

Continuous Peripheral Nerve Blocks (cPNB)

List of studies, reviews, and guidelines supporting its use

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Why cPNB?

Better post-operative pain control and reduced opioid consumption

- Chan EY et al. Femoral nerve blocks for acute postoperative pain after knee replacement surgery. Cochrane database syst rev 2014
- Ullah H et al. Continuous interscalene brachial plexus block versus parenteral analgesia for post-operative pain relief after major shoulder surgery. Cochrane database syst rev. 2014
- Xu J et al. Peripheral nerve blocks for postoperative pain after major knee surgery. Cochrane Database syst rev 2014
- Peng L, Ren L, Qin P, et al. Continuous femoral nerve block versus intravenous patient controlled analgesia for knee mobility and long-term pain in patients receiving total knee replacement: a randomized controlled trial. Evid Based Complement Alternat Med. 2014; 2014:569107.
- Hughes MS et al. Interscalene brachial plexus block for arthroscopic shoulder surgery: a systematic review. J Bone Joint Surg Am 2013;95:1318-24
- Fredrickson MJ, et al. Analgesic effectiveness of a continuous versus single-injection interscalene block for minor arthroscopic shoulder surgery. Reg Anesth Pain Med 2010;35:28-33.
- Touray ST. et al. Psoas compartment block for lower extremity surgery. A meta-analysis Br J Anaesth 2008;101:750-60
- Richman J.M., Liu S.S., Courpas G., Wong R., Rowlingson A.J., McGready J., Cohen S.R., Wu C.L. Does continuous peripheral nerve block provide superior pain control to opioids? A meta-analysis. Anesthesia and Analgesia (2006) 102:1 (248-257).
- White PF, Issioui T, Skrivaneck GD, Early JS, Wakefield C. The use of a continuous popliteal sciatic nerve block after surgery involving the foot and ankle: does it improve the quality of recovery? Anesth Analg. 2003; 97:1303–1309.

Reduction in hospital LOS

- Liu Q et al. Impact of peripheral nerve block with low dose local anesthetics on analgesia and functional outcomes following total knee arthroplasty: a retrospective study. Pain Med 2014.
- Lenart MJ et al. The impact of peripheral nerve techniques on hospital stay following major orthopedic surgery. Pain Med 2012;13:828-34.

Reduced hospital readmission

- Lovald S. et al. A comparison of complications associated with catheter and injection femoral nerve blocks in knee arthroplasty

Reduction in post-operative nausea and vomiting

- Chan EY et al. Femoral nerve blocks for acute postoperative pain after knee replacement surgery. Cochrane database syst rev 2014

Faster movement to phase 2 recovery and/or post anesthesia care unit bypass

- Williams BA et al. Economics of nerve block pain management after anterior cruciate ligament reconstruction: potential hospital cost savings via associated post anesthesia care unit bypass and same-day discharge. Anesthesiology 2004;100:697-706

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Earlier participation in physical therapy

- Liu Q et al. Impact of peripheral nerve block with low dose local anesthetics on analgesia and functional outcomes following total knee arthroplasty: a retrospective study. Pain Med 2014

Improved patient satisfaction

- Chan EY et al. Femoral nerve blocks for acute postoperative pain after knee replacement surgery. Cochrane database syst rev 2014

Why cPNB over single injection PNB?

Nationally recommended when need for analgesia is likely to exceed duration of single injection

- Chou R et al. Guidelines on the management of postoperative pain: management of postoperative pain: a clinical guideline from the American pain society, the American society of regional anesthesia and pain medicine, the American society of anesthesiologist committee on regional anesthesia, executive committee and administrative council. Journal of Pain 2016;17(2):131-157.

Less pain with reduced opioid consumption

- Malik T et al. Postoperative analgesia in a prolonged continuous interscalene block versus single-shot block in outpatient arthroscopic rotator cuff repair: a prospective randomized study. Arthroscopy 2016;32(8):1544-1550.
- Salviz EA et al. Continuous interscalene block in patient having outpatient rotator cuff repair surgery: a prospective randomized trial. Anesth Analg 2013;117:1485-92.
- Bingham AE et al. Continuous peripheral nerve block compared with single-injection peripheral nerve block: a systematic review and meta-analysis of randomized controlled trials. Reg Anesth Pain Med 2012;37:583-94.
- Elliot R et al. Continuous infusion versus single bolus popliteal block following major ankle and hindfoot surgery: a prospective randomized trial. Foot & Ankle International 2010;31(12):1043-7.

