

PD-20. EFFECT OF POSTOPERATIVE EPIDURAL ANALGESIA ON LOWER EXTREMITY BLOOD FLOW; A RANDOMIZED, CONTROLLED, TRIAL.

Block, B.M.¹; Naqibuddin, M.¹; Elkassabany, N.¹; Frassica, F.J.²; Lietman, S.A.²; Raja, S.N.¹; Wu, C.L.¹

1. Anesthesiology and Critical Care Medicine, Johns Hopkins University, Baltimore, Maryland; 2. Orthopedic Surgery, Johns Hopkins University, Baltimore, Maryland

The use of spinal and epidural anesthesia is associated with a significant reduction in perioperative thromboembolic complications. A possible explanation is the well-known increase in lower extremity blood flow from the sympathectomy induced by neuraxial anesthesia. Prior studies have focused the effects of operative epidural anesthesia on blood flow, however the effects of postoperative epidural analgesia on blood flow have not yet been delineated. Thus we have studied the effects of postoperative lumbar epidural analgesia (LEA) on both whole limb and superficial blood flow following total hip replacement. Patients were randomized to receive general anesthesia and postoperative parenteral opioid analgesia (morphine by IV-PCA) or to receive lumbar epidural anesthesia followed by postoperative epidural analgesia with either high dose or low dose bupivacaine (0.125% bupi + 5 mcg/cc fentanyl or 0.0625% bupi + 5 mcg/cc fentanyl, respectively). Whole limb blood flow was measured with impedance plethysmography, while cutaneous blood flow was measured with laser doppler flowmetry. Blood flow measurements were made prior to anesthesia, immediately postoperatively, and on postoperative days 1 and 2. Preliminary data showed that whole limb blood flow was doubled by epidural anesthesia (Table 1), as expected. However, postoperative LEA did not increase whole limb blood flow compared to IV-PCA (Table 1). Measurements of cutaneous blood flow were similar to that of whole limb blood flow. These data suggest that with regard to lower extremity blood flow following major orthopedic surgery, postoperative epidural analgesia may not differ from IV-PCA.

Table 1. Normalized whole-limb lower extremity blood flow.				
	Pre-OP	Post-OP	POD#1	POD#2
Intraoperative Epidural Anesthesia & Analgesia	1	2.1 +/- 0.3 *	0.6 +/- 0.3	0.7 +/- 0.3
General Anesthesia + IV-PCA	1	1.2 +/- 0.3	0.7 +/- 0.3	0.9 +/- 0.2
Data are mean + standard deviation of whole limb blood flow measured by impedance plethysmography. Blood flow was normalized to the preoperative blood flow. Blood flow was measured just prior to and immediately following surgery and on the mornings of postoperative days 1 and 2. * Statistical difference between groups (P<0.05).				