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VALÈNCIA



ANESTESIA LOCORREGIONAL EN CIRUGÍA MAYOR AMBULATORIA

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Valencia 23 de Septiembre de 2014**



INTRODUCTION: AMBULATORY ANESTHESIA
REGIONAL ANESTHESIA FOR AMBULATORY SURGERY



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AMBULATORY SURGERY

An ambulatory procedure is a nonemergency procedure, performed on carefully selected patients, which is undertaken with all its constituent elements (admission, operation, and discharge home) **on the same day**

In the present **economic climate** of mounting medical costs, there is also a move toward office-based surgery, which encompasses procedures that do not require the sophisticated facilities of a hospital operating room



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It is widely believed that the driving force behind the expansion in ambulatory surgery is economical; the **benefits to patients** and their families are often underemphasized.

Ambulatory surgery **allows earlier return** to pre-morbid physiological state, fewer complications, reduced mental and physical disability, and early resumption of normal activities.

Hospital costs are lower because ambulatory surgery **is more efficient than inpatient care.**



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IARS

Official Journal of the International Anesthesia Research Society

Rapid Recovery from Ambulatory Surgery: The New Paradigm in Ambulatory Anesthesia

IARS 2013 REVIEW COURSE LECTURES



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PREOPERATIVE ASSESSMENT AND OPTIMIZATION



Preoperative assessment and optimization of comorbid conditions is associated with improved perioperative outcome. Also, this **avoids delays and cancellations on the day of surgery**. Similarly, appropriate patient selection is critical for **reducing perioperative complications** and improving outcome.



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Preanesthesia evaluation for ambulatory surgery: do we make a difference?

Volume 26 • Number 6 • December 2013

KEY POINTS

- Although outpatient surgeries are considered low risk, identification of appropriate candidates for ambulatory surgery requires the assessment of comorbidities and evaluation of patients' physical status.
- Preoperative assessments serve to screen, evaluate, test if indicated, and medically optimize patients preoperatively with the goal to reduce morbidity and improve outcomes.
- The preanesthesia visit is useful for patient-directed, targeted interventions rather than protocolized routine preoperative preparations.



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ANESTHETIC TECHNIQUES FOR RAPID RECOVERY

An IDEAL ANESTHETIC TECHNIQUE should provide



smooth and rapid onset
optimal operating conditions
rapid recovery
minimal side effects

The choice of anesthetic technique is an important **determinant of recovery** after ambulatory surgery.



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Anesth Analg 2005;101:1634–42

A Comparison of Regional Versus General Anesthesia for Ambulatory Anesthesia: A Meta-Analysis of Randomized Controlled Trials

In conclusion, this meta-analysis associated several potential advantages for RA versus GA for ambulatory anesthesia. Curiously, none of the benefits were associated with decreased ASU time and use of CNB is associated with a 35-minute delay until patient discharge from the ASU. As all included RCTs were relatively small (26 to 162 subjects), we hope this investigation stimulates further large RCTs examining RA blocks that incorporate optimal fast-tracking pathways, multimodal analgesia, efficient patient discharge criteria, and postoperative follow-up.



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Regional anaesthesia in day-stay and short-stay surgery

The number of ambulatory surgery cases is growing rapidly worldwide. The goals for ambulatory anaesthesia are rapid recovery with minimal side effects, adequate postoperative pain control, rapid patient discharge and overall cost containment. The addition of regional anaesthetic techniques has been shown to decrease nausea, decrease postoperative pain scores and decrease the need for PACU monitoring. The use of regional anaesthesia is increasing as studies confirm the goals for ambulatory anaesthesia can be met with a combination of regional anaesthesia and a multimodal pain management regimen. The use of peripheral nerve blocks has been shown to increase the anaesthetic induction time by a small amount [4], although this may be minimised by the



PREVENTION OF POSTOPERATIVE COMPLICATIONS

One of the major goals of an ideal anesthetic technique is prevention of postoperative complications particularly **pain, nausea, and vomiting**. The other postoperative complications that **can impede recovery** include cardiovascular alteration (i.e., hypotension, hypertension, and rhythm disturbances), respiratory complications (i.e., airway aspiration), temperature abnormalities, and surgical complications. obstruction, hypoventilation, brochospasm, and pulmonary aspiration), temperature abnormalities, and surgical complications.