Patients are ready for discharge faster

- Ilfeld BM et al. A multicenter, randomized, triple-masked, placebo-controlled trial of the effect of ambulatory continuous femoral nerve blocks on discharge-readiness following total knee arthroplasty in patients on general orthopedic wards. Pain 2010;150:477-84
- Ilfeld BM et al. Ambulatory continuous posterior lumbar plexus nerve blocks after hip arthroplasty: a dual-center, randomized, triple masked, placebo-controlled trail. Anesthesiology 2008;109:491-501.
- Ilfeld BM, Le LT, Meyer RS, Mariano ER, Vandenborne K, Duncan PW, Sessler DI, Enneking FK, Shuster JJ, Theriaque DW, Berry LF, Spadoni EH, Gearen PF. Ambulatory continuous femoral nerve blocks decrease time to discharge readiness after tricompartiment total knee arthroplasty: a randomized, triple-masked, placebo-controlled study. Anesthesiology 2008; 108: 703–13.
- Ilfeld BM et al. Ambulatory continuous interscalene nerve blocks decrease the time to discharge readiness after total shoulder arthroplasty: a randomized, triple masked, placebo controlled study. Anesthesiology 2006; 105:999-1007.

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Additional Ambulatory/Outpatient Studies and Reviews

- Jones M.R., Petro J.A., Novitch M.B., Faruki A.A., Bice J.B., Viswanath O., Rana P.H., Kaye A.D. Regional Catheters for Outpatient Surgery—a Comprehensive Review. *Current Pain and Headache Reports* (2019) 23:4 Article Number: 24. Date of Publication: 1 Apr 2019.
- Ilfeld BM and Machi A. Continuous peripheral nerve blocks in the ambulatory setting. *Curr Opin Anesthesiol* 2015, 28:648–655.
- Swenson JD, Cheng GS, Axelrod DA, Davis JJ. Ambulatory Anesthesia and Regional Catheters: When and How. *Anesthesiology Clin* 28 (2010) 267–280.
- Ilfeld BM, Ball ST, Gearen PF, Le LT, Mariano ER, Vandenborne K, Duncan PW, Sessler DI, Enneking FK, Shuster JJ, Theriaque DW, Meyer RS. Ambulatory continuous posterior lumbar plexus nerve blocks after hip arthroplasty: a dual-center, randomized, triple-masked, placebo-controlled trial. *Anesthesiology* 2008; 109:491–501.
- Ilfeld BM et al. Total elbow arthroplasty as an outpatient procedure using a continuous infraclavicular nerve block at home: a prospective case report. *Reg Anesth Pain Med* 2006;31:172-76.
- Ilfeld, BM and Enneking FK. Continuous Peripheral Nerve Blocks at Home: A Review. *Anesthesia & Analgesia*. 100(6):1822-1833, JUN 2005.
- Ilfeld BM et al. Total shoulder arthroplasty as an outpatient procedure using ambulatory perineural local anesthetic infusion: a pilot feasibility study. *Anesth Analg* 2005;101:1319-22.
- Ilfeld BM et al. Continuous interscalene brachial plexus block for postoperative pain control at home: a randomized, double-blinded, placebo-controlled study. *A&A* 2003; 96: 1089.
- Ilfeld BM, Morey TE, Wang RD, Enneking FK. Continuous popliteal sciatic nerve block for postoperative pain control at home: a randomized, double-blinded, placebo-controlled study. *Anesthesiology*. 2002 Oct; 97(4):959-65.

Other Reviews/Guidelines

- Ilfeld BM. Continuous Peripheral Nerve Blocks: An Update of the Published Evidence and Comparison With Novel, Alternative Analgesic Modalities. *Anesthesia & Analgesia*. 124(1):308–335, JAN 2017.
- Chou R et al. Guidelines on the management of postoperative pain: management of postoperative pain: a clinical guideline from the American pain society, the American society of regional anesthesia and pain medicine, the American society of anesthesiologist committee on regional anesthesia, executive committee and administrative council. *Journal of Pain* 2016;17(2):131-157.
- Ilfeld B. Continuous Peripheral Nerve Blocks: A Review of the Published Evidence. *Anesthesia & Analgesia*. 113(4):904–925, OCT 2011.
- Aguirre J, Del Moral A, Cobo I, Borgeat A, Blumenthal S. The Role of Continuous Peripheral Nerve Blocks. *Anesthesiology Research and Practice*. 2012; Apr: 1-20.
- Chelly JE, Ghisi D, Fanelli A. Continuous peripheral nerve blocks in acute pain management. *Br J Anaesth*. 2010; 105(s1):i86–i96.