

65. A PROSPECTIVE, RANDOMIZED TRIAL COMPARING PERIOPERATIVE TIME INTERVALS BETWEEN EPIDURAL AND GENERAL ANESTHESIA TECHNIQUES FOR SINGLE LEVEL LUMBAR NERVE ROOT DECOMPRESSION

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Introduction: Single level lumbar nerve root decompression (NRD) is rapidly evolving into a same day ambulatory procedure that is typically accomplished with general anesthesia (GA). There is a growing body of evidence however that regional techniques for outpatient surgery are reasonable and sometimes preferred alternatives to GA for perioperative efficiency, postoperative recovery, pain control, and overall patient satisfaction. Epidural anesthesia (EA) is an effective method of accomplishing regional anesthesia for single level lumbar NRD but has not been prospectively compared with GA. One specific aim of this study was to evaluate and statistically compare perioperative time intervals associated with each technique.

Methods: After written informed consent and Institutional Review Board (IRB) approval, 30 patients, ASA class 1 or 2, age 18 or greater, undergoing single level lumbar NRD were randomly selected to receive either EA or GA. All patients received a 500cc LR bolus and 2mg midazolam IV immediately before transport to the operating room (OR). The patients randomized to EA had the epidural completed in the sitting position on the transport gurney in the OR. After the lumbar region was prepped and draped, the interspace one level above the lesion was identified and the skin was anesthetized with a maximum of 5cc of 1% lidocaine. The epidural space was accessed using a 17 gauge Touhy needle with loss of resistance technique. 3cc of 1.5% lidocaine with 1:200,000 epinephrine was used as a test dose. After 2 minutes, 10cc of 2% lidocaine with 1 mcg/kg fentanyl was injected for surgical anesthesia. The patients then positioned themselves on the surgical table until comfortable. After detection of bilateral blockade, propofol (25-100 mcg/kg/min) was started for iv sedation and titrated as necessary. Prior to incision the surgeons injected the operative site (all study patients) with a maximum of 10cc .25% bupivacaine with 1:200K epinephrine for hemostasis. Although supplemental anesthesia was not required, the surgeons were prepared to use either lidocaine soaked pledgets applied to the nerve root, additional subcutaneous local or 1.5cc of 2% lidocaine injected intrathecally with a 30 gauge needle.

The patients randomized to GA had anesthesia induced while still on the transport gurney. For induction, 1-2mg/kg of iv propofol and 2-5mcg/kg of fentanyl was used. Tracheal intubation was facilitated with a single dose of 0.6mg/kg of rocuronium. Anesthesia was maintained with 70% nitrous oxide, oxygen, and isoflurane (started at one MAC and titrated for blood pressure and heart rate). This was followed by patient placement onto the surgical table. The volatile anesthetics were turned off when the surgery was completed and adequate reversal of muscle relaxation was shown with 5 seconds sustained tetany with ulnar peripheral nerve stimulation. If inadequate, the patients were given a maximum of 0.07mg/kg neostigmine with up to 0.01mg/kg glycopyrrolate.

Results: Mandatory PACU and APU times reflect when patient met the unit discharge criteria, actual time reflects when patients left the units. Analysis of our preliminary data using the Mann-Whitney U, the Wilcoxon W, and the T-Test showed no significant difference between the two different anesthetic techniques in regard to anesthesia and OR times, postanesthesia care unit (PACU) and ambulatory procedure unit (APU) stays, as well as overall length of stay in the hospital.

Discussion: Our study demonstrates that epidural anesthesia can be efficiently used for single level NRD. Despite some arguments claiming that it requires longer preparation time in the OR, our results show that this was not the case. Further, the results show that the wake-up time with GA is almost twice as long as with EA. Possibly with an increased number of study subjects this will become statistically significant.

1. Jellish WS, Zubair T, Stevenson K, Shea J. A Prospective Randomized Study Comparing Short- and Intermediate Term Perioperative Outcome Variables after Spinal or General Anesthesia for Lumbar Disk and Laminectomy Surgery. *Anesth Analg* 1996;83:559-64.

2. Dexter F. Regional Anesthesia Does Not Significantly Change Surgical Time versus General Anesthesia - a Meta Analysis of Randomized Studies. *Reg Anesth Pain Med* 1998;23(5):439-43.

	N	MEAN (h:min)	Std. DEVIATION	Std. ERROR MEAN	t-TEST p-value
	EA/GA	EA/GA	EA/GA	EA/GA	equal variances assumed
TOTAL OR TIME	15/15	1:44/1:38	0:21/0:21	0:05/0:05	NS
INDUCTION TIME	15/15	0:15/0:14	0:05/0:03	0:01/0:00	NS
WAKE-UP TIME	15/15	0:04/0:07	0:02/0:06	0:00/0:01	NS
ACTUAL PACU TIME	15/15	1:18/1:21	0:35/0:20	0:09/0:05	NS
MANDATORY PACU TIME	15/15	1:08/1:09	0:34/0:22	0:08/0:05	NS
ACTUAL APU TIME	15/15	3:16/3:46	1:34/1:07	0:24/0:17	NS
MANDATORY APU TIME	15/15	1:27/1:41	1:11/1:16	0:18/0:19	NS
TOTAL HOSPITAL TIME	15/15	6:35/6:59	1:44/1:18	0:26/0:20	NS
MANDATORY HOSPITAL TIME	15/15	4:46/4:55	1:31/1:19	0:23/0:20	NS