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The role of multimodal analgesia in pain management after ambulatory surgery

Ofelia L. Elvir-Lazo^a and Paul F. White^{b,c}

Current Opinion in Anesthesiology 2010,
23:697–703

The use of multimodal analgesia technique offers multiple benefits for the patient and the healthcare system in line with the goals of modern ambulatory (day-case) surgery [86]. The current armamentarium of analgesic medications and techniques include a wide spectrum of pharmaceutical products and nonpharmacologic products with the aim to reduce postoperative pain, opioid use, and related adverse effects (such as nausea and vomiting, constipation, urinary retention), duration of the hospital stay, and perioperative care costs, while still providing for a high-quality recovery for the patient undergoing day-case surgery. Although 10 years may not have been long enough to decipher the enigmas associated with postoperative pain management, we are clearly making progress and hopefully 'pain-free' recovery after all ambulatory surgery procedures will be possible with effective multimodal analgesic regimens before the end of the current decade.



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**ANESTHESIA &
ANALGESIA**

**Society for Ambulatory Anesthesia Guidelines for the
Management of Postoperative Nausea and Vomiting**

(Anesth Analg 2007;105:1615-28)

Anesthesiology
2000; 92:958-67
© 2000 American Society of Anesthesiologists, Inc.
Lippincott Williams & Wilkins, Inc.

ANESTHESIOLOGY
The Journal of the American Society of Anesthesiologists, Inc.

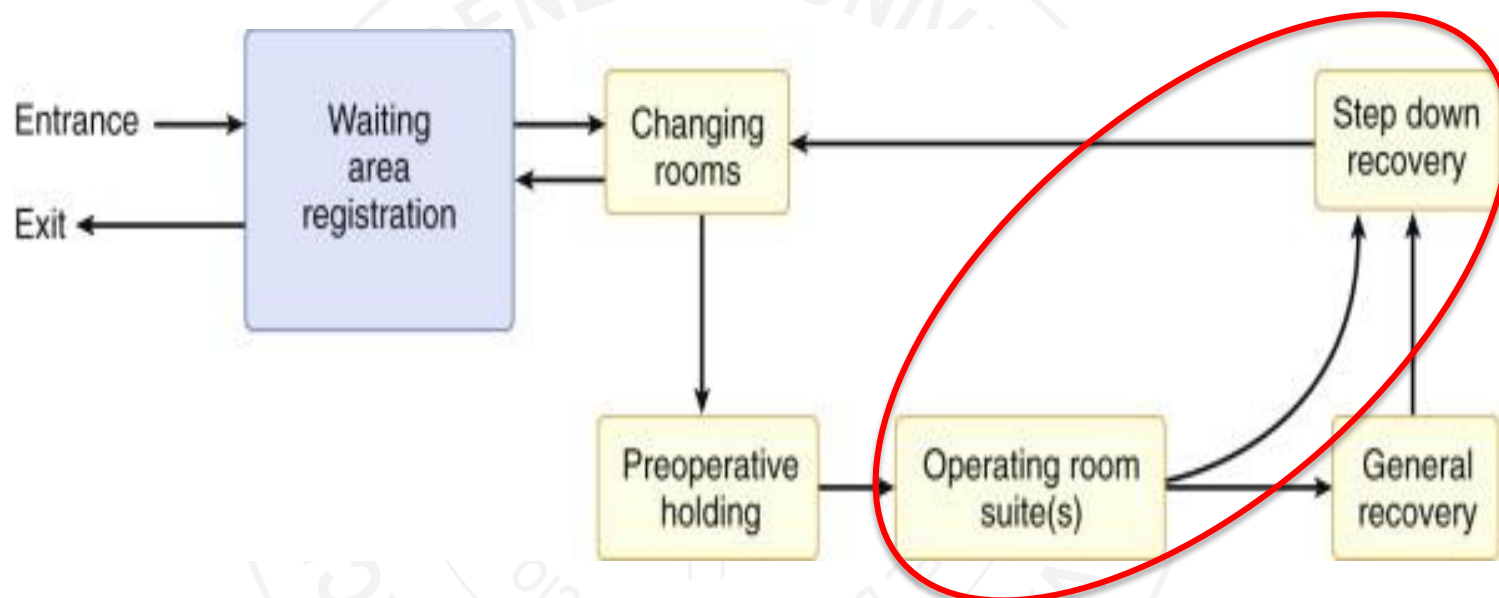
***Cost-effectiveness of Prophylactic Antiemetic Therapy
with Ondansetron, Droperidol, or Placebo***



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POSTOPERATIVE COURSE AFTER AMBULATORY SURGERY

FAST-TRACK



Postoperative recovery and discharge

Anesthesiology Clin N Am

21 (2003) 367–386



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FAST-TRACK

The modified Aldrete scoring system for determining when patients are ready for discharge from the postanesthesia care unit

Discharge criteria	Score
Activity: Able to move voluntarily or on command	
Four extremities	2
Two extremities	1
Zero extremities	0
Respiration	
Able to deep breathe and cough freely	2
Dyspnea, shallow or limited breathing	1
Apneic	0
Circulation	
Blood pressure +/- 20 mm of preanaesthetic level	2
Blood pressure +/- 20-50 mm preanaesthesia level	1
Blood pressure +/- 50 mm of preanaesthesia level	0
Consciousness	
Fully awake	2
Arousable on calling	1
Not responding	0
O ₂ saturation	
Able to maintain O ₂ saturation >92% on room air	2
Needs O ₂ inhalation to maintain O ₂ saturation >90%	1
O ₂ saturation <90% even with O ₂ supplementation	0

A score ≥ 9 was required for discharge.

