the short stay recovery unit (SSRU) for at least 75 minutes by a single observer who was unaware of the treatment modality. Pain and/or discomfort were objectively evaluated at prescribed intervals using the scoring system shown:

PAIN-DISCOMFORT SCALE

OBSERVATION	CRITERIA	POINTS
Blood Pressure	± 10% Pre-Op	0
	> 20% Pre-Op	1
	> 30% Pre-Op	2
Crying?	Not crying	0
	Crying but responds to tender loving care (TLC)	1
	Crying and does not respond to TLC	2
Movement	None	0
	Restless	1
	Thrashing	2
Agitation	Patient asleep or calm	0
	Mild	1
	Hysterical	2
Posture	No special posture	0
	Flexing legs and thighs	1
	Hodling scrotum or groin	2
Verbalizes pain?	Asleep, or states on pain	0
	Cannot localize	1
	Can localize	2

Fentanyl (1-2 mcg/kg i.v.) was administered to any patient who achieved a score of 7 or more on two successive 5 minute observation periods. Pain scores, the need for fentanyl, and time to meet predetermined discharge criteria were compared for the three groups using Chi-square analysis.

Results: The three groups were comparable as far as age (mean 58.3 ms) and duration of surgery. There were no differences in postoperative pain scores between the caudal (1.75) and the nerve block groups(1.92) and therefore the two groups have been combined. Patients in the control group, however, showed a higher pain score (2.89), and required significantly more fentanyl treatment in PARR (Table).

	PATIENTS REQUIRING FENTANYL IN PARR	
	Fentanyl Required	No Fentanyl Required
Control (No Block) (n = 29)	5 (33%)	10 (66%)
Caudal or Nerve Block (n = 29)	1 (3%)	28* (97%)
	*p < 0.026	

There were no significant differences among the three groups in postoperative nausea and vomiting, or in time needed to meet discharge criteria (mean 200.7 min). There were no block related complications.

Discussion: Orchiopexy is usually performed through an inguinal incision similar to that used for hernia repair. Both caudal and ilio-inguinal/ilio-hypogastric nerve blocks should control the pain resulting from the inguinal incision. Pain resulting from testicular traction and manipulation would be only prevented by a T-10 level block. Since our study did not show caudal injection to be more efficacious than the nerve blocks one must surmise either that the contribution of testicular manipulation to the overall degree of postoperative discomfort is minimal, or that the level of our caudal block was not adequate to block testicular pain.

It is concluded that both ilioinguinal/iliohypogastric and caudal blocks provide safe and effective analgesia following orchiopexy. To maintain the objectivity of postoperative evaluation we performed the blocks at the end of surgery and we did not attempt to test the level of analgesia produced. In clinical practice, however, it may be more appropriate to place the blocks before the start of surgery (but following anesthesia induction) in order to reduce the general anesthetic requirements. Intravenous fentanyl 1-2 mcg/kg may be used to supplement or replace either of the blocks without delaying discharge from the hospital.

References:

1. Shandling B, Steward DJ: Regional analgesia for postoperative pain in pediatric outpatient surgery. *J Ped Surg* 15:477-480, 1980.
2. Schulte-Steinberg O, Rahlfs VW: Spread of extradural analgesia following caudal injection in children. *Br. J Anaesth* 49:1027, 1977.