From Aldrete JA. The post anaesthesia recovery score revisited [letter]. J Clin Anesth 1995;7:89-91; with permission.

Proposed fast-track criteria to determine whether outpatients can be transferred directly from the operating room to the step-down (phase II) unit

Discharge criteria	Score
Level of consciousness	
Awake and oriented	2
Arousable with minimal stimulation	1
Responsive only to tactile stimulation	0
Physical activity	
Able to move all extremities on command	2
Some weakness in movement of extremities	1
Unable to voluntarily move extremities	0
Hemodynamic stability	
Blood pressure <15% of baseline MAP value	2
Blood pressure 15-30% of baseline MAP value	1
Blood pressure >30% below baseline MAP value	0
Respiratory stability	
Able to breathe deeply	2
Tachypnea with good cough	1
Dyspneic with weak cough	0
Oxygen saturation status	
Maintains value >90% on room air	2
Requires supplemental oxygen (nasal prongs)	1
Saturation <90% with supplemental oxygen	0
Postoperative pain assessment	
None, or mild discomfort	2
Moderate to severe pain controlled with IV analgesics	1
Persistent severe pain	0
Postoperative emetic symptoms	
None, or mild nausea with no active vomiting	2
Transient vomiting or retching	1
Persistent moderate-to-severe nausea and vomiting	0
Total possible score	14

A minimal score of 12 (with no score <1 in any individual category) would be required for a patient to be fast tracked (ie, bypass the postanesthesia care unit) after general anesthesia.

Abbreviation: MAP, mean arterial pressure.

From White P, Song D. New criteria for fast-tracking after outpatient anesthesia: a comparison with the modified Aldrete's scoring system. Anest Analg 1999;88:1069-72; with permission.



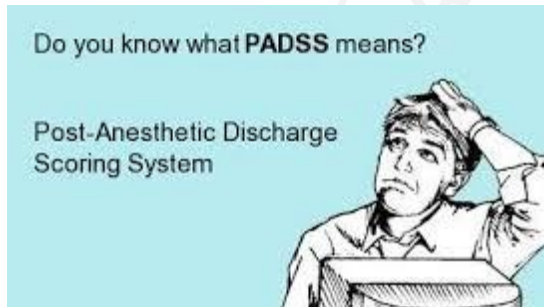
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Postanesthesia discharge scoring system (PADSS) for determining home readiness

Discharge criteria	Score
Vital signs	
Vital signs must be stable and consistent with age and preoperative baseline	
Blood pressure and pulse within 20% of preoperative baseline	2
Blood pressure and pulse 20–40% of preoperative baseline	1
Blood pressure and pulse >40% of preoperative baseline	0
Activity level	
Patient must be able to ambulate at preop level	
Steady gait, no dizziness, or mects preop level	2
Requires assistance	1
Unable to ambulate	0
Nausea and vomiting	
Patient should have minimal nausea and vomiting before discharge	
Minimal: successfully treated with or medication	2
Moderate: successfully treated with intramuscular medication	1
Severe: continues after repeated treatment	0
Pain	
Patient should have minimal or no pain before discharge	
The level of pain that the patient has should be acceptable to the patient	
Pain should be controllable by oral analgesics	
The location, type, and intensity of pain should be consistent with anticipated postop discomfort	
Pain acceptable	2
Pain not acceptable	1
Surgical bleeding	
Postop bleeding should be consistent with expected blood loss for the procedure	
Minimal: does not require dressing change	2
Moderate: up to two dressing changes required	1
Severe: more than three dressing changes required	0

Maximum score = 10; patients scoring ≥ 9 are fit for discharge.

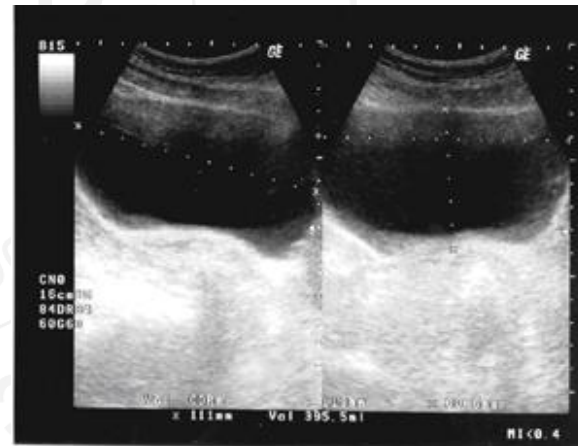
From Marshall S, Chung F. Assessment of “home readiness”: discharge criteria and postdischarge complications. *Curr Opin Anaesthesiol* 1997;10:445–50; with permission.



Ambulatory Surgery Patients May Be Discharged before Voiding after Short-acting Spinal and Epidural Anesthesia

spinal or epidural anesthetic. Anesthetic techniques were limited to spinal anesthesia with procaine, lidocaine, or 6 mg or less of bupivacaine; or epidural anesthesia with 2-chloroprocaine or lidocaine. The specific techniques were at the discretion of the anesthesia care team, who were not aware of the evaluation group, and there was no attempt (except with bupivacaine) to control the dose or frequency of reinjection of epidural catheters. The only restriction was that epinephrine was not used in any anesthetic mixture,^{13,14} and patients taking anticholinergic medications were excluded. Patients were evaluated by one of the investigators before surgery, and those undergoing procedures associated with a high risk of urinary retention (hernia repair, rectal, or urologic surgery), older than 70 years of age, or with previous voiding difficulty were excluded from participation.

Conclusions: Delay of discharge after outpatient spinal or epidural anesthesia with short-duration drugs for low-risk procedures is not necessary, and may result in prolonged discharge times.



Practice Guidelines for Postanesthetic Care

A Report by the American Society of Anesthesiologists Task Force on Postanesthetic Care

Table 3. Summary of Recommendations for Discharge

Requiring that patients urinate before discharge

The requirement for urination before discharge should not be part of a routine discharge protocol and may only be necessary for selected patients.

Requiring that patients drink clear fluids without vomiting before discharge

The demonstrated ability to drink and retain clear fluids should not be part of a routine discharge protocol but may be appropriate for selected patients.

Requiring that patients have a responsible individual accompany them home

As part of a discharge protocol, patients should routinely be required to have a responsible individual accompany them home.

Requiring a minimum mandatory stay in recovery

A mandatory minimum stay should not be required.

Patients should be observed until they are no longer at increased risk for cardiorespiratory depression.

Discharge criteria should be designed to minimize the risk of central nervous system or cardiorespiratory depression after discharge.



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Ambulatory Discharge After Long-Acting Peripheral Nerve Blockade: 2382 Blocks with Ropivacaine

Klein, Stephen M. MD; Nielsen, Karen C. MD; Greengrass, Roy A. MD, FRCP; Warner, David S. MD; Martin, Alike RN; Steele, Susan M. MD

Anesthesia & Analgesia

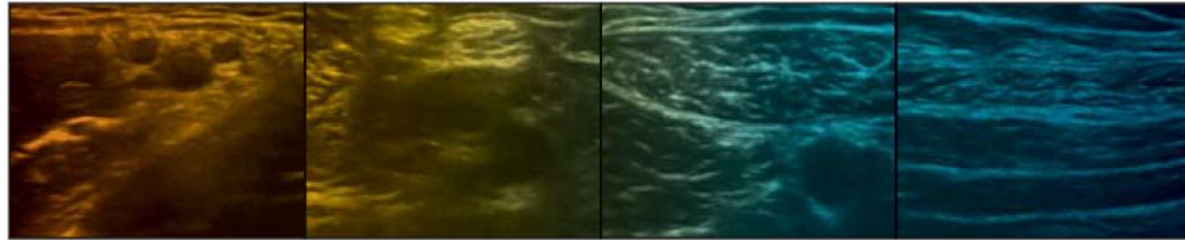
Número: Volume 94(1), January 2002, pp 65-70



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Regional Anesthesia For Ambulatory Surgery:

The Ideal Technique for a Growing Practice



INDEPENDENTLY DEVELOPED BY MCMAHON PUBLISHING

ANESTHESIOLOGY NEWS • APRIL 2013



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NEUROAXIAL



August Karl Gustav Bier
(1861 -1949) surgeon and the
pioneer of spinal anesthesia.

Optimizing Spinal Anesthesia for Ambulatory Surgery

Regional Anesthesia 22(6):500–510, 1997



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Is Spinal Anaesthesia Useful in Day Surgery?

Dinesh Malhotra, Satva Dev Gupta

Vol. 10 No. 2, April-June 2008

The Influence of Spinal Flexion in the Lateral Decubitus Position on the Unilaterality of Spinal Anesthesia

October 2013 • Volume 117 • Number 4 ANESTHESIA & ANALGESIA



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Revival of old local anesthetics for spinal anesthesia in ambulatory surgery

Current Opinion in Anesthesiology 2011,
24:633–637



Transient Neurologic Toxicity After Hyperbaric Subarachnoid Anesthesia with 5% Lidocaine

Anesth Analg 1993;76:1154–7



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ANESTHESIA & ANALGESIA

Intrathecal 2-Chloroprocaine for Lower Limb Outpatient Surgery: A Prospective, Randomized, Double-Blind, Clinical Evaluation

[46–141] min and 180 [72–281] min and Chlor-50 (97 [60–169] min and 185 [90–355] min) ($P = 0.001$ and $P = 0.003$, respectively), with no differences in home discharge time (182 [120–267] min in group Chlor-30, 198 [123–271] min in group Chlor-40, and 203 [102–394] min in group Chlor-50; $P = 0.155$). No transient neurologic symptoms were reported at 24-h and 7-day follow-up. We conclude that although 40 and 50 mg of 2-chloroprocaine provide adequate spinal anesthesia for outpatient procedures lasting 45–60 min, 30 mg produces a spinal block of insufficient duration.

(Anesth Analg 2006;103:234–8)

Takipril®
Prilocaina hiperbárica

Características del bloqueo intradural	Bupivacaína, 0.5%	Prilocaina, 2%
Bloqueo sensitivo máximo	16 (12-110)	18 (14-112)
Tiempo de inicio del bloqueo sensitivo máx. (min)	15 (11)	15 (15)
Bloqueo sensitivo T12, n%	39 (98)	38 (95)
Tiempo de inicio del bloqueo sensitivo T12, n=77 (min)	5 (3)	4 (8)
Regresión del bloqueo sensitivo L1, n=79 (min)	150 (60)	90 (45)*
Regresión del bloqueo sensitivo S1 (min)	360 (60)	240 (90)*
Bloqueo motor máximo: Bromaje 0-1-2-3 (n)	0-2-4-34	1-2-6-31
Tiempo de inicio del bloqueo motor máximo (min)	10 (10)	10 (10)
Regresión del bloqueo motor (Bromaje 0) (min)	210 (60)	135 (90)*
Tiempo hasta la primera micción (min)	405 (125)	306 (56)*
Idoneidad para el alta de la sala de reanimación (min)	150 (60)	91 (30)*
Idoneidad para el alta hospitalaria (min)	407 (132)	308 (52)*
Mediana (distancia cuartil) de los valores o n (%) *p<0.05		

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Short-acting spinal anesthesia in the ambulatory setting

Purpose of review

There has been a renewed interest in the short-acting local anesthetics articaine, chlorprocaine, and prilocaine for ambulatory spinal anesthesia because of numerous potentially beneficial factors both clinically and economically speaking. This review covers the current advances of the past 1 to 2 years.

Recent findings

Literature search revealed a pleasing quantity of relevant articles. In various randomized, controlled trials (many different designs), chlorprocaine, articaine, and prilocaine performed mainly well as regards fast onset, satisfying block, and quick recovery. With these anesthetics transient neurologic symptoms were very rarely seen. Regarding urinary retention useful guidelines for bladder volume management were presented. In addition, various interesting features relating to unilateral spinal anesthesia and economical aspects were investigated.

Summary

Intrathecal articaine (off-label use for the time being), chlorprocaine, and prilocaine (the latter two officially approved in several European countries) remain a very appealing option in the ambulatory setting. Chlorprocaine may have a slight edge as regards ultra-short and short surgery, whereas articaine and prilocaine may suit well for somewhat longer procedures. Future follow-up investigations should establish possible differences between these local anesthetics, also with respect to other anesthetic techniques and to economical aspects.



PERIPHERAL NERVE



Peripheral nerve blocks for outpatient surgery: evidence-based indications

Volume 26 • Number 4 • August 2013



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UPPER LIMB

■ PAIN AND REGIONAL ANESTHESIA

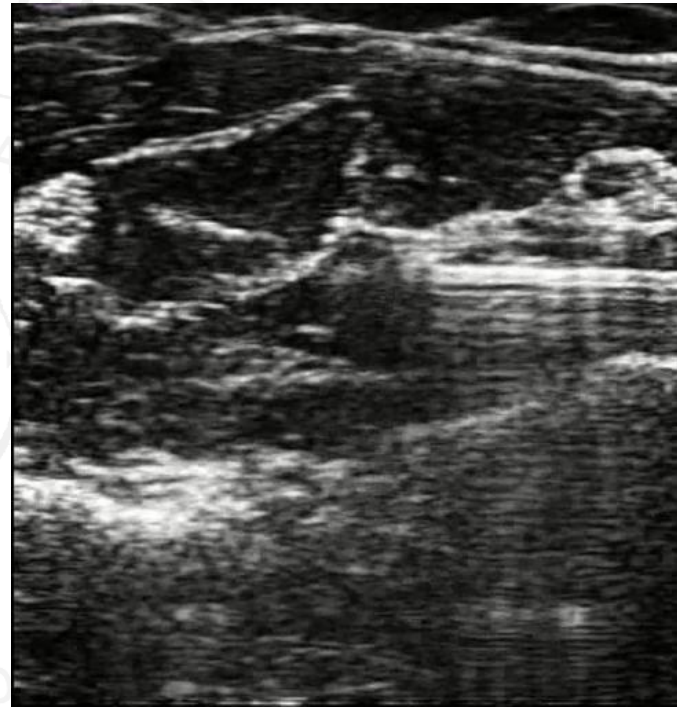
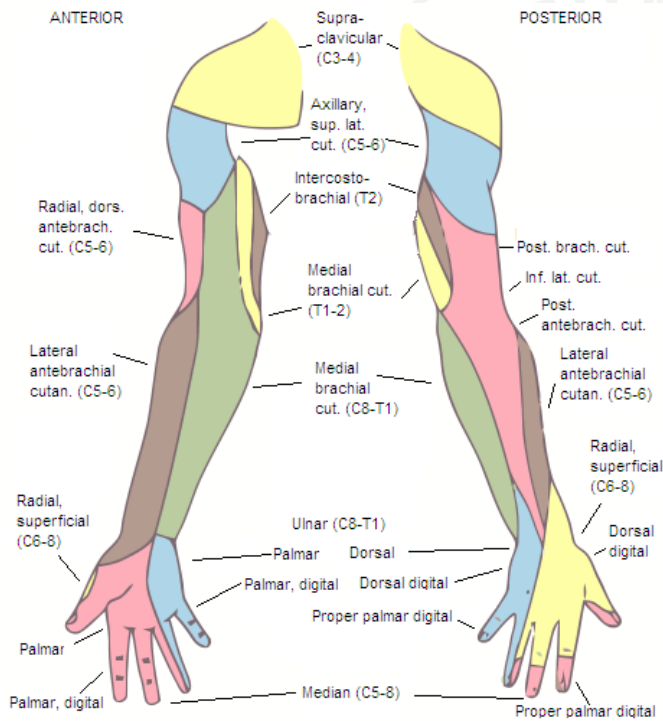
Anesthesiology 2005; 102:1001-7

© 2005 American Society of Anesthesiologists, Inc. Lippincott Williams & Wilkins, Inc.

For Outpatient Rotator Cuff Surgery, Nerve Block Anesthesia Provides Superior Same-day Recovery over General Anesthesia



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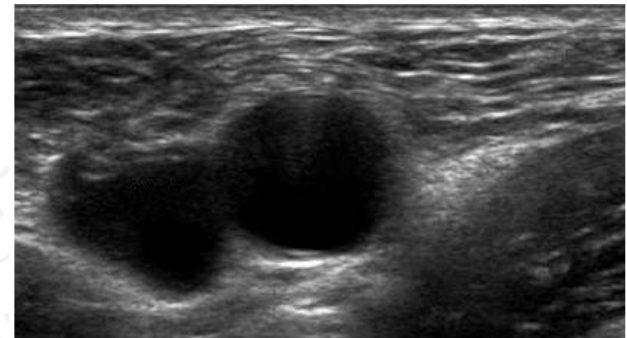
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LOWER LIMB

*regional anesthesia
& pain medicine*

Femoral Block Provides Superior Analgesia Compared With Intra-Articular Ropivacaine After Anterior Cruciate Ligament Reconstruction

Regional Anesthesia and Pain Medicine, Vol 28, No 1 (January–February), 2003: pp 29–32

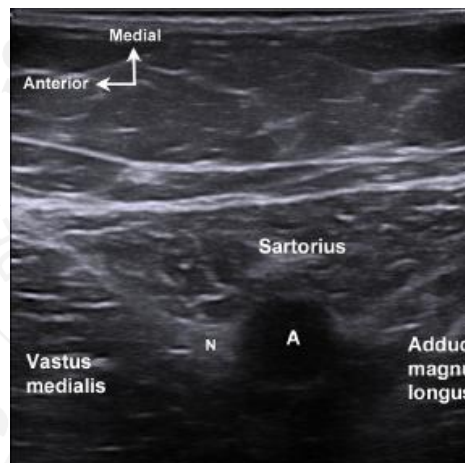


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Knee Surgery, Sports Traumatology, Arthroscopy
September 2008, Volume 16, Issue 9, pp 855-858

Date: 24 Jun 2008

Saphenous nerve block is an effective regional technique for post-menisectomy pain



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Adductor Canal Block Versus Femoral Nerve Block for Analgesia After Total Knee Arthroplasty

A Randomized, Double-blind Study

Regional Anesthesia and Pain Medicine • Volume 38, Number 6, November-December 2013

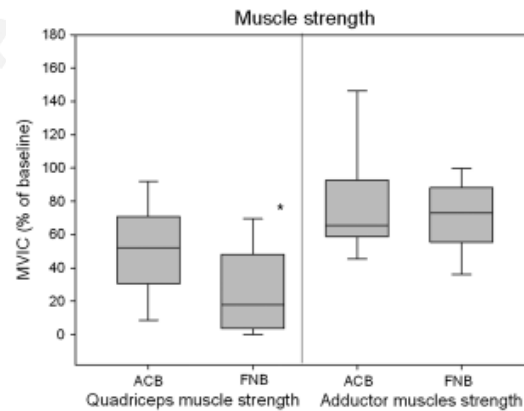


FIGURE 3. Effects of ACB and FNB on quadriceps and adductor muscle strength. Muscle strength was assessed as MVIC at 24 hours postoperatively and presented in percentile change from baseline. Quadriceps MVIC was significantly reduced when comparing ACB with FNB ($P = 0.004$), but there was no difference between the groups in adductor muscle strength ($P = 0.39$). Data are expressed as median (horizontal bar) with 25th to 75th (box) and 10th to 90th (error bars) percentiles. *Indicates statistically significant difference.

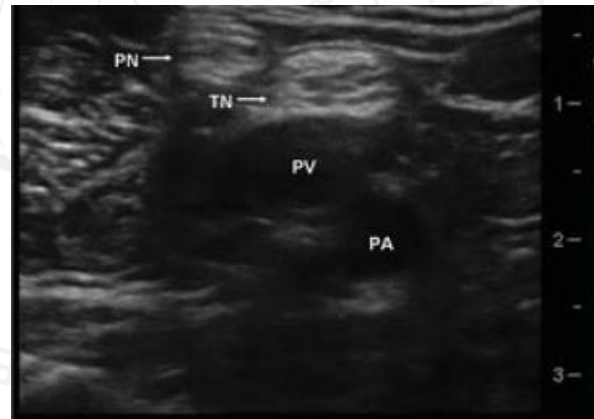


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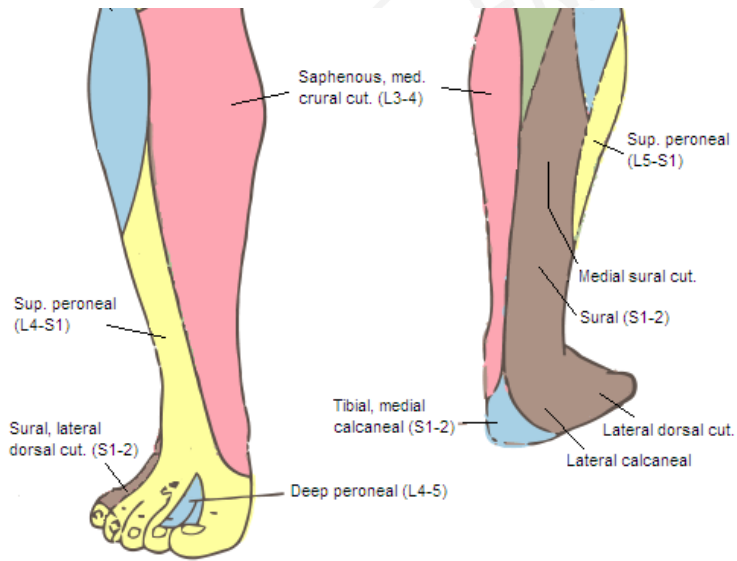
AMBULATORY ANESTHESIA
SECTION EDITOR
PAUL F. WHITE

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;97:1303-9)

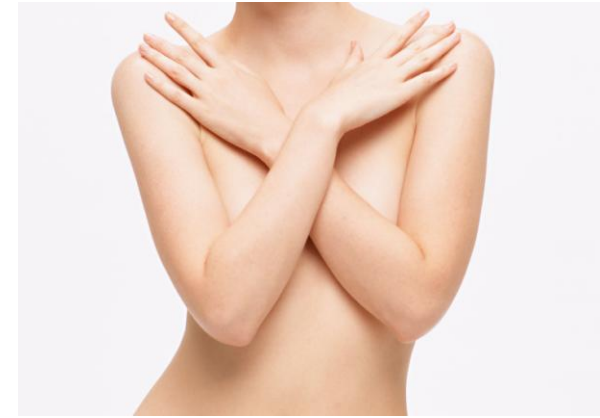


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THORACIC



Ambulatory Anesthesiology

ANESTHESIA & ANALGESIA

Paravertebral Blockade for Day-Case Breast Augmentation: A Randomized Clinical Trial

November 2012 • Volume 115 • Number 5

Single-Injection Paravertebral Block Before General Anesthesia Enhances Analgesia After Breast Cancer Surgery With and Without Associated Lymph Node Biopsy

(Anesth Analg 2004;99:1837-43)



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PAIN MEDICINE

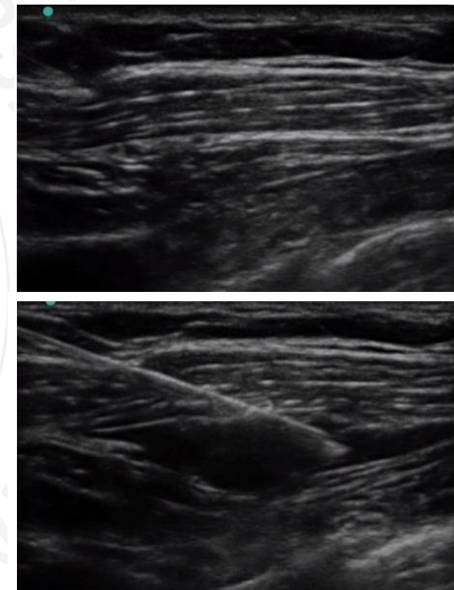
Ultrasound-guided Multilevel Paravertebral Blocks and Total Intravenous Anesthesia Improve the Quality of Recovery after Ambulatory Breast Tumor Resection

(ANESTHESIOLOGY 2014; 120:703-13)



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Eficacia analgésica del bloqueo de los nervios pectorales en cirugía de mama



ABDOMINAL

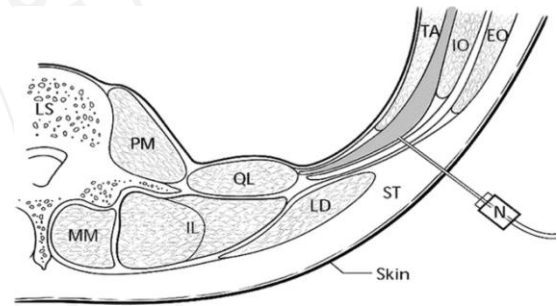
Paravertebral Blocks Provide Superior Same-Day Recovery over General Anesthesia for Patients Undergoing Inguinal Hernia Repair

(Anesth Analg 2006;102:1076–81)

The Analgesic Efficacy of Transversus Abdominis Plane Block After Abdominal Surgery: A Prospective Randomized Controlled Trial

CONCLUSIONS: The TAP block provided highly effective postoperative analgesia in the first 24 postoperative hours after major abdominal surgery.

(Anesth Analg 2007;104:193-7)



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OPHTHALMIC

Regional Anesthesia and Eye Surgery

Anesthesiology, V 113 • No 5 • November 2010

Three eye block techniques, PBA, STA, and TA, are widely used. The main disadvantages of PBA are needle-related complications and a lack of reproducibility with a high rate of reinjection. The cannula technique, which gains access to the sub-Tenon space, avoids needle block but does not totally prevent complications. Research is needed to assess the potential benefits of ultrasound guidance for injection techniques to prevent these complications. Using TA, needle-related complications are avoided but at the expense of imperfect surgical conditions. Specific local anesthetic jelly mixtures for topical anesthesia should be developed to ameliorate TA analgesia.



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CONTINUOUS PERIPHERAL NERVE BLOCK

American Society of Regional Anesthesia and
Pain Medicine 2010 Gaston Labat Lecture

*Perineural Catheter Analgesia as a Routine Method After
Ambulatory Surgery—Effective But Unrealistic*

Regional Anesthesia and Pain Medicine • Volume 37, Number 1, January-February 2012



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BJA

Effects of dexamethasone as a local anaesthetic adjuvant for brachial plexus block: a systematic review and meta-analysis of randomized trials

January 10, 2014

Dexamethasone Added to Mepivacaine Prolongs the Duration of Analgesia After Supraclavicular Brachial Plexus Blockade

(*Reg Anesth Pain Med* 2010;35: 422–426)



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CONTRIBUTION OF ULTRASOUND

Bloqueos periféricos en cirugía ambulatoria; aportaciones de la ecografía

Peripheral blocks in one-day surgery; contribution of ultrasound

Rev Esp Anesthesiol Reanim. 2013;60(4):187-189



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TO CONCLUDE...



- ✓ Ambulatory surgery have increased in recent years, reaching in many hospitals 60-70% of elective surgery.
- ✓ The ongoing development of minimally invasive surgery and improved anesthetic techniques and the appropriate patient selection is critical.
- ✓ Regional anesthesia is uniquely suited to meet the demands of ambulatory patients and really optimize pain relief.



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